Transplantation Science Symposium Asian Regional Meeting 2022

November 25 - 26, 2022

Kyoto, Japan

President: Ryoichi Imamura, M.D., Ph.D.

Department of Urology, Osaka University Graduate School of Medicine, Japan

Kyoto Sangyo Kaikan Hall

Cutting-Edge Transplant Research

—Bench to Bedside—

Program & Abstract Book

AstraZeneca

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薬価基準収載

劇薬　処方箋医薬品（注意-医師等の処方箋により使用すること）

効能又は効果、用法及び用量、警告、禁忌を含む使用上の注意等については添付文書をご参照ください。

製造販売元［文献請求先］
アストラゼネカ株式会社
大阪市北区大深町3番1号
TEL 0120-189-115
（問い合わせ先フリーダイヤル　メディカルインフォメーションセンター）

2021年9月作成

TSS2022

Transplantation Science Symposium Asian Regional Meeting 2022

Date

November 25 - 26, 2022

President

Ryoichi Imamura, M.D., Ph.D.
Department of Urology,
Osaka University Graduate School of Medicine

Secretary General

Shiro Takahara, M.D., Ph.D.
Kansai Medical Hospital for Renal Transplantation

Venue

Kyoto Sangyo Kaikan Hall (Kyoto City)

Web site

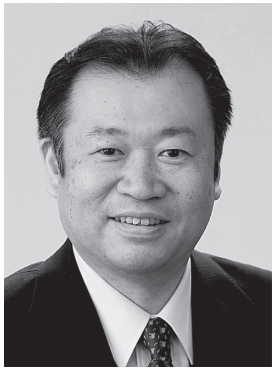
https://www.congre.co.jp/tss2022/

Co-sponsor

Osaka Kidney Foundation

Congress Secretariat for
Transplantation Science Symposium Asian Regional Meeting 2022
c/o Congrès Inc.
3-6-13 Awajimachi, Chuo-ku, Osaka 541-0047 Japan
Email: tss2022@congre.co.jp

GREETINGS



Dear Colleagues,

It is my great pleasure to invite you to Transplantation Science Symposium (TSS) Asian Regional Meeting 2022, which is going to be held during November 25-26, 2022. TSS Asian Regional Meeting is an international symposium officially recognized as a subcommittee by the Transplantation Society (TTS) and is held every two years. The previous TSS symposium in Japan was held in Tokyo on April 8-9 2016, and this is the second time held in Japan.

TSS Asian Regional Meeting is focusing on the basic fields of transplantation, mainly in East Asian countries. The purpose of the symposium is the followings:

1) To increase the opportunities in the international conference to East Asian young transplant physicians and surgeons
2) To understand the results of the latest basic research and to transfer this knowledge to young transplant physicians and surgeons in Asia

It is important that all research is linked to clinical practice without ending with basic research, and we have named the main title of this meeting “Cutting-Edge Transplant Research -Bench to Bedside-”.

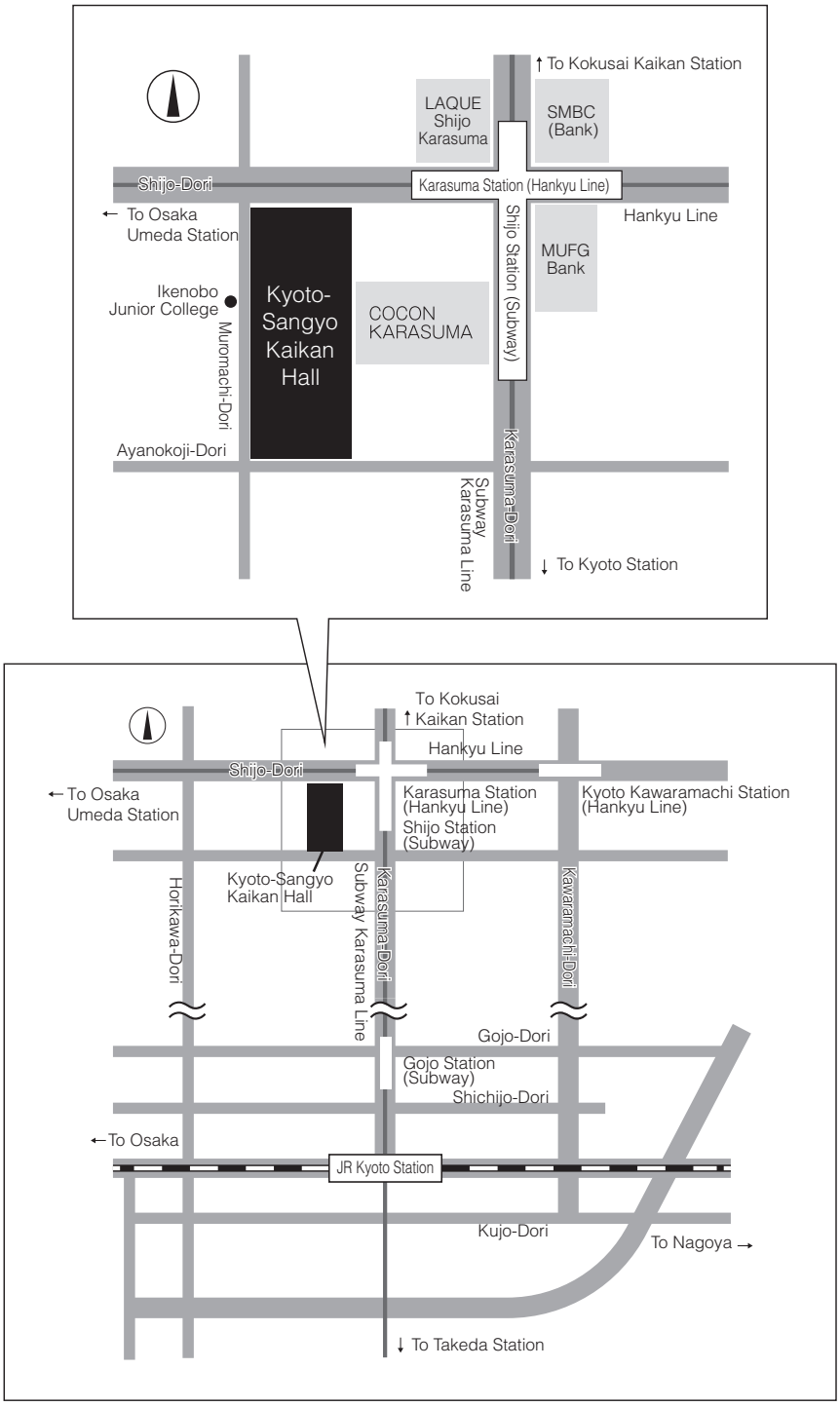
COVID-19 infections, which have become prevalent around the world in recent years, have also stagnated social activities and transplantation. In Japan, the number of transplant surgeries has decreased significantly, making it difficult to perform face-to-face not only international conferences such as TSS Asian Regional Meeting but also domestic academic medical conferences. However, the situation in the medical field is also changing every moment. Research must continue. This symposium will help participants accelerate our research.

The Organizing Committee will make you very comfortable with Japanese heart-warming hospitality and excellent arrangements for this conference. In November, the autumn leaves are very beautiful in Kyoto, and various wonderful scenes will surely impress you.

I really hope all of you to enjoy the face-to-face international conference to your heart's content.

Ryoichi Imamura, M.D., Ph.D.
Associate Professor, Department of Urology, Osaka University Graduate School of Medicine

ACCESS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Shijo-Dori
Karasuma Station (Hankyu Line)
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← To Osaka Umeda Station
Shijo Station (Subway)
MUFG Bank
Ikenobo Junior College
Kyoto-Sangyo Kaikan Hall
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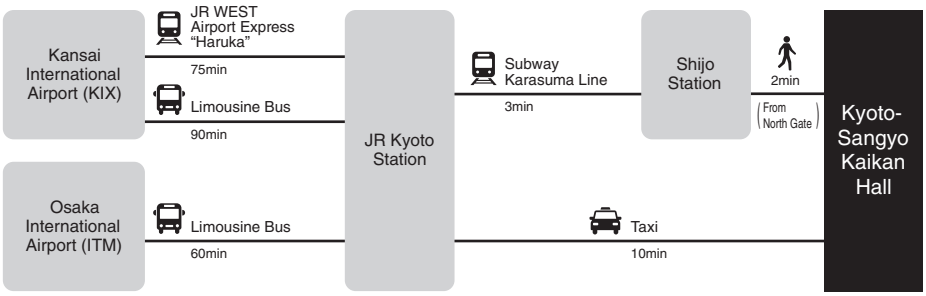
To Nagoya →
↓ To Takeda Station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JR Kyoto Station
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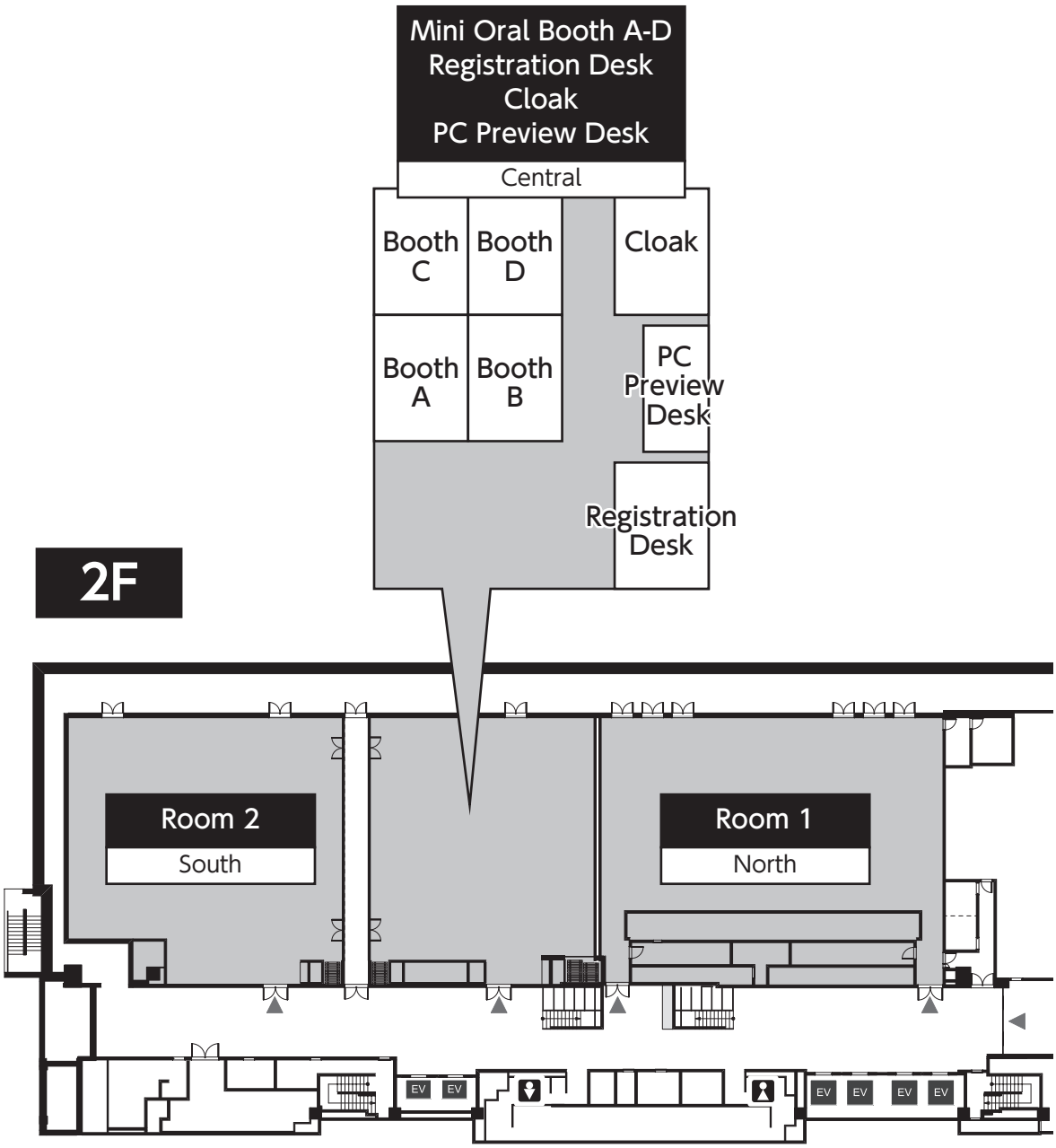
Shijo Station
2min
(From North Gate)
Taxi
10min
Kyoto-Sangyo Kaikan Hall

FLOOR MAP


Mini Oral Booth A-D
Registration Desk
Cloak
PC Preview Desk
Central
Booth C
Booth D
Cloak
Booth A
Booth B
PC Preview Desk
Registration Desk
2F
Room 2
South
Room 1
North
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PROGRAM OVERVIEW

November 25 (Fri), 2022

	Room 1	Room 2
	North	South
8:00		8:25-8:30 **Opening Remarks** President: Ryoichi Imamura
8:30	8:30-9:00 **Keynote Lecture 1** Dr. Hideki Ohdan	
9:00	9:00-10:30 **Plenary Session 1** Immunological High-Risk Kidney Transplantation (DSA, AMR, Epitope) Chairs: Hideki Ishida, Sangil Min	9:00-10:30 **Plenary Session 2** **Current Status of ABO-Incompatible Liver Transplantation** Chairs: Wei-Chen Lee, Hideki Ohdan
9:30		
10:00		
10:30		
	10:40-12:10 **Basic Science in Transplantation 1** Deliberate Induction of Immune Tolerance in Organ Transplantation: Clinical and Basic Research Progress Chairs: Jaeseok Yang, Susumu Eguchi	10:40-12:10 **Plenary Session 3** Lung Transplantation for Pulmonary Hypertension Chairs: Toyofumi F. Chen-Yoshikawa
11:00		
11:30		
12:00		
12:30	12:20-13:00 **Luncheon Seminar 1** (Co-Sponsored by Chugai Pharmaceutical Co., Ltd.)	12:20-13:00 **Luncheon Seminar 2** (Co-Sponsored by Immucor K. K.)
13:00	13:05-13:25 **Presidential Address** President: Ryoichi Imamura	
13:30	13:25-13:55 **Keynote Lecture 2** Dr. Robert Fairchild	
14:00	14:00-15:30 **Plenary Session 4** Current Status and Challenges for Clinical Application of Liver Regeneration Medicine Chairs: Eiji Kobayashi	
14:30		
15:00		
15:30		
	15:40-17:10 **Plenary Session 5** Basic and Clinical Research in Pancreas and Islet Transplantation Chairs: Yi-Ming Shyr, Yoshito Tomimaru	15:40-17:10 **Plenary Session 6** Virus Infection in Kidney Transplant Recipient (BK, CMV, EB, except COVID-19) Chairs: Shigeru Satoh, Norihiko Goto
16:00		
16:30		
17:00		
17:30	17:25-18:05 **Evening Seminar 1** (Co-Sponsored by Johnson & Johnson K. K.)	17:25-18:05 **Evening Seminar 2** (Co-Sponsored by Japan Blood Products Organization)
18:00		

Mini Oral

Central

Booth A	Booth B	Booth C	Booth D
9:00-9:35 **Mini Oral 1** **Lung 1** Chair:Yasushi Shintani	9:00-9:45 **Mini Oral 2** **Transplant Infectious Diseases 1** Chair: Masashi Inui	9:00-9:49 **Mini Oral 3** **Organ Donation** Chair: Kenji Yuzawa	
9:50-10:25 **Mini Oral 4** **Lung 2** Chair:Takashi Kanou	9:50-10:35 **Mini Oral 5** **Transplant Infectious Diseases 2** Chair: Michio Nojima	9:50-10:35 **Mini Oral 6** **Education, Other Topics 1** Chair:Kenji Yuzawa	
10:40-11:25 **Mini Oral 7** **Liver 1 (Pretransplant Management)** Chair: Nobuhisa Akamatsu	10:40-11:25 **Mini Oral 8** **Kidney 1 (Renal Function 1)** Chair: Jun-Ya Kaimori	10:40-11:25 **Mini Oral 9** **Kidney 2 (Surgical Technique 1)** Chair: Yoichi Kakuta	
11:30-12:15 **Mini Oral 10** **Liver 2 (Pediatric)** Chair: Yasuhiro Ogura	11:30-12:15 **Mini Oral 11** **Kidney 3 (Renal Function 2)** Chair: Jun-Ya Kaimori	11:30-12:15 **Mini Oral 12** **Kidney 4 (Surgical Technique 2)** Chair: Kazunari Yoshida	
14:00-14:45 **Mini Oral 13** **Kidney 5 (Renal Function 3)** Chair: Tadashi Sofue	14:00-14:45 **Mini Oral 14** **Kidney 6 (Surgical Technique, Case Report)** Chair: Kazuaki Yamanaka	14:00-14:45 **Mini Oral 15** **Kidney 7 (Nutrition, Diabetes 1)** Chair: Hajime Hirano	14:00-14:45 **Mini Oral 16** **Kidney 8 (Malignancy 1)** Chair: Shigeaki Nakazawa
14:50-15:35 **Mini Oral 17** **Kidney 9 (Organ Preservation)** Chair: Yoichi Kakuta	14:50-15:35 **Mini Oral 18** **Kidney 10 (Infection, Diagnostic Imaging)** Chair: Atsushi Takahashi	14:50-15:35 **Mini Oral 19** **Kidney 11 (Nutrition, Diabetes 2)** Chair: Hajime Hirano	14:50-15:35 **Mini Oral 20** **Kidney 12 (Malignancy 2, Adverse Event, Non-adherence,Pregnancy)** Chair: Junji Uchida
15:40-16:15 **Mini Oral 21** **Liver 3 (Organ Preservation)** Chair: Yasushi Hasegawa	15:40-16:25 **Mini Oral 22** **Transplant Immunosuppression 1** Chair: Haruhito Azuma	15:40-16:25 **Mini Oral 23** **Basic and Translational Sciences 1** Chair: Masayoshi Okumi	15:40-16:25 **Mini Oral 24** **Liver 4 (ABO-incompatible, Donor Specific Antigen, Ischemic Reperfusion Injury)** Chair: Kenei Furukawa
16:30-17:15 **Mini Oral 25** **Liver 5 (Transplant Oncology)** Chair: Shintaro Yagi	16:30-17:15 **Mini Oral 26** **Transplant Immunosuppression 2** Chair: Haruhito Azuma	16:30-17:15 **Mini Oral 27** **Basic and Translational Sciences 2** Chair: Masayoshi Okumi	16:30-17:05 **Mini Oral 28** **Other Topics 2** Chair: Seiichiro Shishido

8:30 9:00 9:30 10:00 10:30 11:00 11:30 12:00 12:30 13:00 13:30 14:00 14:30 15:00 15:30 16:00 16:30 17:00 17:30 18:00

November 26 (Sat), 2022

	Room 1	Room 2
	North	South
8:00		
8:30	8:15-8:55 **Morning Seminar 1** (Co-Sponsored by Kyowa Kirin Co,. Ltd.)	8:15-8:55 **Morning Seminar 2** (Co-Sponsored by Novartis Pharma K. K.)
9:00	9:00-9:30 **Keynote Lecture 3** Dr. Hiromitsu Nakauchi	
9:30	9:30-10:30 **Plenary Session 7** Digitalization and Digital Transformation in Transplant Community Chairs: Motoo Araki, Hsu-Han Wang	9:30-11:00 **Plenary Session 8** Myocardial Recovery with Mechanical Circulatory Support, Surgery, and Regenerative Medicine Chairs: Koichi Toda, Joon Bum Kim
10:00		
10:30	10:35-11:00 **State-of-the-art Lecture** Dr. Yuka Tanaka	
11:00		
11:30		11:10-12:40 **Plenary Session 9** Present Status and Future Challenges in Heart Transplantation and VAD Treatment in Asia Chairs: Minoru Ono, Cumaraswamy Sivathasan
12:00		
12:30		
13:00	12:50-13:30 **Luncheon Seminar 3** (Co-Sponsored by Astellas Pharma Inc.)	12:50-13:30 **Luncheon Seminar 4** (Co-Sponsored by Zenyaku Kogyo Co,. Ltd.)
13:30	13:35-14:05 **Keynote Lecture 4** Dr. Stefan G. Tullius	
14:00		
14:30	14:10-15:40 **Basic Science in Transplantation 2** Immune Rejection, Regulation, and Regenerative Medicine in Transplantation Chairs: Xiao-Kang Li, Eiji Kobayashi	14:10-15:40 **Plenary Session 10** Evaluation Procedure of Graft Function (Donor, Post Kidney Transplantation) Chairs: Ken Sakai, Chul Woo Yang
15:00		
15:30		
16:00	15:45-17:15 **Plenary Session 11** Therapeutic Strategy of Preformed and Denovo DSA for LDLT: Clinical and Translational Research Chairs: Hiroto Egawa, Myoung Soo Kim	15:45-17:15 **Women in Transplantation** Gender Disparity in Kidney Transplantation in Asia (WIT) Chairs: Curie Ahn, Yuki Nakagawa
16:30		
17:00		
17:30	17:15-17:30 **Closing Remarks** President: Ryoichi Imamura	
18:00		

Mini Oral

Central

Booth A	Booth B	Booth C	Booth D
9:30-10:15 **Mini Oral 29** **Liver 6 (Living Donor)** Chair: Taizo Hibi	9:30-10:05 **Mini Oral 30** **Pancreas and Islet 1** Chair: Yoshihide Nanno	9:30-10:15 **Mini Oral 31** **Covid-19 1** Chair: Kazuya Omoto	
10:20-10:55 **Mini Oral 32** **Liver 7 (Surgical Technique)** Chair: Kazuaki Tokodai	10:20-11:05 **Mini Oral 33** **Pancreas and Islet 2** Chair: Takayuki Anazawa	10:20-11:05 **Mini Oral 34** **Covid-19 2** Chair: Hiroshi Harada	
11:10-11:55 **Mini Oral 35** **Liver 8, Intestinal Transplantation, Histopathology** Chairs: Kenji Yuzawa Tomoko Namba-Hamano	11:10-11:55 **Mini Oral 36** **Kidney 13 (Nutrition, Diabetes 3, QOL)** Chair: Atsuyuki Morishima	11:10-11:55 **Mini Oral 37** **Basic and Translational Sciences 3** Chair: Kenta Iwasaki	
12:00-12:45 **Mini Oral 38** **Xenotransplantation, Sex and Gender** Chairs: Masayoshi Okumi Yuki Nakagawa	12:00-12:45 **Mini Oral 39** **Kidney 14 (Antibody Mediated Rejection 1)** Chair:Daisuke Ishii	12:00-12:45 **Mini Oral 40** **Basic and Translational Sciences 4** Chair: Xiao-Kang Li	
14:00-14:45 **Mini Oral 41** **Liver 9 (Long-Term Outcome, Adverse Event 1)** Chair: Takumi Fukumoto	14:00-14:45 **Mini Oral 42** **Heart 1** Chair: Yasumasa Tsukamoto	14:00-14:49 **Mini Oral 43** **Covid-19 3** Chair: Takahisa Hiramitsu	
14:50-15:35 **Mini Oral 44** **Liver 10 (Long-Term Outcome, Adverse Event 2)** Chair: Takeshi Takahara	14:50-15:35 **Mini Oral 45** **Heart 2** Chair: Koichi Tada	14:50-15:35 **Mini Oral 46** **Covid-19 4, Other Topics 3** Chair: Nobuyuki Nakamura	
15:40-16:25 **Mini Oral 47** **Kidney 15 (Antibody Mediated Rejection 2, Risk factor)** Chair: Takaaki Kobayashi	15:40-16:25 **Mini Oral 48** **Kidney 16 (Pathology 1)** Chairs: Tomoko Namba-Hamano	15:40-16:25 **Mini Oral 49** **Kidney 17 (Genetic Influence)** Chair: Masashi Kato	
16:30-17:15 **Mini Oral 50** **Kidney 18 (Antibody Mediated Rejection 3, Pathology 2)** Chair: Ken Sakai	16:30-17:15 **Mini Oral 51** **Kidney 19 (ABO-Incompatible, Hypogammaglobulinemia)** Chair: Naotake Akutsu	16:30-17:05 **Mini Oral 52** **Kidney 20 (Immunosuppression)** Chair: Shunji Narumi	

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INFORMATION FOR PARTICIPANTS

Registration
All participants including pre-registrants must receive his/her name card at the Registration Desk, Central, 2F, Kyoto Sangyo Kaikan Hall.

Location: Central Hall, 2F, Kyoto Sangyo Kaikan Hall
Open Hours: 3:00pm-6:00pm on November 24 (Thu)
8:00am-5:00pm on November 25 (Fri)
8:00am-4:00pm on November 26 (Sat)

Registration Fee:

TTS*/AST** Member	35,000 JPY
Non-Member	40,000 JPY
Other Healthcare Professional	25,000 JPY
Student*** (excluding medical doctors)	10,000 JPY
Accompanying Person****	5,000 JPY

*TTS = The Transplantation Society
**AST = Asian Society of Transplantation
***Please present identification such as student ID upon registration
Kindly note that medical doctors fall into the category of "TTS/AST Member".
****Significant other

Important:
Speakers are requested to complete the registration in advance to be eligible to give a presentation.

Name Card Policy
All participants must wear their name card at all time while you attend the meeting program. For those without name card will not be allowed to enter the venue. Lost name cards can be verified and replaced at the Registration Desk.

Sponsored Seminars
Morning Seminars, Luncheon Seminars and Evening Seminars will be held during the meeting. In Morning Seminars and Evening Seminars, sandwich will be distributed; on the other hands, lunch box will be distributed in each luncheon seminars.

Lost and Found
Contact the meeting staff at the Registration Desk.

Certificate of Participation & Receipts
It will be provided with name card.

For Japanese participants only
本学会への参加は、日本移植学会移植認定医審査のための研修点数として算定されます。

Prohibited Matter

Unauthorized recording (audio, video, photography, etc.) of presentation during sessions is strictly prohibited. Those who disturb any presentation and program on TSS 2022 will be asked to leave venue immediately.

Disclaimer

The organizing committee of TSS2022 will accept no liability for the safety of any participant, or for personal injury of loss, or damage to private property suffered during the meeting.

INFORMATION FOR CHAIRS AND SPEAKERS

For Chairs

・Please be seated at the next speakers' seat 15 minutes prior to your session start.
・We appreciate your cooperation in ensuring smooth running of the program.

For Speakers

● **Presidential Address, Keynote Lecture, State-of-the art Lecture, Plenary Session, Basic Science in Transplantation, Women in Transplantation**

1. Presentation Length

Each session has a different presentation time. Please be sure to confirm your allotted time in your session as the congress secretariat informed.

2. Presentation Data

<PC Preview Desk >

Please check-in your data at least 30 minutes prior to your presentation time.
Location: Central Hall, 2F, Kyoto-Sangyo Kaikan Hall
Open Hours: 3:00pm-6:00pm on November 24 (Thu)
8:00am-5:00pm on November 25 (Fri)
8:00am-4:00pm on November 26 (Sat)

*Please register and bring your presentation material to the PC Preview Desk for your final slide check with the AV technician at least 30 minutes before the session start. Please preview your slides to make sure they appear correctly.
*For those who have presentation scheduled in the mornings, please bring your presentation material the day before if possible.
*Presentation for Mini Oral Speakers will be used pre-recorded presentation data as you submitted.

<Presentation Material>

・The slide should be prepared in 16:9 format.
・Speakers are required to disclose their COI in the 2nd slide of the presentation deck. Any format is acceptable to disclose the required information. (Sample slides are not available for this meeting.)
・For those wishing to show a movie (prepared with WMV format) or using the Macintosh to prepare the presentation, please bring your own laptop instead of submitting the data with memory devices.

[To those who will be bringing the presentation material (USB flash memory)]

1) All session rooms are equipped with PC installed with Window 10. MS PowerPoint 2010/2016/2019 are the equipped application software.
2) The font should be used the one installed in Microsoft PowerPoint.
Ex.) Century, Century Gothic, Times New Roman
3) If you are using the Macintosh (Mac), please bring your own laptop. Do not use iPad.
4) Bring your final presentation material on a USB flash memory stick. Do not include any other files. Please be noted that no modification or changes are allowed at the PC Preview Desk.
5) Name your presentation material file "Presentation Number_Name.ppt".
6) Monitor, Keyboard and Mouse will be ready on the podium. Please operate your slide on your own.
7) All presentation must be made and held in English.

8) To prevent virus infections acquired through media, confirm that you are using the latest antivirus software.
9) Please bring the backups for safety.
10) Kindly note that all presentation files will be deleted by the congress secretariat after the meeting in a responsible manner.

[To those who will be bringing the PC]
1) Should you need to bring your own laptop, please ensure that it is compatible with the HDMI and the D-sub 15 pin.
2) All energy-conserving functions such as power-saving setting should be disabled on PCs to be used in the presentation.
3) Make sure to bring your PC adaptor as well as backup data on USB flash memory stick.
4) After stopping by at the PC Preview Desk, Please report to your session room at least 20minutes prior to your session start to drop off your PC to the AV operator. Please don't forget to pick up your PC after your presentation.
5) Please make sure to bring AC adapter of your laptop.

3. In the Session room
・Please be seated at the next speakers' seat 15 minutes prior to the presenting session.
・During the Q&A, please follow the chairs' instructions as time may be limited.
For Speakers and Questioners, please follow the points:
-Speakers: Please stand on the podium to answer question.
-Questioners: Introduce yourself (affiliation and name) before making questions and comments.

● Mini Oral
1. Presentation Length
5 minutes for a presentation and 2 minutes for a Q&A session
・Mini oral Speakers will have a 5 min-presentation with pre-recorded presentation data even Speakers attend the session on-site.
・A Q&A session will be followed by chairs, speakers and audience after each presentations.

2. Presentation Data
As mentioned above, congress secretariat will use the pre-recorded presentation data you submitted as your 5-min presentation. It is unnecessary to bring your presentation data on-site.

<Presentation Material>
・The slide should be prepared in 16:9 format.
・The file format should be PPT file or MP4 file, up to 1GB.
・There is no limit for the number of slides. Please make sure you have your presentation in your allotted time.
・Speakers are required to disclose their COI in the 2nd slide of the presentation deck.
Any format is acceptable to disclose the required information. (Sample slides are not available for this meeting.)
・Name your presentation material file "Presentation Number_Name.ppt".

PROGRAM

PROGRAM

November 25 (Fri), 2022

Keynote Lecture 1 — 08:30 - 09:00

Room 1 (North, Kyoto Sangyo Kaikan Hall)

Chair: Shiro Takahara *(Kansai Medical Clinic for Renal Transplantation)*

KL01 **The Role of Natural Killer Cells in the Immune Response in Liver Transplantation**

Hideki Ohdan (*Department of Gastroenterological and Transplant Surgery, Graduate School of Biomedical & Health Sciences, Hiroshima University, Japan*)

Plenary Session 1 — 09:00 - 10:30

Room 1 (North, Kyoto Sangyo Kaikan Hall)

Immunological High-Risk Kidney Transplantation (DSA, AMR, Epitope)

Chairs: Hideki Ishida *(Department of Urology, Tokyo Women's Medical University, Japan)*
Sangil Min *(Seoul National University Hospital, Republic of Korea)*

PS01-1 **Live Donor Renal Transplantation for DSA+ Recipients**

Meng Kun Tsai, Chih-Yuan Lee, Chien-Chia Chen, Ching-Yao Yang (*Department of Surgery, National Taiwan University Hospital, Taiwan*)

PS01-2 **Outcomes of High-Risk Living Donor Kidney Transplantation Compared to Deceased Donor Kidney Transplantation**

Jaeseok Yang (*Yonsei University Severance Hospital, Republic of Korea*)

PS01-3 **Enhance Access to Kidney Transplant: Strategies to Overcome Immunological Barrier**

Maggie Kam Man Ma (*Queen Mary Hospital, University of Hong Kong, Hong Kong*)

PS01-5 **Our Strategy for Immunologically High-Risk Kidney Transplantation**

Tatsu Tanabe[1], Hajime Sasaki[1], Yusuke Takada[1], Kiyohiko Hotta[2] ([1] *Kidney Transplant Surgery, Sapporo City General Hospital, Japan,* [2] *Urology, Hokkaido University Hospital, Japan*)

Plenary Session 2 — 09:00 - 10:30

Room 2 (South, Kyoto Sangyo Kaikan Hall)

Current Status of ABO-Incompatible Liver Transplantation

Chairs: Wei-Chen Lee *(Chang Gung Memorial Hospital, Taiwan)*
Hideki Ohdan *(Department of Gastroenterological and Transplant Surgery, Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan)*

PS02-1 **Quick Preparation of ABO-Incompatible Living Donor Liver Transplantation for Acute Liver Failure**

Wei-Chen Lee (*Division of Liver and Transplantation Surgery, Department of General Surgery, Chang-Gung Memorial Hospital, Taiwan*)

PS02-2 **Effect of Fc-γ Receptor Polymorphism on Rituximab-Mediated B Cell Depletion in ABO-Incompatible Adult Living Donor Liver Transplantation**

Hiroshi Sakai, Ryosuke Nakano, Naoki Tanimine, Hiroyuki Tahara, Masahiro Ohira, Kentaro Ide, Yuka Tanaka, Hideki Ohdan (*Gastroenterological and Transplant Surgery, Hiroshima University, Japan*)

PS02-3 **ABO-Incompatible Adult Living Donor Liver Transplantation Under the Desensitization Protocol With Rituximab**

Gi-Won Song (*Asan Medical Center, University of Ulsan College of Medicine, Republic of Korea*)

PS02-4 **ABO-Incompatible Liver Transplantation: Kyushu Experience**

Tomoharu Yoshizumi, Noboru Harada, Shinji Itoh, Shohei Yoshiya, Takeo Toshima, Hiroto Kayashima (*Department of Surgery and Science, Kyushu University, Japan*)

Basic Science in Transplantation 1

10:40 - 12:10

Room 1 (North, Kyoto Sangyo Kaikan Hall)

Deliberate Induction of Immune Tolerance in Organ Transplantation: Clinical and Basic Research Progress

Chairs: Jaeseok Yang *(Yonsei University Severance Hospital, Republic of Korea)*
Susumu Eguchi *(Depertment of Surgery, Nagasaki University Graduate School of Biomedical Sciences, Japan)*

BS1-1 **Short-Term Therapy with Anti-ICAM-1 Monoclonal Antibody Induced Long-Term Liver Allograft Survival**

Suk Kyun Hong[1], Dong Kyun Han[2], Sun-Kyung Lee[2], Jiyeon Kim[3], Eung-Soo Hwang[3], Haeryoung Kim[4], Kwangpyo Hong[1], Jae-Il Lee[5], Jae-Hyung Cho[1], Jeong-Moo Lee[1], YoungRok Choi[1], Kwang-Woong Lee[1], Nam-Joon Yi[1], Jaeseok Yang[1,2,6], Kyung-Suk Suh[1] (*[1] Division of HBP Surgery, Department of Surgery, Seoul National University Hospital, Republic of Korea, [2] Biomedical Research Institute, Seoul National University College of Medicine, Republic of Korea, [3] Department of Microbiology and Immunology, Seoul National University College of Medicine, Republic of Korea, [4] Department of Pathology, Seoul National University Hospital, Republic of Korea, [5] Department of Medicine, Seoul National University College of Medicine, Republic of Korea, [6] Transplantation Center, Seoul National University Hospital, Republic of Korea*)

BS1-2 **Antigen Specific Regulatory T cell-based Approach for Induction of Transplant Tolerance**

Koichiro Uchida, Kazuyoshi Takeda, Saori Hirota, Hisashi Bashuda, Ko Okumura (*Juntendo University Center for Immunotherapy and Diagnosis, Japan*)

BS1-3 **Characteristics of Treg and Tolerance Induced by Treg Following Liver Transplantation**

Ling Lu (*Hepatobiliary Center, The First Affiliated Hospital of Nanjing Medical University, China*)

BS1-4 **Donor pDCs Modulate Effector and Regulatory T cell Responses in Mouse Spontaneous Liver Transplant Tolerance**

Ryosuke Nakano[1,2], Osamu Yoshida[2], Shoko Kimura[2], Toshimasa Nakao[2], Shinichiro Yokota[2], Yoshihiro Ono[2], Marta I. Minervini[3], Hideki Ohdan[1], David A. Geller[2,3], Angus W. Thomson[2] (*[1] Hiroshima University, Japan, [2] Starzl Transplantation Institute, Department of Surgery, University of Pittsburgh School of Medicine, USA, [3] Liver Cancer Center, University of Pittsburgh Medical Center, USA*)

Plenary Session 3

10:40 - 12:10

Room 2 (South, Kyoto Sangyo Kaikan Hall)

Lung Trasplantation for Pulmnary Hypertension

Chair: Toyofumi F. Chen-Yoshikawa *(Nagoya University, Japan)*

PS03-1 **Lung Trasplantation for Pulmnary Arterial Hypertension −A Single Institutional Experience in 26 Years**

Xu-Heng Chiang[1,2], Hsao-Hsun Hsu[2] (*[1] Department of Medical Education, National Taiwan University Hospital, Taiwan, [2] Department of Surgery, National Taiwan University and National Taiwan University Hospital, Taiwan*)

PS03-2 **Lung Transplantation for Pulmonary Hypertension: Perioperative Considerations**

Sehoon Choi (*Thoracic and Cardiovascular Surgery, Asan Medical Center, University of Ulsan College of Medicine, Republic of Korea*)

PS03-3 **Living-Donor Lobar Versus Cadaveric Lung Transplantation for Pulmonary Hypertension**

Hiroshi Date (*Department of Thoracic Surgery, Kyoto University, Japan*)

Luncheon Seminar 1

12:20 - 13:00

Room 1 (North, Kyoto Sangyo Kaikan Hall)

Chair: Hideki Ohdan *(Department of Gastroenterological and Transplant Surgery, Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan)*

LS01 **Treatment of Complications of Kidney Transplant**

Masaomi Nangaku (*Division of Nephrology and Endocrinology, The University of Tokyo Graduate School of Medicine, Japan*)

Co-sponsored by Chugai Pharmaceutical Co., Ltd.

Luncheon Seminar 2

12:20 - 13:00

Room 2 (South, Kyoto Sangyo Kaikan Hall)

Chair: Yoshihiko Watarai *(Japanese Red Cross Aichi Medical Center Nagoya Daini Hospital, Japan)*

LS02 **The Importance of Measuring Complement Binding Ability in Transplantation**

Katsunori Miyake (*Henry Ford Hospital Division of Transplant and Hepatobiliary Surgery Research Associate, Japan*)

Co-sponsored by Immucor K.K.

Presidential Address

13:05 - 13:25

Room 1 (North, Kyoto Sangyo Kaikan Hall)

Chair: Atsushi Aikawa *(Emeritus Professor, Toho University, Japan)*

PA **What Can and Should TSS Do for the Future of Organ Transplantation in Asia?**

Ryoichi Imamura (*Department of Urology, Osaka University Graduate School of Medicine, Japan*)

Keynote Lecture 2

13:25 - 13:55

Room 1 (North, Kyoto Sangyo Kaikan Hall)

Chair: Yoshihiko Watarai *(Japanese Red Cross Aichi Medical Center Nagoya Daini Hospital, Japan)*

KL02 **Bridging Ischemia-Reperfusion Injury and Heterologous Alloimmunity to Mediate Acute Graft Rejection**

Robert Fairchild (*Transplant Center, Cleveland Clinic, USA*)

Plenary Session 4

14:00 - 15:30

Room 1 (North, Kyoto Sangyo Kaikan Hall)

Current Status and Challenges for Clinical Application of Liver Regeneration Medicine

Chair: Eiji Kobayashi *(Department of Kidney Regenerative Medicine Industry-Academia Collaborative Department, The Jikei University School of Medicine, Japan)*

PS04-1 **Current Status and Challenges for Clinical Application of Liver Regeneration Medicine**

Hiroshi Yagi, Morisaku Toshinori, Shungo Nagata, Tomonori Tsuchida, Kotaro Nishi, Daisuke Udagawa, Hideaki Kojima, Minoru Kitago, Yuko Kitagawa (*Department of Surgery, Keio University, School of Medicine, Japan*)

PS04-2 **Assembly and Function of an Engineered Liver Graft Generated Solely from Human Induced Pluripotent Stem Cells-Towards Autologous Liver Transplantation**

Kazuki Takeishi[1,2], Takahiro Tomiyama[1], Norifumi Iseda[1], Katsuya Toshida[1], Shohei Yoshiya[1], Hiroto Kayashima[1], Shinji Itoh[1], Mizuki Ninomiya[2], Hidefumi Higashi[2], Hiroyuki Kuwano[2], Noboru Harada[1], Alejandro Soto-Gutierrez[3], Tomoharu Yoshizumi[1] ([1] *Department of Surgery and Science, Kyushu University, Japan,* [2] *Department of Surgery, Fukuoka City Hospital, Japan,* [3] *Department of Pathology, School of Medicine, University of Pittsburgh, USA*)

PS04-3 **Small Molecule-Mediated Cellular Reprogramming and the Cellular Niche of Human Liver**

Yohan Kim[1,2], Meritxell Huch[1], Dongho Choi[2,3,4] ([1] *Max-Planck-Institute of Molecular Cell Biology and Genetics, Germany,* [2] *Department of Surgery, Hanyang University College of Medicine, Republic of Korea,* [3] *Hanyang Indang Center of Regenerative Medicine and Stem Cell Research, Hanyang University, Republic of Korea,* [4] *Department of HY-KIST Bio-Convergence, Hanyang University, Republic of Korea*)

PS04-5 **TBD**

Hsuan-Shu Lee (*Institute of Biotechnology, National Taiwan University, Taiwan*)

Plenary Session 5

15:40 - 17:10

Room 1 (North, Kyoto Sangyo Kaikan Hall)

Basic and Clinical Research in Pancreas and Islet Transplantation

Chairs: Yi-Ming Shyr *(Taipei Veterans General Hospital, Taiwan)*
Yoshito Tomimaru *(Department of Gastroenterological Surgery, Graduate School of Medicine, Osaka University, Japan)*

PS05-1 **Utility of Contrast-enhanced Ultrasonography in Predicting Graft Endocrine Function in Pancreas Transplantation**

Naohiro Aida[1], Taihei Ito[1], Kei Kurihara[1], Izumi Hiratsuka[2], Megumi Shibata[2], Atsushi Suzuki[2], Midori Hasegawa[3], Takashi Kenmochi[1] (*[1] Department of Transplantation and Regenerative Medicine, Fujita Health University, School of Medicine, Japan, [2] Department of Endocrinology, Diabetes and Metabolism, Fujita Health University, School of Medicine, Japan, [3] Department of Nephrology, Fujita Health University, School of Medicine, Japan*)

PS05-2 **Generation of iPSC-Derived Insulin-producing Cells from Patients with Type 1 and Type 2 Diabetes Compared with Healthy Control**

Kun Ho Yoon, Min-Jung Kim, Ji-Won Kim (*Department of Endocrinology and Metabolism, The catholic university of Korea, Republic of Korea*)

PS05-3 **Islet Transplantation and β Cell Regenerative Medicine**

Takayuki Anazawa, Takashi Ito, Yuuki Masano, Shinya Okumura, Norio Emoto, Aya Izuwa, Su Hang, Nanae Fujimoto, Koichiro Hata, Etsuro Hatano (*Department of Surgery, Kyoto University, Japan*)

PS05-4 **Islet Xenotransplantation in Korea**

Chung Gyu Park[1,2,3], Hyun Je Kim[1,2,3], Byeong Cheol Kang[2,3], In Jin Jang[4], SeungHwan Lee[4], Ivo Kwon[5] (*[1] Seoul National University College of Medicine, Republic of Korea, [2] Transplantation Research Institute, Seoul National University College of Medicine, Republic of Korea, [3] Department of Biomedical Sciences, Seoul National University College of Medicine, Republic of Korea, [4] Department of Pharmacology, Clinical Pharmacology Unit, and Clinical Trials Center, Seoul National University, Republic of Korea, [5] Department of Medical Education, Ewha Womans University College of Medicine, Republic of Korea*)

PS05-5 **Pancreas Transplant Alone in Uremic (PTAU) Patients -Taiwan Experience**

Shin E Wang, Yi-Ming Shyr, Shih-Chin Chen, Bor-Uei Shyr, Bor-Shiuan Shyr (*Department of Surgery, Taipei Veterans General Hospital and National Yang Ming Chiao Tung University, Taiwan*)

Plenary Session 6

15:40 - 17:10

Room 2 (South, Kyoto Sangyo Kaikan Hall)

Virus Infection in Kidney Transplant Recipient (BK, CMV, EB, Except COVID-19)

Chairs: Shigeru Satoh *(Department of Urology, Akita University Graduate School of Medicine, Japan)*
Norihiko Goto *(Department of Transplant Internal Medicine,Transplant Surgery and Endocrinology, Japanese Red Cross Aichi Medical Center Nagoya Daini Hospital, Japan)*

PS06-1 **[Keynote Lecture]** **BKV, CMV and EBV Infection After Living-Related Kidney Transplantation in the Last 2 Decades**

Norihiko Goto[1], Hiroaki Yonishi[1], Keitaro Nishizawa[1], Yuuki Hasegawa[2], Kei Tanaka[2], Kenta Futamura[1], Manabu Okada[2], Takahisa Hiramitsu[2], Shunji Narumi[2], Yoshihiko Watarai[2] (*[1] Transplant Nephrology, Japanese Red Cross Aichi Medical Center Nagoya Daini Hospital, Japan, [2] Transplant Surgery, Japanese Red Cross Aichi Medical Center Nagoya Daini Hospital, Japan*)

PS06-2 **BK Polyomavirus Integration with Carcinogenicity Gradually Dominates Since the Early Non-Neoplastic Stages of Viral Infection**

Yun Miao (*Department of Transplantation, Nanfang Hospital, Southern Medical University, China*)

PS06-3 **Cytomegalovirus Infection in Pediatric Kidney Transplant Patients: A Single Center Experience**

Lan Zhu[1], Weijie Li[2], Daqiang Zhao[1], Yu Zhang[3], Gang Chen[1] ([1] *Institute of Organ Transplantation, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, China,* [2] *Department of Pharmacy, Tongji Hospital, Tongji Medical College of Huazhong University of Science and Technology, China,* [3] *Department of Pediatrics, Tongji Hospital, Tongji Medical College of Huazhong University of Science and Technology, China*)

PS06-4 **Manifestations of Post-Transplantation Lymphoproliferative Disorder in Kidney Transplant Recipients**

Mariko Toyoda[1], Chiaki Kawabata[1], Yuji Hidaka[2], Shigeyoshi Yamanaga[2] ([1] *Nephrology, Japanese Red Cross Kumamoto Hospital, Japan,* [2] *Surgery, Japanese Red Cross Kumamoto Hospital, Japan*)

Evening Seminar 1

17:25 - 18:05

Room 1 (North, Kyoto Sangyo Kaikan Hall)

In-on-out -Tradition, What You Have Treasured and What You Have Improved-

Chair: Ryoichi Imamura *(Department of Urology, Osaka University Graduate School of Medicine, Japan)*

ES01-1 **Surgical Challenges for Improved Outcome and Wide Application in Kidney Transplantation**

Daiki Iwami (*Jichi Medical University, Division of Renal Surgery and Transplantation, Department of Urology, Japan*)

ES01-2 **Progression of the Less Invasive Laparoscopic Donor Nephrectomy**

Ken Nakagawa (*Department of Urology, Tokyo Dental College Ichikawa General Hospital, Japan*)

Co-sponsored by Johnson & Johnson K.K.

Evening Seminar 2

17:25 - 18:05

Room 2 (South, Kyoto Sangyo Kaikan Hall)

Intravenous Immunoglobulin as the Desensitization for Kidney Transplant Recipients with Donor Specific Antibody

Chair: Hideki Ishida *(Department of Urology, Tokyo Women's Medical University, Japan)*

ES02 **Mechanisms and Utility of Intravenous Immunoglobulin in Kidney Transplantation**

Takayuki Hirose (*Department of Urology, Hokkaido University Hospital, Japan*)

Co-sponsored by Japan Blood Products Organization

November 26 (Sat), 2022

Morning Seminar 1

08:15 - 08:55

Room 1 (North, Kyoto Sangyo Kaikan Hall)

Chair: Shiro Takahara *(Kansai Medical Clinic for Renal Transplantation, Japan)*

MS01 **Post Transplant Anemia**

Hideki Ishida (*Department of Urology, Tokyo Women's Medical University, Japan*)

Co-sponsored by Kyowa Kirin Co., Ltd.

Morning Seminar 2

08:15 - 08:55

Room 2 (South, Kyoto Sangyo Kaikan Hall)

Chair: Tomoharu Yoshizumi *(Department of Surgery and Science, Graduate School of Medical Sciences, Kyushu University, Japan)*

MS02 **Third Wave of Xenotransplantation:Enthusiasm and Commitment for Clinical Application**

Takaaki Kobayashi (*Department of Renal Transplant Surgery, Aichi Medical University School of Medicine, Japan*)

Co-sponsored by Novartis Pharma K.K.

Keynote Lecture 3

09:00 - 09:30

Room 1 (North, Kyoto Sangyo Kaikan Hall)

Chair: Eiji Kobayashi *(Department of Kidney Regenerative Medicine Industry-Academia Collaborative Department, The Jikei University School of Medicine, Japan)*

KL03 **Interspecies Organogenesis: Generation of Transplantable Organs *in vivo***

Hiromitsu Nakauchi[1,2] ([1] *Institute of Stem Cell Biology and Regenerative Medicine, Department of Genetics, Stanford University School of Medicine, USA,* [2] *Stem Cell Therapy Laboratory, Advanced Research Institute, Tokyo Medical and Dental University, Japan*)

Plenary Session 7

09:30 - 10:30

Room 1 (North, Kyoto Sangyo Kaikan Hall)

Digitalization and Digital Transformation in Transplant Community

Chairs: Motoo Araki *(Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Japan)*
Hsu-Han Wang *(Department of Urology, Chang Gung Memorial Hospital, Taiwan)*

PS07-1 **Early Experience with Mobile Phone APP for Recipient Education and Mobile Electric Medical Record System to Improve QOL for Transplant Physician**

Yoshihiko Watarai[1], Kei Tanaka[1], Hiroaki Yonishi[2], Keitaro Nishizawa[2], Yuki Hasegawa[1], Kenta Futamura[2], Manabu Okada[1], Takahisa Hiramitsu[1], Norihiko Goto[2], Shunji Narumi[1], Mayumi Nobata[3], Tomoko Nishikawa[3], Satoshi Ito[4], Shinji Kishi[4] (*[1] Department of Transplant Surgery, Japanese Red Cross Aichi Medcal Center Nagoya Daini Hospital, Japan, [2] Department of Transplant Nephrology, Japanese Red Cross Aichi Medcal Center Nagoya Daini Hospital, Japan, [3] Department of Nursing, Japanese Red Cross Aichi Medcal Center Nagoya Daini Hospital, Japan, [4] Department of Medical Health Management, Japanese Red Cross Aichi Medcal Center Nagoya Daini Hospital, Japan*)

PS07-2 **AI-based Autosegmentation and Kidney Volumetry: Prediction of Remnant Renal Function in Living Donor and Recipient Renal Function**

Sangil Min (*Seoul National University Hospital, Republic of Korea*)

Plenary Session 8

09:30 - 11:00

Room 2 (South, Kyoto Sangyo Kaikan Hall)

Myocardial Recovery with Mechanical Circulatory Support, Surgery, and Regenerative Medicine

Chairs: Koichi Toda *(Osaka University, Japan)*
Joon Bum Kim *(Department Thoracic and Cardiovascular Surgery, Asan Medical Center, University of Ulsan College of Medicine, Republic of Korea)*

PS08-1 **[Keynote Lecture]** **Challenges to the Limit of Treatment for Severe Heart Failure Using Regenerative Medicine**

Shigeru Miyagawa (*The Department of Cardiovascular Surgery, Osaka University, Japan*)

PS08-2 **HeartCon, a New LVAD Independently Developed in China**

Xiaocheng Liu (*TEDA International Cardiovascular Hospital, China*)

PS08-3 **Surgery for Ischemic MR in Ischemic Cardiomyopathy**

Joon Bum Kim (*Department Thoracic and Cardiovascular Surgery, Asan Medical Center, University of Ulsan College of Medicine, Republic of Korea*)

PS08-4 **BiVACOR - A Rotary Flow Total Artificial Heart**

Daniel Timms (*BiVACOR, Inc., USA*)

PS08-5 **The Role of the Mechanical Circulatory Support (MCS) Coordinator in Promoting Self-care in Patients with a Ventricular Assist Device (VAD); The Australian Perspective**

Janelle McLean (*Heart and Lung Transplant Services, The Alfred Hospital, Australia*)

State-of-the-art Lecture 10:35 - 11:00

Room 1 (North, Kyoto Sangyo Kaikan Hall)

Chair: Hiroto Egawa *(Division of Hepatobiliary and Pancreatic Surgery, Department of Surgery, Tokyo Women's Medical University School of Medicine, Japan)*

SL **Personalized Immunosuppressive Therapy in Organ Transplantation by Integrating Genomic and Cell Biological Data**

Yuka Tanaka (*Graduate School of Biochemical & Health Science, Hiroshima University, Japan*)

Plenary Session 9 11:10 - 12:40

Room 2 (South, Kyoto Sangyo Kaikan Hall)

Present Status and Future Challenges in Heart Transplantation and VAD Treatment in Asia

Chairs: Minoru Ono *(Graduate School of Medicine, Department of Cardiovascular Surgery, the University Tokyo, Japan)*
Cumaraswamy Sivathasan *(Consultant Cardiothoracic &Vascular Surgeon at Heart Lung and Vascular Centre, Singapore)*

PS09-1 **[Keynote Lecture]** **Current Status of the Heart Transplant and Proposal to its Development in Japan in the Future**

Shinichi Nunoda (*Department of Therapeutic Strategy for Severe Heart Failure, Tokyo Women's Medical University Graduate School of Medicine, Japan*)

PS09-2 **Present Status and Future Challenges in Heart Transplantation and VAD Treatment in Asia**

In-Cheol Kim[1,2] ([1] *Keimyung University Dongsan Hospital, Republic of Korea,* [2] *Visiting Professor, Advanced Heart Disease Section, Heart Transplant Program, Smidt Heart Institute, Cedars-Sinai Medical Center, USA*)

PS09-3 **Heart Transplantation and Heart Failure Program in National Taiwan University Hospital**

Nai Hsin Chi, Yah-Sharng Chen (*National Taiwan University Hospital, Taiwan*)

PS09-4 **Current Status of Heart Transplants and LVADS in India and Future Directions**

K.R. Balakrishnan (*MGM Healthcare, India*)

PS09-5 **Lessons Learnt in Developing a Mechanical Cardiac Support Program (MCS) to Support Heart Transplantation in Singapore**

Cumaraswamy Sivathasan (*National Heart Center, Singapore*)

Luncheon Seminar 3 12:50 - 13:30

Room 1 (North, Kyoto Sangyo Kaikan Hall)

Chair: Masayoshi Okumi *(Department of Urology, Kyoto Prefectural University of Medicine, Kyoto, Japan)*

LS03 **Development of Immunomonitoring System to Predict Chronic Antibody-mediated Rejection in Kidney Transplant Recipients**

Kiyohiko Hotta (*Department of Urology, Hokkaido University Hospital, Sapporo, Hokkaido, Japan*)

Co-sponsored by Astellas Pharma Inc.

Luncheon Seminar 4

12:50 - 13:30

Room 2 (South, Kyoto Sangyo Kaikan Hall)

ABO-Incompatible Organ Transplantation

Chair: Shiro Takahara *(Kansai Medical Clinic for Renal Transplantation, Japan)*

LS04-1 **Liver Part**

Hiroto Egawa (*Division of Hepatobiliary and Pancreatic Surgery, Department of Surgery, Tokyo Women's Medical University School of Medicine, Japan*)

LS04-2 **Kidney Part**

Masayuki Tasaki (*Division of Urology, Department of Regenerative & Transplant Medicine, Graduate School of Medical and Dental Sciences, Niigata University, Japan*)

Co-sponsored by Zenyaku Kogyo Co., Ltd.

Keynote Lecture 4

13:35 - 14:05

Room 1 (North, Kyoto Sangyo Kaikan Hall)

Chair: Kenji Yuzawa *(National Hospital Organization Mito Medical Center, Japan)*

KL04 **Emerging Topics in Organ Transplantation: Addressing the Organ Shortage Crisis and Refining Immunosuppression**

Stefan G. Tullius (*MD Distinguished Chair in Transplant Surgery, Chief Division of Transplant Surgery, Director, Transplant Surgery Research Laboratory, Brigham and Women's Hospital, Professor of Surgery, Harvard Medical School, Executive Editor, Transplantation, Vice President, The Transplantation Society, USA*)

Basic Science in Transplantation 2

14:10 - 15:40

Room 1 (North, Kyoto Sangyo Kaikan Hall)

Immune Rejection, Regulation, and Regenerative Medicine in Transplantation

Chairs: Xiao-Kang Li *(National Research Institute for Child Health & Development, Japan)*
Eiji Kobayashi *(Department of Kidney Regenerative Medicine Industry-Academia Collaborative Department, The Jikei University School of Medicine, Japan)*

BS2-1 **Tissue-Resident Memory T Cells and Primed Macrophages Mediated Acute Allo-Graft Rejection**

Yong ZHAO[1,2,3] ([1] *State Key Laboratory of Membrane Biology, Institute of Zoology, Chinese Academy of Sciences, China,* [2] *University of Chinese Academy of Sciences, China,* [3] *Institute for Stem Cell and Regeneration, Chinese Academy of Sciences, China*)

BS2-2 **Post-Transplant Immune Regulation on Cancer Recurrence after Liver Transplantation**

Nancy Kwan MAN (*The University of Hong Kong, Hong Kong*)

BS2-3 **Game Changer for Organ Transplantation Using Regenerative Medicine**

Eiji Kobayashi (*Department of Kidney Regenerative Medicine, Industry-Academia Collaborative Department, The Jikei University School of Medicine, Japan*)

Plenary Session 10

14:10 - 15:40

Room 2 (South, Kyoto Sangyo Kaikan Hall)

Evaluation Procedure of Graft Function (Donor, Post Kidney Transplantation)

Chairs: Ken Sakai *(Toho University Omori Hospital, Japan)*
Chul Woo Yang *(Seoul St.Mary's Hospital, The University of Korea, Republic of Korea)*

PS10-1 **Use of MRI as a Tool for Non-Invasively Evaluating Kidney Grafts Before and after Transplantation**

Jun-Ya Kaimori[1,2], Koki Hattori[2], Yuta Asahina[2], Sachio Kajimoto[2], Yohei Doi[2], Tatsufumi Oka[2], Yusuke Sakaguchi[1,2], Shiro Takahara[3], Yoshitaka Isaka[1] (*[1] Department of Inter-Organ Communication Research in Kidney Diseases, Osaka University Graduate School of Medicine, Japan, [2] Department of Nephrology,Osaka University Graduate School of Medicine, Japan, [3] Department of Kidney Transplantation, Kansai Medical Hospital, Japan*)

PS10-2 **Pre Immnological Evaluation in Cadaveric and Living Transplant Including Donor Exchange Program**

Sangho Lee (*Department of Nephrology, Kyung Hee University, Republic of Korea*)

PS10-3 **Pre Operative Evaluation in Living Donors and Recipients in Taiwan**

Ming Ju Wu (*Taichung Veterans General Hospital, Taiwan*)

PS10-4 **Pre and Post Evaluation of Kidney Transplant for Long Term Graft Survival in Korea**
[Keynote Lecture]

Chul Woo Yang (*Seoul St.Mary's Hospital, Catholic University Medical College, Republic of Korea*)

Plenary Session 11

15:45 - 17:15

Room 1 (North, Kyoto Sangyo Kaikan Hall)

Therapeutic Strategy of Preformed and Denovo DSA for LDLT: Clinical and Translational Research

Chairs: Hiroto Egawa *(Division of Hepatobiliary and Pancreatic Surgery, Department of Surgery, Tokyo Women's Medical University School of Medicine, Japan)*
Myoung Soo Kim *(Department of Surgery, Yonsei University College of Medicine, Republic of Korea)*

PS11-1 **Therapeutic Strategy of Preformed and De Novo DSA for LDLT: Clinical and Translational Research**
[Keynote Lecture]

Hiroto Egawa (*Division of Hepatobiliary and Pancreatic Surgery, Department of Surgery, Tokyo Women's Medical University School of Medicine, Japan*)

PS11-2 **Therapeutic Strategy of De Novo DSA for LDLT Through HLA Epitope Compatibility**

Masaaki Hirata[1], Takashi Ito[1], Takero Shindo[2], Shintaro Yagi[3], Etsuro Hatano[1] (*[1] Department of Surgery, Kyoto University, Japan, [2] Department of Hematology and Oncology, Kyoto University, Japan, [3] Department of Hepato-Biliary-Pancreatic Surgery and Transplantation, Kanazawa University, Japan*)

PS11-3 **The Impact of Donor-Specific Anti-HLA Antibodies on Living-Donor Liver Transplantation**

Takeo Toshima, Noboru Harada, Shinji Itoh, Hiroto Kayashima, Yoshihiro Nagao, Shohei Yoshiya, Takahiro Tomino, Yukiko Kosai-Fujimoto, Yuriko Tsutsui, Katsuya Toshida, Yuuki Nakayama, Tomoharu Yoshizumi (*Department of Surgery and Science, Kyushu University, Japan*)

Women in Transplantation

15:45 - 17:15

Room 2 (South, Kyoto Sangyo Kaikan Hall)

Gender Disparity in Kidney Transplantation in Asia (WIT)

Chairs: Curie Ahn *(Div. Nephrology, National Medical Center, Republic of Korea)*
Yuki Nakagawa *(Department of Urology, Juntendo University, Graduate School of Medicine, Japan)*

WT-1 **Gender Differences and Prognosis of Renal Transplantation in Hong Kong**
Maggie Kam Man Ma (*Queen Mary Hospital, University of Hong Kong, Hong Kong*)

WT-2 **Gender Imbalance in Kidney Transplantation in Japan**
Yuki Nakagawa[1,2,3], Makiko Mieno[2,4], Taiji Nozaki[3], taiki Ogasa[3], Haruno Kawano[3], Satoshi Muto[3], Harumi Nakamura[2], Fumino Noguchi[2], Hitomi Sasaki[1], Yasutsugu Takada[1], Taihei Ito[1], Yuka Tanaka[1], Takashi Kenmochi[2], Hiroshi Date[1], Shigeo Horie[3] ([1] *The Japan Society for Transplantation Gender equality Committee Tokyo, Japan,* [2] *Japanese Society for Clinical Kidney Transplantation Registration Committee Tokyo, Japan,* [3] *Division of Urology, Juntendo University, Japan,* [4] *Jichi Medical University, Japan*)

WT-3 **Gender Disparity in Access to and Outcomes after Kidney Transplantation in Asia**
Germaine Wong (*Department of Transplantation Medicine, Westmead Hospital, Australia*)

WT-4 **Gender Differences and Prognosis of Kidney Transplantation Throughout Asia**
Miyeun Han (*National Medical Center, Republic of Korea*)

PROGRAM

Mini Oral

November 25 (Fri), 2022

Mini Oral 1

09:00 - 09:35

Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

Lung 1

Chair: Yasushi Shintani *(Department of General Thoracic Surgery, Osaka University Graduate School of Medicine, Japan)*

MO01-1 **A Case of Cadaveric Lung Transplantation from a Donor after COVID-19 Infection**

Ryoichiro Doi[1], Keitaro Matsumoto[1], Takeshi Tanaka[2], Koichi Tomoshige[1], Ryusuke Machino[1], Tomohiro Obata[1], Satoshi Mizoguchi[1], Takaaki Nakatsukasa[1], Takamune Matsumoto[1], Hiromi Ichikawa[1], Ayumi Tsuji[3], Koichi Izumikawa[2], Takeshi Nagayasu[1] (*[1] Surgical Oncology, Nagasaki University Graduate School of Biomedical Sciences, Japan, [2] Infection Control and Education Center, Nagasaki University Hospital, Japan, [3] Transplant Coordinator, Nagasaki University Hospital, Japan*)

MO01-2 **A Case of Successful Single Lung Transplantation After Open Window Thoracotomy for Empyema**

Kazunori Ueda[1], Tatsuaki Watanabe[1], Masahiro Ui[1], Ken Onodera[1], Yui Watanabe[1], Takashi Hirama[1], Takaya Suzuki[1], Hirotsugu Notsuda[1], Hisashi Oishi[1], Hiromichi Niikawa[1], Yasushi Matsuda[2], Masafumi Noda[1], Yasushi Hoshikawa[2], Yoshinori Okada[1] (*[1] Department of Thoracic Surgery, Institute of Development, Aging and Cancer, Tohoku University, Japan, [2] Department of Thoracic Surgery, Fujita Health University, Japan*)

MO01-3 **Inverted (Rotated) Single Lung Transplantation from Cadaveric Donor**

Masayuki Chida, Sumiko Maeda, Takahiro Nakajima, Osamu Araki, Takashi Inoue, Shota Umeda, Takehito Aruga (*Dept. General Thoracic Surgery, Dokkyo Medical University, Japan*)

MO01-4 **The Effect of anti-CD20 Antibody on Antibody-Mediated Rejection in Murine Orthotopic Lung Transplantation**

Hiroki Matsumoto[1], Hidemi Suzuki[1], Takahiro Yamanaka[1], Kai Nishii[1], Hodaka Oeda[1], Yuki Ito[1], Taisuke Kaiho[1], Atsushi Hata[1], Terunaga Inage[1], Takamasa Ito[1], Kazuhisa Tanaka[1], Yuichi Sakairi[1], Shinichiro Motohashi[2], Ichiro Yoshino[1] (*[1] Departments of General Thoracic Surgery, Chiba University Graduate School of Medicine, Japan, [2] Departments of Medical Immunology, Chiba University Graduate School of Medicine, Japan*)

MO01-5 **Therapeutic Efficacy of Adipose-Derived Stem Cells in Ischemia-Reperfusion Lung Injury**

Yudai Miyashita, Takashi Kanou, Eriko Fukui, Toru Kimura, Naoko Ose, Souichiro Funaki, Yasushi Shintani (*Department of General Thoracic Surgery, Osaka University Graduate School of Medicine, Japan*)

Mini Oral 2

09:00 - 09:45

Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

Transplant Infectious Diseases 1

Chair: Masashi Inui *(Tokyo Women's Medical University Yachiyo Medical Center, Japan)*

MO02-1 **Acquisition of Antibody Against Cytomegalovirus in Seronegative Kidney Transplant Recipients**

Shoko Ishikawa, Masayuki Tasaki, Kazuhide Saito, Masahiro Ikeda, Yoshihiko Tomita (*Department of Urology, Niigata University Graduate School of Medical and Dental Sciences, Japan*)

MO02-2 **Long-Term Outcomes of Kidney Transplantation after Cryptococcal Infection**

Yu Nong Kao[1], Tung-Min Yu[2], Shang-Feng Tsai[2,3], Ming-Ju Wu[2,3,5], Cheng-Hsu Chen[2,3,4,5] (*[1] Department of Internal Medicine, Taichung Veterans General Hospital, Taiwan, [2] Division of Nephrology, Department of Internal Medicine, Taichung Veterans General Hospital, Taiwan, [3] Department of Post-Baccalaureate Medicine, College of Medicine, National Chung Hsing University, Taiwan, [4] Department of Life Science, Tunghai University, Taiwan, [5] School of Medicine, China Medical University, Taiwan*)

MO02-3 **Incidence and Outcome of Herpes Zoster in Kidney Transplant Recipients**

Mariko Toyoda[1], Chiaki Kawabata[1], Toshinori Ishizuka[1], Satoshi Hamanoue[1], Yuji Hidaka[2], Shigeyoshi Yamanaga[2], Yasuhiro Yamamoto[3], Akito Inadome[3] (*[1] Nephrology, Japanese Red Cross Kumamoto Hospital, Japan, [2] General Surgery, Japanese Red Cross Kumamoto Hospital, Japan, [3] Urology, Japanese Red Cross Kumamoto Hospital, Japan*)

MO02-4 **Strategy Against Latent Tuberculosis Infection in Recipients of Living Donor Kidney Transplantation**

Akira Kondo[1], Kazuki Haruguchi[1], Takeshi Hachisuka[1], Kazuhiro Iwado[2], Tomonori Kawase[1], Akihito Sannomiya[1], Ichiro Koyama[1], Ichiro Nakajima[1] (*[1] Department of Kidney Surgery, Organ transplant Center, Itabashi Central General Hospital, Japan, [2] Department of Blood Purification, Tokyo Womens Medical University, Japan*)

MO02-5 **Kidney Transplantation Associated with HTLV1 Carriers: A Single-Center Clinical Experience from Japan**

Yasutoshi Yamada[1], Akihiko Mitsuke[1], Takashi Sakaguchi[1], Jyunya Arima[1], Masato Minami[2], Hiroshi Yoshino[1], Hiroaki Nishimura[1], Shuichi Tatarano[1], Hideki Enokida[1] (*[1] Department of Urology, Graduate School of Medical and Dental Sciences, Kagoshima University, Japan, [2] Department of Digestive and Lifestyle Diseases, Graduate School of Medical and Dental Sciences, Kagoshima University, Japan*)

MO02-6 ***RBBP7* as A Novel Biomarker for the Molecular Diagnosis of BK Virus-Associated Nephropathy**

Yicun Wang, Yuxuan Wang, Xiaopeng Hu, Xiaodong Zhang (*Department of Urology, Beijing Chaoyang Hospital, Capital Medical University, China*)

Mini Oral 3

09:00 - 09:49

Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

Organ Donation

Chair: Kenji Yuzawa *(National Hospital Organization Mito Medical Center, Japan)*

MO03-1 **Impact of Carbon Monoxide on Ischemia Reperfusion Injury in an *Ex Vivo Porcine Model of Donation After Circulatory Death***

Rabindra Bhattacharjee, George Dugbartey, Mahms Richard-Mohamed, Alp Sener, Patrick Luke (*Dept. of Surgery, Urology Division, Schulich School of Medicine and Dentistry, Western University, Canada*)

MO03-2 **The Influence of Prolonged Cold Ischemic Time on Acute Cellular Rejection After Heart Transplantation**

Yong Yang, Takayuki Gyoten, Eisuke Amiya, Masaki Tsuji, Mitsutoshi Kimura, Masaru Hatano, Minoru Ono (*The University of Tokyo, Japan*)

MO03-3 **Current Religious Beliefs Do Not Explain the Low Rates of Organ Transplantation in Thailand**

Jenna C Marek[1], Tanattida Phanthong[3], Taas Sribhibhadh[3], Lucian Lozonschi[2], Chalermchai Komaenthammasophon[4], Preut Assawaworrarit[4] (*[1] Department of Medical Education, USF Health Morsani College of Medicine, USA, [2] Division of Cardiothoracic Surgery, USF Health Morsani College of Medicine, USA, [3] Department of Medical Education International Program, Chulalongkorn University, Thailand, [4] Division of Critical Care Medicine, King Chulalongkorn Memorial Hospital, The Thai Red Cross Society, Thailand*)

MO03-4 **AI Model of Kidney Cortex Volume for Incorporation into Routine Donor Evaluation**

EunAh Jo[1], Yunyoung Jang[2], Sangil Min[1], Yong Chul Kim[2], Jaehee Chun[3,4,5], Seonggong Moon[3,4], Jin Sung Kim[3,4,5], Ahram Han[1], Jongwon Ha[1], Hye Young Woo[1], Ara Cho[1] (*[1] Department of Surgery, Seoul National University College of Medicine, Republic of Korea, [2] Department of Nephrology, Seoul National University College of Medicine, Seoul, Republic of Korea, [3] OncoSoft Inc., Seoul, Republic of Korea, [4] Department of Radiation Oncology, Yonsei Cancer Center Severance Hospital, Seoul, Republic of Korea, [5] Department of Radiation Oncology, Yonsei University College of Medicine, Seoul, Republic of Korea*)

MO03-5 **Pure Laparoscopic Donor Hepatectomy Reduces Postoperative Analgesic Use and Pain Scale**

Hiromichi Sato, Kazuki Sasaki, Yoshifumi Iwagami, Daisaku Yamada, Yoshito Tomimaru, Takehiro Noda, Hidenori Takahashi, Shogo Kobayashi, Yuichiro Doki, Hidetoshi Eguchi (*Department of Gastroenterological Surgery, Graduate School of Medicine, Osaka University, Japan*)

MO03-6 **Clinical Significance of the Living Kidney Donor Profile Index in Living Kidney Donors for Predicting of Post-Transplant Long Term Outcome: Korean Organ Transplantation Registry**

Jong Ho Kim[1], Sang Ho Lee[1], Jin Sug Kim[1], Hyeon Seok Hwang[1], Hyunmin Ko[2], Cheol-Woong Jung[3], Deok Gie Kim[4], Yeong Hoon Kim[5], Jaeseok Yang[6], Curie Ahn[7], Kyung Hwan Jeong[1] (*[1] Department of Nephrology, College of Medicine, Kyung Hee University, Seoul, Republic of Korea, [2] Department of Surgery, College of Medicine, Kyung Hee University, Seoul, Republic of Korea, [3] Department of Transplantation and Vascular Surgery, Korea University Anam Hospital, Republic of Korea, [4] Department of Surgery, Yonsei University Wonju College of Medicine, Wonju Severance Christian Hospital, Republic of Korea, [5] Department of Internal Medicine, Inje University Busan Paik Hospital, Republic of Korea, [6] Department of Surgery, Seoul National University Hospital, Republic of Korea, [7] Department of Nephrology, Seoul National University Hospital, Republic of Korea*)

MO03-7 **Longitudinal Mortality Risks and Renal Functional Outcomes in Japanese Living Kidney Donors**

Takayuki Hirose[1], Kiyohiko Hotta[1], Takahiro Osawa[1], Isao Yokota[2], Tasuku Inao[2], Tatsu Tanabe[1], Naoya Iwahara[1], Nobuo Shinohara[1] (*[1] Department of Urology, Hokkaido University Hospital, Japan, [2] Department of Biostatistics, Graduate School of Medicine, Hokkaido University, Japan*)

Mini Oral 4

09:50 - 10:25

Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

Lung 2

Chair: Takashi Kanou *(Department of General Thoracic Surgery, Osaka University Graduate School of Medicine, Japan)*

MO04-1 **Donor's Long-Term Quality of Life in Living-Donor Lobar Lung Transplantation**

Kento Fujii[1], Shin Tanaka[1], Megumi Ishihara[1], Kei Matsubara[1], Kohei Hashimoto[1], Kazuhiko Shien[1], Ken Suzawa[1], Kentaro Miyoshi[1], Shinji Otani[2], Hiromasa Yamamoto[1], Mikio Okazaki[1], Seiichiro Sugimoto[1], Masaomi Yamane[3], Shinichi Toyooka[1] (*[1] Department of General Thoracic Surgery and Organ Transplant Center, Okayama University Hospital, Japan, [2] Department of Cardiovascular and Thoracic Surgery, Ehime University Hospital, Japan, [3] Thoracic Surgery, Shimane University Hospital, Japan*)

MO04-2 **Outcomes of Lung Re-Transplantation**

Akihiro Ohsumi, Satona Tanaka, Yoshito Yamada, Yojiro Yutaka, Daisuke Nakajima, Hiroshi Date (*Department of Thoracic Surgery, Kyoto University Hospital, Japan*)

MO04-3 **Prognostic Factors in Patients with Pulmonary Arterial Hypertension Referred for Lung Transplantation**

Satoshi Ishii[1], Shun Minatsuki[1], Masaru Hatano[1,2], Akihito Saito[1], Hiroki Yagi[1], Mai Shimbo[1,3], Katsura Soma[1], Takayuki Fujiwara[1,3], Hidetaka Itoh[1], Chihiro Konoeda[4], Masaaki Sato[4], Norifumi Takeda[1], Masao Daimon[1,5], Jun Nakajima[4], Issei Komuro[1] (*[1] Department of Cardiovascular Medicine, The University of Tokyo Hospital, Japan, [2] Department of Advanced Medical Center for Heart Failure, The University of Tokyo Hospital, Japan, [3] Department of Computational Diagnostic Radiology and Preventive Medicine, The University of Tokyo Hospital, Japan, [4] Department of Thoracic Surgery, The University of Tokyo Hospital, Japan, [5] Department of Clinical Laboratory, The University of Tokyo Hospital, Japan*)

MO04-4 **Psoas Muscle Index Associated with the Survival of Patients on a Waiting List for Lung Transplantation**

Yuuki Matsui, Takashi Kanou, Eriko Fukui, Toru Kimura, Naoko Ose, Soichiro Funaki, Yasushi Shintani (*Department of General Thoracic Surgery, Graduate School of Medicine, Osaka University, Japan*)

MO04-5 **The Significance of Non-HLA Autoantibodies in Lung Transplantation**

Won Young Heo[1], Mi Jeong Jeong[1], Kyeongman Jeon[2,3], Yong Soo Choi[4], Eun-Suk Kang[1] (*[1] Department of Laboratory Medicine and Genetics, Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea, [2] Department of Critical Care Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea, [3] Division of Pulmonary and Critical Care Medicine, Department of Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea, [4] Department of Thoracic Surgery, Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea*)

Mini Oral 5

09:50 - 10:35

Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

Transplant Infectious Diseases 2

Chair: Michio Nojima *(Department of Urology, Hyogo College of Medicine, Japan)*

MO05-1 **Evaluation of Cases of Cytomegalovirus Infection After Renal Transplantation at Our Department**

Shuhei Nozaki[1], Toshihito Hirai[1], Chika Nagahisa[1], Taro Banno[1], Rikako Oki[1], Ryoichi Maenosono[1], Shinsuke Mizoguchi[1], Takafumi Yagisawa[1], Taichi Kanzawa[1], Kohei Unagami[1,2], Kazuya Omoto[1], Hideki Ishida[1,2] (*[1] Department of Urology, Tokyo Women's Medical University, Japan, [2] Department of Organ Transplant Medicine, Tokyo Women's Medical University, Japan*)

MO05-2 **Tuberculosis After Solid Organ Transplantation: A Nationwide Population-Based Study in Taiwan**

Mei-Yi Wu[1,2,3], Ying Chun Chen[1], Chia-Hung Lai[4], Shao-Yuan Chuang[4], Mai-Szu Wu[1,2,3,5] (*[1] Division of Nephrology, Department of Internal Medicine, Taipei Medical University-Shuang Ho Hospital, Taiwan, [2] Division of Nephrology, Department of Internal Medicine, School of Medicine, College of Medicine, Taipei Medical University, Taiwan, [3] TMU Research Center of Urology and Kidney, Taipei Medical University, Taiwan, [4] Public Health Sciences Institute, National Health Research Institutes, Taiwan, [5] Graduate Institute of Clinical Medicine, College of Medicine, Taipei Medical University, Taiwan*)

MO05-3 **A Case of EBV-Associated Malignant Lymphoma with Acute Exacerbation After Living Donor Liver Transplantation Without Preoperative Diagnosis**

Masahiko Honjo, Kohei Ogawa, Kyosei Sogabe, Chihiro Ito, Miku Iwata, Akimasa Sakamoto, Takashi Matsui, Yusuke Nishi, Mikiya Shine, Mio Uraoka, Tomoyuki Nagaoka, Kei Tamura, Katsunori Sakamoto, Naotake Funamizu, Yasutsugu Takada (*Hepato-Biliary-Pancreatic and Breast Surgery, Ehime University Graduate School of Medicine, Japan*)

MO05-4 **Whole Blood Polymerase Chain Reaction Is the Most Sensitive Method for Cytomegalovirus Monitoring After Pediatric Liver Transplantation in Japan**

Lily Tsuyuki[1,2], Masaki Yamada[1], Kei Sakamoto[1], Akinari Fukuda[1], Seisuke Sakamoto[1], Shuichi Ito[2], Ken-ichi Imadome[1], Mureo Kasahara[1] (*[1] National Center for Child Health and Development, Japan, [2] School of Medicine, Yokohama City University, Japan*)

MO05-5 **Donor-Derived Infection's Prevention and Control in Kidney Transplantation**

Xin Zhang[1,2], Hui Shan[1,2], Min Zhang[1,2], Hui Yang[3], Li Gu[4], Zixin Mi[5], Xuezhu Wang[5], Yaping Wang[5], Ziren Tang[6], Hui Shan[1,2], Xiaodong Zhang[1,2], Xiaopeng Hu[1,2] (*[1] Department of Urology, Beijing Chao-Yang Hospital, Capital Medical University, China, [2] Institute of Urology, Capital Medical University, China, [3] Department of Pharmaceuticals, Beijing Chao-Yang Hospital, Capital Medical University, China, [4] Department of Infectious Disease, Beijing Chao-Yang Hospital, Capital Medical University, China, [5] Department of Organ Procurement Organizations Office, Beijing Chao-Yang Hospital, Capital Medical University, China, [6] Department of Emergency, Beijing Chao-Yang Hospital, Capital Medical University, China*)

MO05-6 **Analysis of the Alleviation of BK Polyomavirus Infection by Everolimus *in Vitro***

Noriaki Sato[1], Atsuko Shiraki[1], Keita P. Mori[1,2], Kaoru Sakai[1], Long Tan[3], Yoshinori Takemura[4], Yasushi Okuno[1], Kazunari Tanabe[5], Kimiyasu Shiraki[6] (*[1] Kyoto University, Japan, [2] Kitano Hospital, Japan, [3] Guangzhou Medical University, China, [4] Toyama University Hospital, Japan, [5] Tokyo Women's Medical University, Japan, [6] Senri Kinran University, Japan*)

Mini Oral 6

09:50 - 10:35

Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

Education, Other topics1

Chair: Kenji Yuzawa *(National Hospital Organization Mito Medical Center, Japan)*

MO06-1 **Results of a Survey on the Delivery of Organ Transplantation Lessons in Moral Education for all Junior High Schools**

Yoko Uryuhara (*Faculty of Commerce, Doshisha University, Japan*)

MO06-2 **A Heterozygous *LAMA5* Variant May Contribute to Slowly Progressive, Vinculin-Enhanced Familial Nephropathy with FSGS and Pulmonary Defects**

Jun-Ya Kaimori[1,2], Koki Hattori[2], Yuta Asahina[2], Sachio Kajimoto[2], Yohei Doi[2], Tatsufumi Oka[2], Yusuke Sakaguchi[2], Yoshitaka Isaka[2] ([1] *Department of Inter-Organ Communication Research in Kidney Diseases, Osaka University Graduate School of Medicine, Japan,* [2] *Department of Nephrology, Osaka University Graduate School of Medicine, Japan*)

MO06-3 **Cyclosporine A treatment of Proteinuria in a New Case of MAFB-Associated Glomerulopathy Without Extra-Renal Involvement**

Jun-Ya Kaimori[1,2], Koki Hattori[2], Yuta Asahina[2], Sachio Kajimoto[2], Yohei Doi[2], Tatsufumi Oka[2], Yusuke Sakaguchi[1,2], Yoshitaka Isaka[2] ([1] *Department of Inter-Organ Communication Research in Kidney Diseases, Osaka University Graduate School of Medicine, Japan,* [2] *Department of Nephrology, Osaka University Graduate School of Medicine, Japan*)

MO06-4 **Malignancy After Solid Organ Transplantation: A Nationwide Population-based Study in Taiwan**

Mei-Yi Wu[1,2,3], Ying Chun Chen[1], Chia-Hung Lai[4], Shao-Yuan Chuang[4], Mai-Szu Wu[1,2,3,5] ([1] *Division of Nephrology, Department of Internal Medicine, Taipei Medical University-Shuang Ho Hospital, Taiwan,* [2] *Division of Nephrology, Department of Internal Medicine, School of Medicine, College of Medicine, Taipei Medical University, Taiwan,* [3] *TMU Research Center of Urology and Kidney, Taipei Medical University, Taiwan,* [4] *Public Health Sciences Institute, National Health Research Institutes, Taiwan,* [5] *Graduate Institute of Clinical Medicine, College of Medicine, Taipei Medical University, Taiwan*)

Mini Oral 7

10:40 - 11:25

Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

Liver 1 (Pretransplant Management)

Chair: Nobuhisa Akamatsu *(Artificial Organ and Transplantation Division, Department of Surgery, Graduate School of Medicine, The University of Tokyo, Japan)*

MO07-1 **Preoperative Management Strategy for Massive Hydrothorax in Living Donor Liver Transplantation**

Tomohiko Taniai, Koichiro Haruki, Kenei Furukawa, Mitsuru Yanagaki, Ryoga Hamura, Munetoshi Akaoka, Rui Marukuchi, Shinji Onda, Yoshihiro Shirai, Tadashi Uwagawa, Toru Ikegami (*Division of Hepatobiliary and Pancreatic Surgery, Department of Surgery, The Jikei University School of Medicine, Tokyo, Japan*)

MO07-2 **The Effect of Pretreatment with Rifaximin on Outcomes After Liver Transplantation**

Shoichi Kageyama, Shinya Okumura, Yuki Masano, Yoichiro Uchida, Takashi Ito, Koichiro Hata, Etsuro Hatano (*Department of Surgery, Kyoto University, Japan*)

MO07-3 Withdrawn

MO07-4 Outcome of Living Donor Liver Transplantation for High MELD Score Recipients

Daijiro Matoba, Takehiro Noda, Shogo Kobayashi, Kazuki Sasaki, Yoshifumi Iwagami, Daisaku Yamada, Yoshito Tomimaru, Hidenori Takahashi, Yuichiro Doki, Hidetoshi Eguchi (*Gastroenterological Surgery, Osaka University, Japan*)

MO07-5 Case Report of a Patient Who Received a LDLT After Achieving Remission from DLBCL

Koichi Tomita, Itsuki Koganezawa, Masashi Nakagawa, Kei Yokozuka, Shigeto Ochiai, Toshimichi Kobayashi, Toru Sano, Satoshi Tabuchi, Naokazu Chiba, Eiji Hidaka, Shigeyuki Kawachi (*Department of Digestive and Transplantation Surgery, Tokyo Medical University Hachioji Medical Center, Japan*)

MO07-6 A Case of Liver Transplantation for Liver Cirrhosis with Pulmonary Mycobacterium Avium Complex Disease

Takuya Harada[1], Masaaki Watanabe[2], Tsuyoshi Shimamura[3], Ryoichi Goto[1], Norio Kawamura[2], Takuji Ota[1], Akinobu Taketomi[1] ([1] *Department of Gastroenterological Surgery I, Hokkaido University Graduate School of Medicine, Japan,* [2] *Department of Transplant Surgery, Hokkaido University Graduate School of Medicine, Japan,* [3] *Division of Organ Transplantation, Hokkaido University Hospital, Japan*)

Mini Oral 8

10:40 - 11:25

Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

Kidney 1 (Renal Function 1)

Chair: Jun-Ya Kaimori *(Osaka University Graduate School of Medicine, Japan)*

MO08-1 The Resistive Index by Doppler Ultrasonography as a Predictor of the Long-Term Outcomes After Kidney Transplantation

Yuji Hidaka[1], Shigeyoshi Yamanaga[1], Chiaki Kawabata[2], Mariko Toyoda[2], Yasuhiro Yamamoto[3], Akito Inadome[3], Hiroshi Yokomizo[1] ([1] *General Surgery, Japanese Red Cross Kumamoto Hospital, Japan,* [2] *Nephrology, Japanese Red Cross Kumamoto Hospital, Japan,* [3] *Urology, Japanese Red Cross Kumamoto Hospital, Japan*)

MO08-2 Comparing the Different Definition of Delayed Graft Function After Renal Transplantation

Yun-Ren Li, Kuan-Lin Liu, Kuo-Jen Lin, Chih-Te Lin, Pai-Yen Pan, Yang-Jen Chiang, Sheng-Hsien Chu, Hsu-Han Wang (*Department of Urology, Chang-Gung Memorial Hospital, Taoyuan, Taiwan*)

MO08-3 Comprehensive Analysis of Donor Factors Which Impact on Graft Survival or Overall Survival in Living Kidney Transplantation: Single Study in Japan

Mitsuru Tomizawa, Shunta Hori, Nobutaka Nishimura, Chihiro Omori, Yasushi Nakai, Makito Miyake, Tatsuo Yoneda, Kiyohide Fujimoto (*Department of Urology, Nara Medical University, Japan*)

MO08-4 Effect of the Chinese New Year on Renal Function Among Patients with Kidney Transplant: A Retrospective Cohort Study

Ying-Hao Hsu, Jen-Hsuan Wu, Sheng-Hsien Chu, Yang-Jen Chiang, Kuan-Lin Liu, Kuo-Jen Lin, Pai-Yen Pan, Yun-Ren Li, Chin-Yi Hsieh, Jui-chung Wang, Hsu-Han Wang (*Urology, Chang Gung Memorial Hospital Linkou,Taiwan*)

MO08-5 **Usefulness of 3DCT Volumetry in Evaluation of Split Renal Function of Living Kidney Donors**

Tomoaki Iwai[1], Kazuya Kabei[1], Yudai Matsuoka[1], Akihiro Kosoku[2], Keiko Maeda[1], Yuichi Machida[1], Toshihide Naganuma[1], Norihiko Kumada[3], Yoshiaki Takemoto[1], Junji Uchida[1] (*[1] Department of Urology, Osaka Metropolitan University Graduate School of Medicine, Japan, [2] Department of Urology, Meijibashi Hospital, Japan, [3] Department of Urology, Suita Municipal Hospital, Japan*)

MO08-6 **An Original Risk Index for Deceased Donor Kidney Transplantation in Japan: The Japanese Kidney Donor Risk Index**

Juntaro Ashikari[1], Hitomi Sasaki[2], Kazuhiro Nose[3], Makiko Mieno[4], Shinichi Nishi[5] (*[1] Medical Information Headquarters, Japan Organ Transplant Network, Japan, [2] Department of Urology, Fujita Health University, Japan, [3] Department of Urology, Kindai University Hospital, Japan, [4] Center for Information, Jichi Medical University, Japan, [5] Division of Nephrology and Kidney Center, Kobe University Graduate School of Medicine, Japan*)

Mini Oral 9

10:40 - 11:25

Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

Kidney 2 (Surgical Technique 1)

Chair: Yoichi Kakuta *(Department of Urology, Osaka General Medical Center, Japan)*

MO09-1 **Upside-Down Kidney Transplantation in a Recipient with Severe Arteriosclerosis**

Teppei Wakita, Koichi Tsutahara, Airi Miki, Yuki Horibe, Masaru Tani, Yoichi Kakuta, Tetsuya Takao (*Urology, Osaka General Medical Center, Japan*)

MO09-2 **Risk Factors of Recurrent Vesicoureteral Reflux in Post Renal Transplantation Vesicoureteral Reflux Deflux Treatment**

Chung Lin Lee, Hsu-Han Wang, Pai-Yen Pan, Wei-Feng Ding, Ta-Min Wang, Sheng-Hsie Chu, Hsiao-Wen Chen, Yang-Jen Chiang, Kuan-Lin Liu, Kuo-Jen Lin (*Urology, Linkou Chang-Gung Memorial Hospital, Taiwan*)

MO09-3 **Experience with Surgical Treatment of Allograft Lithiasis in Kidney Transplant Patients**

Tomoaki Iwai[1], Kazuya Kabei[1], Yudai Matsuoka[1], Akihiro Kosoku[2], Keiko Maeda[1], Yuichi Machida[1], Toshihide Naganuma[1], Norihiko Kumada[3], Yoshiaki Takemoto[1], Junji Uchida[1] (*[1] Department of Urology, Osaka Metropolitan University Graduate School of Medicine, Japan, [2] Department of Urology, Meijibashi Hospital, Japan, [3] Department of Urology, Suita Municipal Hospital, Japan*)

MO09-4 **Choice of Renal Arterial Anastomotic Methods in Kidney Allografts with Multiple Renal Arteries Does not Affect the Recovery Rate of Renal Plasma Flow After Kidney Transplantation**

Kenta Nishikawa[1], Kazunobu Shinoda[2], Takashi Yonekura[1], Maho Maeda[1], Kei Sakurabayashi[1], Yujiro Aoki[1], Yoshihiro Itabashi[1], Masaki Muramatsu[1], Takeshi Kawamura[1], Ken Sakai[1], Seiichiro Shishido[1] (*[1] Nephrology, Toho University Faculty of Medicine, Japan, [2] Urology, St Marianna University School of Medicine, Japan*)

MO09-5 **A Case of Bariatric Surgery for a Diabetic Kidney Transplant Recipient**

Kazuya Kabei[1], Tomoaki Iwai[1], Yuichi Machida[1], Toshihide Naganuma[1], Keiko Maeda[1], Norihiko Kumada[2], Kenji Hamazaki[3], Koji Masumoto[3], Masashi Takemura[4], Junji Uchida[1] (*[1] Department of Urology, Osaka Metropolitan University Graduate School of Medicine, Japan, [2] Urology, Suita Municipal Hospital, Japan, [3] Internal Medicine, Minami Osaka Hospital, Japan, [4] Surgery, Minami Osaka Hospital, Japan*)

MO09-6 **Renal Transplantation After Thoracic Endovascular Repair of Type B**

Kiyoshi Setoguchi, Tadahiko Tokumoto, Kazutaka Saito (*Department of Uroloy, Dokkyo Medical University Saitama Medical Center, Japan*)

Mini Oral 10

11:30 - 12:15

Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

Liver 2 (Pediatric)

Chair: Yasuhiro Ogura *(Transplantation Surgery, Nagoya University Hospital, Japan)*

MO10-1 **Long-Term Outcome of Pediatric Liver Transplants: The Immunosuppresion and Psycho-Social Development**

Rey-Heng Hu, Ming-Chih Ho, Cheng-Maw Ho, Chih-Yang Hsiao, Yaw-Ming Wu, Po-Huang Lee (*National Taiwan University Hospital, Taiwan*)

MO10-2 **Living Donor Liver Transplantation in Children Aged Less than 3 months: The Challenge of High Risk Pediatric Patients**

Yasuharu Onishi[1], Yukihiro Sanada[1], Noriki Okada[1], Yuta Hirata[1], Toshio Horiuchi[1], Takahiko Omameuda[1], Keiko Ogaki[2], Shinya Otomo[2], Natsumi Sekiya[3], Sachiyo Yoshida[3], Alan K. Lefor[1], Koichi Mizuta[1], Yasunaru Sakuma[1], Naohiro Sata[1] (*[1] Division of Gastroenterological, General and Transplant Surgery, Department of Surgery, Jichi Medical University, Japan, [2] Department of Pharmacy, Jichi Medical University Hospital, Japan, [3] Transplantation and Regenerative Medicine Center, Jichi Medical University Hospital, Japan*)

MO10-3 **What Is the Best Therapeutic Approach for Progressive Familial Intrahepatic Cholestasis Type I in Liver Transplantation? -Lessons Learned from Three Cases Receiving Different Approaches**

Tasuku Kodama, Hajime Uchida, Ryuji Komine, Toshimasa Nakao, Noriki Okada, Seiichi Shimizu, Akinari Fukuda, Seisuke Sakamoto, Mureo Kasahara (*Department of Transplant Surgery, National Center for Child Health and Development, Japan*)

MO10-4 **Spleen-Liver Volume Ratio as an Indication of Liver Transplantation for Patients with Biliary Atresia**

Koki Takase[1], Takehisa Ueno[1], Koichi Deguchi[1], Kazunori Masahata[1], Motonari Nomura[1], Miho Watanabe[1], Masafumi Kamiyama[1], Yuko Tazuke[1], Tadashi Kimura[2], Hiroomi Okuyama[1] (*[1] Department of Pediatric Surgery, Graduation School of Medicine, Osaka University, Japan, [2] Department of Pediatrics, Graduation School of Medicine, Osaka University, Japan*)

MO10-5 **Mac-2 Binding Protein Glycosylated Isomers as a Marker for Liver Graft Fibrosis in Pediatric Liver Transplantation**

Hiroki Yamana, Kazuaki Tokodai, Atsushi Fujio, Toshiaki Kashiwadate, Koji Miyazawa, Kengo Sasaki, Muneyuki Matsumura, Hiroaki Mitsugashira, Takashi Kamei, Michiaki Unno (*Department of Surgery, Tohoku University Hospital, Japan*)

MO10-6 **The Impact of Early Tacrolimus Exposure to Long-Term Renal Function and Growth in Pediatric Liver Transplant Recipients**

HW Wong, Tiffany CL Wong (*Department of Surgery, The University of Hong Kong, Hong Kong*)

Mini Oral 11

11:30 - 12:15

Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

Kidney 3 (Renal Function 2)

Chair: Jun-Ya Kaimori *(Osaka University Graduate School of Medicine, Japan)*

MO11-1 **Reproducibility of Computed Tomography Volumetry for Predicting Post-donation Remnant Renal Function: A Retrospective Analysis**

Nobutaka Nishimura, Shunta Hori, Mitsuru Tomizawa, Tatsuo Yoneda, Yosuke Morizawa, Daisuke Gotoh, Yasushi Nakai, Makito Miyake, Kazumasa Torimoto, Nobumichi Tanaka, Kiyohide Fujimoto (*Nara Medical University, Urology, Japan*)

MO11-2 **Efficacy of Hemodynamic Features During Kidney Transplantation in Predicting Delayed Graft Function**

Po-Ting Lin, Kuo-Jen Lin, Pai-Yen Pan, Sheng-Hsien Chu, Yang-Jen Chiang, Chih-Te Lin, Mei-Hsiu Lin, Hsu-Han Wang (*Division of Urology, Department of Surgery, Linkou Chang Gung Memorial Hospital, Taoyuan, Taiwan*)

MO11-3 **Arteriolar Hyalinization Predicts Outcome in Kidney Transplantation from Donors After Cardiac Death**

Masaki Murata[1], Masayuki Tasaki[1], Kazuhide Saito[1], Masahiro Ikeda[1], Shoko Ishikawa[1], Naofumi Imai[2], Yumi Ito[2], Ichiei Narita[2], Yoshihiko Tomita[1] ([1] *Department of Urology, Niigata University Graduate School of Medical and Dental Sciences, Japan,* [2] *Division of Clinical Nephrology and Rheumatology, Graduate School of Medical and Dental Sciences, Niigata University, Japan*)

MO11-4 **Measurement of Glomerular Filtration Rate Using D-serine Clearance in Kidney Transplant Donors and Recipients**

Ayumu Taniguchi[1], Masataka Kawamura[1], Tomonori Kimura[2,3,4,5], Ryo Tanaka[1], Shota Fukae[1], Shigeaki Nakazawa[1], Kazuaki Yamanaka[1], Masashi Mita[6], Masaru Horio[7], Shiro Takahara[7], Yoshitaka Isaka[5], Ryoichi Imamura[1], Norio Nonomura[1] ([1] *Department of Urology, Osaka University Graduate School of Medicine, Suita, Japan,* [2] *KAGAMI Project, National Institutes of Biomedical Innovation, Health and Nutrition (NIBIOHN), Japan,* [3] *Reverse Translational Project, Center for Rare Disease Research, National Institutes of Biomedical Innovation, Health and Nutrition (NIBIOHN), Japan,* [4] *Laboratory of Rare Disease Resource Library, Center for Rare Disease Research, National Institutes of Biomedical Innovation, Health and Nutrition (NIBIOHN), Japan,* [5] *Department of Nephrology, Osaka University Graduate School of Medicine, Japan,* [6] *KAGAMI Inc, Japan,* [7] *Kansai Medical Clinic for Renal Transplantation, Japan*)

MO11-5 **Dual Kidney Transplantation from a Donor with Renal Insufficiency**

Yuya Fujiwara[1,2], Hajime Hirano[1], Ryoichi Maenosono[1], Keita Nakamori[1], Yuki Tokunaga[1], Tomota Okabe[1], Hirofumi Uehara[1], Kazumasa Komura[1], Teruo Inamoto[1], Hayato Noumi[1], Azuma Haruhito[1] ([1] *Department of Urology, Osaka Medical and Pharmaceutical University, Japan,* [2] *Department of Urology, Tokyo Women's Medical University, Japan*)

MO11-6 **Fluctuations of the Serum Creatinine Level in Kidney Transplant Patients with Arteriosclerosis**

Ayaka Tanigawa[1], Naotsugu Ichimaru[2], Atsuyuki Morishima[1], Katsuhiko Sakaguchi[1], Toyofumi Abe[1], Yuriko Miyake[1] ([1] *Sumitomo Hospital, Japan,* [2] *Kinki Central Hospital, Japan*)

Mini Oral 12

11:30 - 12:15

Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

Kidney 4 (Surgical Technique 2)

Chair: Kazunari Yoshida *(Reiseikai Medical Institute / Department of Urology, Kitasato University, Japan)*

MO12-1 **Kidney Transplantation After Open Surgery of Type A Aortic Dissection**

Kiyoshi Setoguchi, Tadahiko Tokumoto, Kazutaka Saito (*Department of Urology, Dokkyo Medical University Saitama Medical Center, Japan*)

MO12-2 **Robot Assisted Kidney Transplantation: A Case Series**

Seung Jae Jason Kim, Jongwon Ha, Ahram Han, Sang Il Min (*General Surgery, Seoul National University Hospital, Republic of Korea*)

MO12-3 **En Bloc Kidney Transplant from Pediatric Donors to Teenage Recipients: A Single-center Experience**

Takafumi Yagisawa[1], Taichi Kanzawa[1], Toshihito Hirai[1], Kohei Unagami[2], Kumiko Kitajima[2], Yoko Shirai[3], Kiyonobu Ishizuka[3], Kenichiro Miura[3], Kazunari Tanabe[1], Motoshi Hattori[3], Hideki Ishida[1,2], Toshio Takagi[1] (*[1] Department of Urology, Tokyo Women's Medical University, Japan, [2] Department of Organ Transplantation, Tokyo Women's Medical University, Japan, [3] Department of Pediatric Nephrology, Tokyo Women's Medical University, Japan*)

MO12-4 **A Case of Laparoscopic Donor Nephrectomy for Ectopic Kidney**

Yoko Maegawa, Koichi Tsutahara, Yoichi Kakuta, Masahiro Nakagawa, Tetsuya Takao (*Urology, Osaka General Medical Center, Japan*)

MO12-5 **Arterial Anastomosis with Plication of Internal Iliac Artery for Kidney Transplantation**

Kiyoshi Setoguchi, Tadahiko Tokumoto, Kazutaka Saito (*Department of Urology, Dokkyo Medical University Saitama Medical Center, Japan*)

MO12-6 **Orthotopic Ileal Neobladder Reconstruction for Post Renal Transplantation Urothelial Carcinoma**

Yuta Sano[1], Tomonori Komatsu[2], Ataru Nakane[1], Yuji Naito[1], Kazuna Matsuo[1], Tomoyasu Sano[1], Shohei Ishida[1], Norihisa Matsukawa[1], Masashi Kato[1] (*[1] Urology, Nagoya University Graduate School of Medicine, Japan, [2] Urology, Chukyo Hospital, Japan*)

Mini Oral 13

14:00 - 14:45

Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

Kidney 5 (Renal Function 3)

Chair: Tadashi Sofue *(Department of Nephrology and Dialysis, Department of Cerebrovascular Medicine, Kagawa University, Japan)*

MO13-1 **Effectiveness of CT Volumetry in Evaluating Living-donor Renal Function**

Ryohei Yamamoto, Mitsuru Saito, Yu Aoyama, Ryuichiro Sagehashi, Mizuki Kobayashi, Soki Kashima, Takatoshi Nara, Kazuyuki Numakura, Shintaro Narita, Tomonori Habuchi (*Dept. of urology, Akita University School of Medicine, Japan*)

MO13-2 **The Impact of Intraoperative Graft Blood Flow Measurement on Early Graft Function**

Yun Ren Li[1], Chung-Yi Liu[2], Kuan-Lin Liu[1], Kuo-Jen Lin[1], Chih-Te Lin[1], Yang-Jen Chiang[1], Sheng-Hsien Chu[1], Hsu-Han Wang[1] (*[1] Department of Urology, Chang-Gung Memorial Hospital, Taiwan, [2] Department of Urology, New Taipei Municipal Tu Cheng Hospital, Chang Gung Memorial Hospital and Chang Gung University, Taiwan*)

MO13-3 **The Characteristics of Renal Cell Carcinoma Patients Who Received Dialysis and/or Kidney Transplant**

Yuhji Marui, Naoto Aoki, Keisuke Matsubara, Takashi Shimizu, Masahide Sasaki, Ryuji Yamada, Hikaru Tsukada, Naoto Yoza, Tomohiro Nishi, Koichiro Aida, Nozomi Hayakawa, Ryuto Nakazawa, Kazunobu Shinoda, Eiji Kikuchi (*Department of Urology, St Marianna University School of Medicine, Japan*)

MO13-4 **Recovery Rate of Renal Plasma Flow After Kidney Transplantation did not Differ in the Choice of Renal Arterial Anastomotic Site**

Takashi Yonekura[1], Kazunobu Shinoda[2], Kenta Nishikawa[1], Maho Maeda[1], Kei Sakurabayashi[1], Yujiro Aoki[1], Yoshihiro Itabashi[1], Masaki Muramatsu[1], Takeshi Kawamura[1], Ken Sakai[1], Seiichiro Shishido[1] (*[1] Department of Nephrology, Toho University Faculty of Medicine, Japan, [2] Department of Urology, St Marianna University School of Medicine, Japan*)

MO13-5 **Does the Plurality of Donor´s Renal Artery Affect the Renal Function of Living Kidney Transplant?**

Akinobu Ishiyama, Kouhei Nishikawa, Kaho Deguchi, Hiroyuki Oue, Takashi Okamoto, Shinya Kajiwara, Shinichiro Higashi, Takeshi Sasaki, Satoru Masui, Takahiro Inoue (*Department of Nephro-Urologic Surgery and Andrology, Mie University Graduate School of Medicine, Japan*)

MO13-6 **Perfusate NGAL, KIM-1, L-FABP, and IL-18 May Act as Biomarkers to Predict Delayed Graft Function and Long-Term Prognosis in Kidney Transplant Recipients**

Zihao Gao, Zejia Sun, Xin Li, Wei Wang, Peng Qiao (*Department of Urology, Capital Medical University Beijing Chaoyang Hospital, China*)

Mini Oral 14

14:00 - 14:45

Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

Kidney 6 (Surgical Technique, Case Report)

Chair: Kazuaki Yamanaka *(Department of Urology, Osaka University Graduate School of Medicine, Japan)*

MO14-1 **A Case of Laparoscopic Donor Nephrectomy from a Horseshoe Kidney in a Married Couple Undergoing Living Donor Renal Transplantation**

Takashi Kikuchi[1], Mamoru Hashimoto[1], Syougo Adomi[1], Yoshitaka Saitou[1], Yasunori Mori[1], Kazutoshi Fujita[1], Kazuhiro Nose[1], Kazuhiro Yoshimura[1], Hirotsugu Uemura[1], Kentarou Tamai[2], Masaaki Imanishi[2], Taiji Hayashi[3], Tsukasa Nishioka[3], Takahiro Akiyama[4] (*[1] Department of Urology, Kindai University faculty of Medicine, Japan, [2] Department of Urology, Saiseikai tondabayashi Hospital, Japan, [3] Department of Urology, Izumi - City General Hospital, Japan, [4] Department of Urology, Sakai Heisei Hospital, Japan*)

MO14-2 **A Case of Kidney Transplantation After Multiple Urinary Tract Conversion with an Ileal Conduit**

Chika Nagahisa[1], Kohei Unagami[2,3], Taro Banno[1], Rikako Oki[2,3], Takafumi Yagisawa[1], Taichi Kanzawa[1], Toshihito Hirai[1], Kazuya Omoto[1], Toshio Takagi[1], Hideki Ishida[3] (*[1] Urology, Tokyo Women's Medical University, Japan, [2] Nephrology, Tokyo Women's Medical University, Japan, [3] Organ Transplant Medicine, Tokyo Women's Medical University, Japan*)

MO14-3 **A Case of Kidney Transplantation After TAE for Cyst Infection in a Hemodialysis Patient with ADPKD**

Keiko Iguchi[1], Tomoaki Iwai[1], Akihiro Kosoku[2], Shunji Nishide[3], Kazuya Kabei[1], Norihiko Kumada[4], Junji Uchida[1] (*[1] Department of Urology, Osaka Metropolitan University Graduate School of Medicine, Japan, [2] Department of Urology, Meijibashi Hospital, Japan, [3] Department of Urology, Osaka City General Hospital, Japan, [4] Department of Urology, Suita Municipal Hospital, Japan*)

MO14-4 **Rapid Deterioration of Graft Function in Kidney Transplant from The Donor with Diffuse Proliferative Lupus Nephritis with Thrombotic Microangiopathy**

Young Ju Oh, Cheol Woong Jung, Heungman Jun (*Department of Surgery, Korea University Anam Hospital, Republic of Korea*)

MO14-5 **Effectiveness of Lymphatic Lipiodol Embolization for Post Renal Transplant Lymphoceles**

Kasumi Konishi[1], Yuugo Ito[1], Nozomi Kadota[1], Takuya Fujimaru[1], Masahiko Nagahama[1], Fumika Taki[1], Kenji Komatsu[2], Masaki Shinbo[2], Masaaki Nakayama[1] (*[1] Department of Nephrology, St. Luke's International Hospital, Japan, [2] Department of Urology, St. Luke's International Hospital, Japan*)

MO14-6 **A Case Report of Thrombosis in a Transplanted Kidney Caused by PHD Inhibitor Administration in Our Hospital**

Shunji Nishide[1], Tomohiro Asai[1], Kaori Kimura[1], Masaki Yamagata[1], Akinori Minami[1], Tikako Nishihara[1], Tomohiro Hasaka[1], Keiiti Ishii[1], Sadanori Kamikawa[1], Junji Uchida[2] (*[1] Urology, Osaka City General Hospital, Japan, [2] Urology, Osaka Metropolitan University, Japan*)

Mini Oral 15

14:00 - 14:45

Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

Kidney 7 (Nutrition, Diabetes 1)

Chair: Hajime Hirano *(Department of Urology, Osaka Medical and Pharmaceutical University Hospital, Japan)*

MO15-1 **Frailty and Sarcopenia in Older Kidney Transplant Recipients: A Cross-sectional Study**

Akihiro Kosoku[1,2], Tomoaki Iwai[1], Kazuya Kabei[1], Shunji Nishide[3], Junji Uchida[1] (*[1] Urology, Osaka Metropolitan University Graduate School of Medicine, Japan, [2] Urology, Meijibashi Hospital, Japan, [3] Urology, Osaka City General Hospital, Japan*)

MO15-2 **Adverse Effect of Denosumab in Renal Transplant Recipient, 20-Year Retrospective Monocentric Observational Study**

Tsung Yin Tsai[1,2], Cheng-Hsu Chen[1,2], Yung-Chieh Lin[3] (*[1] Taichung Veterans General Hospital Chiayi Branch, Taiwan, [2] Division of Nephrology, Department of Internal Medicine, Taichung Veterans General Hospital, Taichung, Taiwan, [3] Department of Urology, Hsinchu Branch, MacKay Memorial Hospital*)

MO15-3 **Remarkable Improvement of Diabetic Nephropathy in Transplanted Kidney after Kidney Transplantation**

Ryo Tanaka[1], Shota Fukae[1], Ayumu Taniguchi[1], Shigeaki Nakazawa[1], Kazuaki Yamanaka[1], Tomoko Namba[2], Tetsuya Takao[3], Ryoichi Imamura[1], Norio Nonomura[1] (*[1] Department of Urology, Osaka University Graduate School of Medicine, Japan, [2] Department of Nephrology, Osaka University Graduate School of Medicine, Japan, [3] Department of Urology, Osaka General Medical Cancer, Japan*)

MO15-4 **Wound Complications Following Renal Transplantation. A Single Centre Experience**

Alexandra O Stathis, Karen Keung, Kenneth Yong (*Prince of Wales Hospital, Australia*)

MO15-5 **The Efficacy of Switch from ESA to HIF-PHI for Anemia in RT Patients**

Nobuyuki Nakamura[1], Shintaro Aso[1], Chizuru Nakagawa[1], Masahiro Tachibana[1], Aiko Fujikawa[1], Kazuna Tsubouchi[1], Naotaka Gunge[1], Takeshi Miyazaki[1], Yu Okabe[1], Hiroshi Matsuzaki[1], Hirofumi Matsuoka[1], Kenji Ito[2], Tetsuhiko Yasuno[2], Kosuke Masutani[2], Nobuhiro Haga[1] (*[1] Department of Urology, Fukuoka University School of Medicine, Japan, [2] Department of Nephrology and Rheumatology, Fukuoka University School of Medicine, Japan*)

MO15-6 **High Alternative Health Eating Index-Taiwan Scores Is Associated with Prevent Graft Dysfunction in Taiwanese Renal Transplant Recipients**

I-Hsin Tseng[1], I-Hsin Lin[1], Tuyen Van Duong[2], Shih-Wei Nien[1], Hsu-Han Wang[3], Yang-Jen Chiang[3], Shwu-Huey Yang[2,4,5], Te-Chih Wong[6] (*[1] Department of Medical Nutrition Therapy, Linkou Chang Gung Memorial Hospital, Taiwan, [2] School of Nutrition and Health Sciences, College of Nutrition, Taipei Medical University, Taiwan, [3] Department of Urology, Linkou Chang Gung Memorial Hospital, Taiwan, [4] Research Center of Geriatric Nutrition, College of Nutrition, Taipei Medical University, Taiwan, [5] Nutrition Research Center, Taipei Medical University Hospital, Taiwan, [6] Department of Nutrition and Health Sciences, Chinese Culture University, Taiwan*)

Mini Oral 16

14:00 - 14:45

Mini Oral Booth D (Central, Kyoto Sangyo Kaikan Hall)

Kidney 8 (Malignancy 1)

Chair: Shigeaki Nakazawa *(Department of Urology, Osaka University Graduate School of Medicine, Japan)*

MO16-1 **Successful Renal Transplantation with CML After 15 Years of Remission**

Tadahiko Tokumoto, Kiyoshi Setoguchi, Yasuyuki Inoue, Kazutaka Saito (*Department of Urology, Dokkyo Medical University Saitama Medical Center, Japan*)

MO16-2 **Outcome of Brain Lymphoma in High EBV-Prevalence Country After Kidney Transplantation**

Yi An Huang, Tung-Min Yu, Shang-Feng Tsai, Ming-Ju Wu, Cheng-Hsu Chen (*TVGH, Taiwan*)

MO16-3 **Outcomes of Post-Transplant Lymphoproliferative Disorder in Kidney Transplantation in Japan**

Taigo Kato[1], Takahiro Yoshida[2], Ayumu Taniguchi[1], Shota Fukae[1], Masataka Kawamura[1], Shigeaki Nakazawa[1], Kazuaki Yamanaka[1], Tomoko Namba-Hamano[3], Ryo Tanaka[1], Katsuhiro Nakagawa[2], Hidefumi Kishikawa[2], Norio Nonomura[1], Ryoichi Imamura[1] (*[1] Department of Urology, Osaka Unviersity Graduate School of Medicine, Japan, [2] Department of Urology, Hyogo Prefectural Nishinomiya Hospital, Japan, [3] Department of Nephrology, Osaka University Graduate School of Medicine, Japan*)

MO16-4 **Assessment of Tumor Markers in Renal Transplant Recipients**

Shota Fukae[1,2], Kazuaki Yamanaka[1], Sayoko Yonemoto[3], Takahiro Yoshida[2], Masahiro Nakagawa[2], Naohiko Fujii[3], Hidefumi Kishikawa[2] (*[1] Department of Urology, Graduate School of Medicine, Osaka University, Japan, [2] Department of Urology, Hyogo Prefectural Nishinomiya Hospital, Japan, [3] Department of Nephrology, Hyogo Prefectural Nishinomiya Hospital, Japan*)

MO16-5 **Successful Kidney Transplantation in a Patient with Chronic Myeloid Leukemia After Imatinib Treatment: A Case Report**

Kiyoshi Setoguchi, Tadahiko Tokumoto, Kazutaka Saito (*Department of Urology, Dokkyo Medical University Saitama Medical Center, Japan*)

MO16-6 **Recurrence of Cancer in 188 Kidney Transplant Recipients**

Kota Ishii[1], Toshihiko Hirai[1], Shuhei Nozaki[1], Chika Nagahisa[1], Shun Watanabe[1], Yuya Fujiwara[1], Taro Banno[1], Rikako Ooki[1,2], Ayaka Saito[1], Takafumi Yagisawa[1], Kohei Unagami[1,2,3], Taichi Kanzawa[1], Kazuya Omoto[1], Toshio Takagi[1], Hideki Ishida[1,2] (*[1] Department of Urology, Tokyo Woman's Medical University, Japan, [2] Department of Transplantation Management, Tokyo Women's Medical University, Japan, [3] Department of Nephrology, Tokyo Women's Medical University, Japan*)

Mini Oral 17

14:50 - 15:35

Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

Kidney 9 (Organ Preservation)

Chair: Yoichi Kakuta *(Department of Urology, Osaka General Medical Center, Japan)*

MO17-1 **The First Clinical Multi-Center Study on Machine Perfusion Preservation of Marginal Donor Kidney Transplantation in Japan –An Interim Report–**

Hitoshi Iwamoto[1], Naoto Matsuno[2], Osamu Konno[1], Yuki Nakamura[3], Yasuo Ishii[3], Shigehito Miyagi[4], Mamoru Kusaka[5], Taihei Ito[6], Takashi Kenmochi[6] (*[1] Department of Kidney Transplantation Surgery, Hachioji Medical Center, Tokyo Medical University, Japan, [2] Department of Hepato-biliary Pancreatic and Transplantation surgery, Asahikawa Medical University, Japan, [3] Department of Surgery, Nephrology Center, Toranomon Hospital, Japan, [4] Department of Surgery, Tohoku University, Japan, [5] Department of Urology, Okazaki Medical Center, Fujita Health University, Japan, [6] Department of Transplantation and Regenerative Medicine, School of Medicine, Fujita Health University, Japan*)

MO17-2 **Visualization of Ischemia Reperfusion Injury of Kidney and Prediction of Early Allograft Dysfunction After Kidney Transplantation Using Cysteine Probe**

Hye Young Woo, Sang-il Min, Ahram Han, Jongwon Ha (*Department of Surgery, Seoul National University College of Medicine, Republic of Korea*)

MO17-3 **Kidney Transplantation Preserved with Hypothermic Machine Perfusion for Marginal Donor : A Report of Two Cases**

Yu Kihara[1], Osamu Konno[1], Masahiko Okihara[1], Isao Akashi[1], Naoto Matsuno[2], Hitoshi Iwamoto[1] (*[1] Kidney Transplantation Surgery, Tokyo Medical University, Japan, [2] Hepato-biliary Pancreas and Transplantation Surgery, Asahikawa Medical University, Japan*)

MO17-4 **Hypothermia Protects Against Renal Fibrosis After Ischemia Reperfusion Injury**

Moo Jun Kim[1], Jin Ah Shin[2], Dae Eun Choi[1,2], Eu Jin Lee[1], Young Rok Ham[1], Ki Ryang Na[1], Kang Wook Lee[1] (*[1] Nephrology, Chungnam National University Hospital, Republic of Korea, [2] Medical Science, Chungnam National University, Republic of Korea*)

MO17-5 **OrganPocket: A Novel Protective Kidney Transplantation Device Against Secondary Warm Ischemia**

Shinji Torai[1,2], Kanta Kurauchi[2], Eiji Kobayashi[1] (*[1] The Jikei University School of Medicine Department of Kidney Regenerative Medicine, Japan, [2] SCREEN Holdings Co., Ltd., Japan*)

MO17-6 **Protection From Second Warm Ischemic Injury Using Thermal Barrier Bag in Kidney Transplantation**

Kentaro Ide[1], Hiroyuki Tahara[1], Masahiro Ohira[1], Naoki Tanimine[1], Hiroshi Sakai[1], Ryosuke Nakano[1], Yuki Imaoka[1], Kosuke Ono[1], Naofumi Tsukiyama[1], Ryosuke Arata[1], Keishi Hakoda[1], Keiko Ueda[2], Taizo Hirata[2], Eiji Kobayashi[3], Hideki Ohdan[1] (*[1] Department of Gastroenterological and Transplant Surgery, Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan, [2] Clinical Research Center in Hiroshima, Hiroshima University Hospital, Japan, [3] Department of Kidney Regenerative Medicine, The Jikei University School of Medicine, Japan*)

Mini Oral 18

14:50 - 15:35

Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

Kidney 10 (Infection, Diagnostic Imaging)

Chair: Atsushi Takahashi *(Department of Nephrology, Osaka University Graduate School of Medicine, Japan)*

MO18-1 **A Case of Emphysematous Pyelonephritis After Renal Allograft Loss, Leading to Transplant Nephrectomy**

Takahito Wakamiya, Kazuro Kikkawa, Yasuo Kohjimoto, Isao Hara (*Urology, Wakayama Medical University, Japan*)

MO18-2 **The Phenomenon of Helper T-Cell Exhaustion and Cytokine-Attenuation of NKT in BK-infected Renal Transplant Patients is Correlated to Poor Outcome**

Wei-Ciao Wu[1,2], Wei-Yi Wu[3,4,5] (*[1] Graduate Institute of Medical Sciences, College of Medicine, Taipei Medical University, Taiwan, [2] Division of Thoracic Surgery, Department of Surgery, Taipei Medical University-Shuang Ho Hospital, Taiwan, [3] Division of Nephrology, Department of Internal Medicine, Taipei Medical University-Shuang Ho Hospital, Taiwan, [4] Division of Nephrology, Department of Internal Medicine, School of Medicine, College of Medicine, Taipei Medical University, Taiwan, [5] Taipei Medical University-Research Center of Urology and Kidney (TMU-RCUK), School of Medicine, College of Medicine, Taipei Medical University, Taiwan*)

MO18-3 **Usefulness of Pre- and Post- Transplant BK Virus-Specific ELISPOT Assay for Predicting the Outcome of BK Virus Infection in Kidney Transplant Recipients**

Eun Jeong Ko[1,2], Hyungjoo Bae[3], Chul Woo Yang[1,2], Eun-Jee Oh[3], Byung Ha Chung[1,2] (*[1] Division of Nephrology, Department of Internal Medicine, Seoul St.Mary's Hospital, The Catholic University of Korea, Republic of Korea, [2] Transplant research center, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Republic of Korea, [3] Department of Laboratory Medicine, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Republic of Korea*)

MO18-4 **Comparison of an Antigenemia Assay and Quantitative Nucleic Acid Testing for CMV Infection**

Masahiro Ikeda, Masayuki Tasaki, Kazuhide Saito, Yoshihiko Tomita (*Division of Urology, Department of Regenerative and Transplant Medicine, Graduate School of Medical and Dental Sciences, Niigata University, Japan*)

MO18-5 **A Case of Kidney Transplant Recipient with Organizing Pneumonia After Graft Loss**

Sho Matsui[1], Tomoko Namba-Hamano[1], Shihomi Maeda[1], Atsushi Takahashi[1], Jun-Ya Kaimori[3], Shota Fukae[2], Ryo Tanaka[2], Ayumu Taniguchi[2], Shigeaki Nakazawa[2], Kazuaki Yamanaka[2], Ryoichi Imamura[2], Norio Nonomura[2], Yoshitaka Isaka[1] (*[1] Department of Nephrology Osaka University Graduate School of Medicine, Japan, [2] Department of Urology Osaka University Graduate School of Medicine, Japan, [3] Department of Inter-Organ Communication Research in Kidney Disease, Osaka University Graduate School of Medicine, Japan*)

MO18-6 **Examination of Multiple Renal Artery Grafts Sacrificed Based on CT Image Analysys**

Taiki Ogasa[1], Yuki Nakagawa[1], Gento Oomae[1], Takeshi Ashizawa[1], Keisuke Saito[1], Toshiyuki China[1], Shuji Isotani[1], Kenta Futamura[2], Manabu Okada[2], Takahisa Hiramitsu[2], Norihiko Goto[2], Shuji Narumi[2], Yoshihiko Watarai[2], Shigeo Horie[1] (*[1] Urology, Juntendo University, Japan, [2] Transplant Surgery, Japanese Red Cross Aichi Medical Center Nagoya Daini Hospital, Japan*)

Mini Oral 19

14:50 - 15:35

Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

Kidney 11 (Nutrition, Diabetes 2)

Chair: Hajime Hirano *(Department of Urology, Osaka Medical and Pharmaceutical University Hospital, Japan)*

MO19-1 **Usefulness of Dietary Salt Restriction in Kidney Transplant Recipients: Analysis of Blood Pressure Levels Depending on the Differences in the Levels of Salt Intake**

Hajime Hirano, Yuya Fujiwara, Koichiro Minami, Ryoichi Maenosono, Syunri Taniguchi, Tomota Okabe, Keita Nakamori, Hirofumi Uehara, Kazumasa Komura, Hayahito Nomi, Teruo Inamoto, Haruhito Azuma (*Department of Urology, Osaka Medical and Pharmaceutical University, Japan*)

MO19-2 **Identifying High Risk Patients for New Onset Diabetes after Kidney Transplantation Using a Continuous Glucose Monitoring Device**

EunAh Jo[1], Ara Cho[1], Hye Young Woo[1], Sangil Min[1], Ahram Han[1], Jongwon Ha[1], Yong Min Cho[2], Hajeong Lee[3], Yong Chul Kim[3], Hun Jee Choe[2] ([1] *Department of Surgery, Seoul National University College of Medicine, Seoul, Republic of Korea,* [2] *Department of Endocrinology, Seoul National University College of Medicine, Seoul, Republic of Korea,* [3] *Department of Nephrology, Seoul National University College of Medicine, Seoul, Republic of Korea*)

MO19-3 **The Relationship of the Fatigue with Graft Function and Employment Status in Kidney Transplant Recipients**

Yuki Yoshikawa[1], Keiko Maeda[2], Akihiro Kosoku[3], Junji Uchida[3] ([1] *Shitennoji University, Japan,* [2] *Department of Nursing, Osaka Metropolitan University Hospital, Japan,* [3] *Department of Urology, Osaka Metropolitan University Graduate School of Medicine, Japan*)

MO19-4 **Dietary Effect on Graft Function on Stationary Kidney Allograft Recipients during Traditional Holidays in Taiwan**

HsuHan Wang[1], JenHuuan Wu[1], YingHao Hsu[1], ShengHsien Chu[1], YangJen Chiang[1], KuoJen Lin[1], PaiYen Pan[1], YunRen Li[1], LeeChuan Chen[1], JuiYen Wang[2] ([1] *Chang Gung Memorial Hospital, Taiwan,* [2] *Epsom College, UK*)

MO19-5 **Comparisons of Clinical Outcomes Among Young, Middle, and Elderly Kidney Transplant Recipients:Pharmacological Analyses of Immunosuppressants**

Ryuichiro Sagehashi[1], Mitsuru Saito[1], Yu Aoyama[1], Ryohei Yamamoto[1], Nobuhiro Fujiyama[2], Hideaki Kagaya[3], Mizuki Kobayashi[1], Souki Kashima[1], Taketoshi Nara[1], Kazuyuki Numakura[1], Shintaro Narita[1], Tomonori Habuchi[1] ([1] *Department of Urology, Akita University Graduate School of Medicine, Japan,* [2] *Center for Kidney Disease and Transplantation, Akita University Hospital, Japan,* [3] *Department of Pharmacy, Akita University Hospital, Japan*)

MO19-6 **Prevalence of Frailty and Associated Factors Among Kidney Transplant Recipients in China**

Huawei Cao, Jiandong Zhang, Wei Wang (*Department of Urology, Beijing Chao-yang Hospital, Capital Medical University, China*)

Mini Oral 20

14:50 - 15:35

Mini Oral Booth D (Central, Kyoto Sangyo Kaikan Hall)

Kidney 12 (Malignancy 2, Adverse Event, Non-adherence,Pregnancy)

Chair: Junji Uchida *(Department of Urology, Osaka Metropolitan University Graduate School of Medicine, Japan)*

MO20-1 **Occurrence of Malignant Tumors in Post-Renal Transplant Patients at Our Hospital**

Koichiro Minami, Hajime Hirano, Hirofumi Uehara, Kazumasa Komura, Ryoichi Maenosono, Yuya Fujiwara, Tomota Okabe, Keita Nakamori, Teruo Inamoto, Hayahito Nomi, Haruhito Azuma (*Department of Urology, Osaka Medical and Pharmaceutical University Faculty of Medicine, Japan*)

MO20-2 **A Case of Inguinal Lymphadenopathy After Renal Transplantation Leading to the Diagnosis of Prostate Cancer**

Yasuto Enoki, Tomonao Naraki, Koichiro Saita, Takenari Mori, Akihiko Mitsuke, Takashi Sakaguchi, Hiroaki Nishimura, Shuichi Tatarano, Yasutoshi Yamada, Hideki Enokida (*Department of Urology, Kagoshima University Hospital, Japan*)

MO20-3 **Clinical Review of 35 Kidney Retransplamtation Cases : A Single Center Experience**

Yoko Maegawa, Hidefumi Kishikawa, Toshimitsu Tanaka, Shu Okamoto, Takahiro Yoshida, Masahiro Nakagawa (*Urology, HyogoPrefectural Nishinomiya Hospital, Japan*)

MO20-4 **Association of *P*-Cresyl Sulfate with Peripheral Artery Disease in Kidney Transplantation Patients**

Ching-Chun Ho[1,2], Yen-Cheng Chen[1,2], Ming-Che Lee[3,4], Bang-Gee Hsu[2,5] ([1] *Department of Surgery, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Taiwan,* [2] *School of Medicine, Tzu Chi University, Taiwan,* [3] *Division of General Surgery, Department of Surgery, Wan Fang Hospital, Taipei Medical University, Taiwan,* [4] *Department of Surgery, School of Medicine, College of Medicine, Taipei Medical University, Taiwan,* [5] *Division of Nephrology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Taiwan*)

MO20-5 **Appointment Non-Adherence and Graft Outcomes in Living Donor Kidney Transplantation**

Shigeyoshi Yamanaga[1], Yuji Hidaka[1], Chiaki Kawabata[2], Mariko Toyoda[2], Yasuhiro Yamamoto[3], Akito Inadome[3], Hiroshi Yokomizo[1] ([1] *Department of Surgery, Japanese Red Cross Kumamoto Hospital, Japan,* [2] *Department of Nephrology, Japanese Red Cross Kumamoto Hospital, Japan,* [3] *Department of Urology, Japanese Red Cross Kumamoto Hospital, Japan*)

MO20-6 **Preconception Care and Pregnancy Complications After Kidney Transplantation: A Single-Center Study**

Rikako Oki[1,2], Kohei Unagami[2,3,4], Jun Kakogawa[5], Hiroko Beppu[6], Takafumi Yagisawa[2], Taichi Kanzawa[2], Toshihito Hirai[2], Hiroki Shirakawa[2,7], Kazuya Omoto[2], Kumiko Kitajima[4], Toshio Takagi[2], Hideki Ishida[4] ([1] *Department of Nephrology and Endocrinology, The University of Tokyo Hospital, Japan,* [2] *Department of Urology, Tokyo Womens Medical University, Japan,* [3] *Department of Nephrology, Tokyo Womens Medical University, Japan,* [4] *Department of Organ Transplant Medicine, Tokyo Womens Medical University, Japan,* [5] *Department of Obstetrics and Gynecology, Tokyo Womens Medical University, Japan,* [6] *Department of Nephrology, Okubo Hospital, Japan,* [7] *Department of Urology, Okubo Hospital, Japan*)

Mini Oral 21

15:40 - 16:15

Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

Liver 3 (Organ Preservation)

Chair: Yasushi Hasegawa *(Department of Surgery, Keio University School of Medicine, Japan)*

MO21-1 **Beneficial Effects of Combined Use of ECMO and Hypothermic Machine Perfusion for Porcine DCD Liver**

Hiroyoshi Iwata[1,2], Tetsuya Nakajo[2], Hiromichi Obara[3], Tomomasa Okazawa[3], Hiroki Kaneko[4], Hiroki Bochimoto[5], Makito Ohashi[6], Aiko Kawada[6], Xiao-Kang LI[7], Shunsuke Iwai[2], Mizuho Ohara[2], Naoto Matsuno[2] (*[1] Department of Surgery, Hokkaido PWFAC Engaru-Kosei General Hospital, Japan, [2] Department of Transplantation Technology and Therapeutic Development, Asahikawa Medical University, Japan, [3] Department of Mechanical System Engineering, Tokyo Metropolitan University, Japan, [4] Azabu University Veterinary Teaching Hospital, Japan, [5] Department of Cell Physiology, The Jikei University School of Medicine, Japan, [6] Department of Clinical Engineering, Center Hospital of the National Center for Global Health and Medicine, Japan, [7] Department of Allergy and Clinical Immunology, National Center for Child Health and Development, Japan*)

MO21-2 **Functional Assessment of Cardiac Arrest Hepatocytes and Effect of Mechanical Perfusion on Function**

Naruhito Takido[1], Atsushi Fujio[1], Hiroyasu Nishimaki[1], Hiroki Yamana[1], Takehiro Imura[2], Toshiaki Kashiwadate[1], Shigehito Miyagi[1], Takashi Kamei[1], Michiaki Unno[1], Masafumi Goto[2] (*[1] Department of Surgery, Tohoku University Graduate School of Medicine, Japan, [2] Division of Transplantation and Regenerative Medicine, Tohoku University Graduate School of Medicine, Japan*)

MO21-3 **Evaluation of Porcine DCD Liver Functions Prior to Transplantation During Machine Perfusion**

Hiromichi Obara[1,2,4], Yuga Okazawa[1], Hiroyoshi Iwata[2], Tetsuya Nakajo[2], Taiki Kaneko[2], Hiroki Bochimoto[3], Makito Ohashi[4], Mizuho Ohara[2], XiaoKang Li[4], Naoto Matsuno[1,2,4] (*[1] Tokyo Metropolitan University, Japan, [2] Transplantation Technology and Therapeutic Development, Asahikawa Medical University, Japan, [3] Cell Physiology, Jikei University School of Medicine,Japan, [4] National Center for Child Health and Development, Japan*)

MO21-4 **Basic Characteristics of Subnormothermic Regional Perfusion for DCD Porcine Liver**

Hiroki Kaneko[1,2], Hiromichi Obara[2,3,5], Hiroyoshi Iwata[2], Yuga Okazawa[3], Tetsuya Nakajo[2], Hiroki Bochimoto[4], Makito Ohashi[5], Mizuho Ohara[3], Xiao Kang Li[5], Naoto Matsuno[2,3,5] (*[1] Veterinary Medicine, Azabu University, Japan, [2] Transplantation Technology and Therapeutic Development, Asahikawa Medical University, Japan, [3] Organ Engineering, Tokyo Metropolitan University, Japan, [4] Cell Physiology, Jikei University School of Medicine, Japan, [5] National Center for Child Health and Development, Japan*)

MO21-5 **Novel Strategy to Enable Transplantation of Liver Graft After Cardiac Arrest - Study in Pig Models**

Syuhei Yoshimoto[1], Shinji Torai[1,2], Hiroo Kasamatsu[1], Jun Ishikawa[1], Masayuki Ohara[1], Akihiko Soyama[3], Masayuki Fukumoto[3], Takanobu Hara[3], Masaaki Hidaka[3], Susumu Eguchi[3], Eiji Kobayashi[2] (*[1] SCREEN Holdings Co., Ltd, Japan, [2] The Jikei University School of Medicine Department of Kidney Regenerative Medicine, Japan, [3] Department of Surgery, Nagasaki University Graduate School of Biomedical Sciences, Japan*)

Mini Oral 22

15:40 - 16:25

Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

Transplant Immunosuppression 1

Chair: Haruhito Azuma *(Department of Urology, Faculty of Medicine, Osaka Medical and Pharmaceutical University, Japan)*

MO22-1 **Validation of Mycophenolate Mofetil Dose in Living-Donor Kidney Transplantation in Our Institution**

Kouhei Nishikawa, Akinobu Ishiyama, Momoko Kato, Shinichiro Higashi, Takeshi Sasaki, Satoru Masui, Takahiro Inoue (*Department of Nephro-Urologic Surgery and Andrology, Mie University Graduate School of Medicine, Japan*)

MO22-2 **mTOR Inhibitor Effects on Activated Regulatory T Cell Expansion in Kidney Transplantation**

Yusuke Tomita, Saeko Uehara, Shinya Takiguchi, Michio Nakamura (*Department of Transplant Surgery, Tokai University Hospital, Japan*)

MO22-3 **Late Conversion to a Calcineurin Inhibitor-Free Regimen with Everolimus After Renal Transplantation**

Naoya Iwahara, Kiyohiko Hotta, Takayuki Hirose, Nobuo Shinohara (*Department of Urology, Hokkaido University Hospital, Japan*)

MO22-4 **Development of Medication Adherence Scale Appropriating for Transplant Patients in Japan**

Akihiro Kosoku[1,2], Tomoaki Iwai[1], Hiroo Masuda[3], Kazuya Kabei[1], Shunji Nishide[3], Keiko Maeda[4], Yuki Yoshikawa[5], Yasutaka Nakamura[6], Junji Uchida[1] (*[1] Urology, Osaka Metropolitan University Graduate School of Medicine, Japan, [2] Urology, Meijibashi Hospital, Japan, [3] Urology, Osaka City General Hospital, Japan, [4] Nursing, Osaka Metropolitan University Hospital, Japan, [5] Nursing, Shitennoji University, Japan, [6] Pharmacy, Osaka Metropolitan University Hospital, Japan*)

MO22-5 **Quadruple Induction Regimen with Everolimus Prevents Development of De Novo Donor-Specific Antibody**

Masayoshi Miura[1], Hiroshi Higashiyama[1], Mayumi Yoshihara[2] (*[1] Department of Urology and Kidney Transplantation Surgery, Sapporo Hokuyu Hospital, Japan, [2] Department of Nephrology, Sapporo Hokuyu Hospital, Japan*)

MO22-6 **Bexarotene Induces the Differentiation of Monocytes into Immunosuppressive MDSCs**

Haozhou Wang (*Institute of Urology, Beijing Chao-Yang Hospital, Capital Medical University, China*)

Mini Oral 23

15:40 - 16:25

Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

Basic and Translational Sciences 1

Chair: Masayoshi Okumi *(Department of Urology, Kyoto Prefectural University of Medicine, Japan)*

MO23-1 **Arteriosclerosis Decreases TRAIL Expression on Liver Natural Killer Cells in Living Donor Liver Transplantation**

Kouki Imaoka, Masahiro Ohira, Tomoaki Bekki, Yuki Imaoka, Ryosuke Nakano, Doskali Marlen, Yuka Tanaka, Hideki Ohdan (*Department of Gastroenterological and Transplant Surgery, Graduate School of Biomedical and Health Sciences, Hiroshima University, Japan*)

MO23-2 **Cold Storage in D2O Containing Solution and Post-reperfusion H2 Gas Treatment Reduced Rat Liver Damage: An IPRL Study**

Moto Fukai[1], Kengo Shibata[2], Sodai Sakamoto[1], Masato Fujiyoshi[1], Sunao Fujiyoshi[2], Kosei Nakamura[1], Takahisa Ishikawa[1], Norio Kawamura[3], Nur Khatijah Mohd Zin[4], Hiroki Bochimoto[4], Tsuyoshi Shimamura[5], Akinobu Taketomi[1,2,3] (*[1] Gastroenterological Surgery 1, Hokkaido Univ. Graduate School of Medicine, Japan, [2] Gastroenterological Surgery 1, Hokkaido Univ. Hospital, Japan, [3] Department of Transplant Surgery, Hokkaido Univ. Graduate School of Medicine, Japan, [4] Department of Cell Physiology, The Jikei University School of Medicine, Japan, [5] Division of Organ Transplantation, Hokkaido Univ. Hospital, Japan*)

MO23-4 **Study on Improvement of Aged Liver Regenerative Potential Using Chemically Induced Liver Progenitor Cells**

Kunihito Matsuguma, Takanobu Hara, Akihiko Soyama, Daisuke Miyamoto, Masayuki Fukumoto, Hajime Imamura, Hajime Matsushima, Tomohiko Adachi, Shinichiro Ito, Masaaki Hidaka, Kengo Kanetaka, Susumu Eguchi (*Department of Surgery, Nagasaki University Graduate School of Biomedical Sciences, Japan*)

MO23-5 **TLR4-mediated Hepatocellular Senescence Impairs Tumor Surveillance of Natural Killer Cells via HLA-E-NKG2A Axis**

Xinxiang Yang, Jinyang Li, Yuewen Wang, Rongrong Zhong, Kevin TP Ng, Kwan Man (*Department of Surgery, School of Clinical Medicine, LKS Faculty of Medicine, the University of Hong Kong, Hong Kong*)

MO23-6 **The Synergetic Effect of mTOR and Metabolic Inhibitors to Prevent Allograft Rejection**

Chih Hsien Cheng, Chen Fang Lee, Ting Jung Wu, Hong Shiue Chou, Kun Ming Chan, Wei Chen Lee (*Department of Surgery, Chang Gung Memorial Hospital Linkou, Taiwan*)

Mini Oral 24

15:40 - 16:25

Mini Oral Booth D (Central, Kyoto Sangyo Kaikan Hall)

Liver 4 (ABO-incompatible, Donor Specific Antigen, Ischemic Reperfusion Injury)

Chair: Kenei Furukawa *(The Jikei University School of Medicine, Japan)*

MO24-1 **Rethinking ABO-Incompatible Liver Transplantation in the Rituxan Era -Single Center Experience-**

Hisaya Shirai, Takashi Ito, Masaaki Hirata, Hikaru Aoki, Shinya Okumura, Yuuki Masano, Takaaki Anazawa, Kouichiro Hata, Etsuro Hatano (*Department of Surgery, Kyoto University Graduate School of Medicine, Japan*)

MO24-2 **Outcome of ABO-Incompatible Living Donor Liver Transplantation Recipient Under 1-Year Old**

Daisuke Ueda, Takashi Ito, Shinya Okumura, Hiroki Masano, Shoichi Kageyama, Satoshi Ogiso, Takayuki Anazawa, Koichiro Hata, Etsuro Hatano (*Department of Surgery, Kyoto University, Japan*)

MO24-3 **Acute Liver Failure with Hepatic Coma Saved by ABO-Incompatible Liver Transplantation: A Case Report**

Kazuki Sasaki, Shogo Kobayashi, Yoshifumi Iwagami, Daisaku Yamada, Yoshito Tomimaru, Takehiro Noda, Hidenori Takahashi, Yuichiro Doki, Hidetoshi Eguchi (*Department of Gastroenterological Surgery, Graduate School of Medicine, Osaka University, Japan*)

MO24-4 **Management and Clinical Impact of Anti-HLA Donor-specific Antibodies (DSA) in Living Donor Liver Transplantation**

Kenei Furukawa, Koichiro Haruki, Tomohiko Taniai, Mitsuru Yanagaki, Ryoga Hamura, Munetoshi Akaoka, Rui Marukuchi, Shinji Onda, Yoshihiro Shirai, Tadashi Uwagawa, Toru Ikegami (*The Jikei University School of Medicine, Japan*)

MO24-5 **Lysophosphatidylinositol (16:0) as a Possible Cause of Ischemia Reperfusion Injury**

Kengo Shibata[1], Moto Fukai[1,2], Takahiro Hayasaka[1], Sodai Sakamoto[1], Norio Kawamura[1,2], Kenji Wakayama[1], Tsuyoshi Shimamura[2], Akinobu Taketomi[1] ([1] *Department of Gastroenterological Surgery I, Graduate School of Medicine, Hokkaido University, Japan,* [2] *Division of Organ Transplantation, Hokkaido University Hospital, Japan*)

MO24-6 **Novel Perspective of Antigen-presenting Neutrophils in Mediating Adaptive Immunity of HCC and Liver IR Injury**

Yum Hung Fredrick Cheng, Sui Yan Tam, Wai Ho Yeung, Kwan Man (*The University of Hong Kong, Hong Kong*)

Mini Oral 25

16:30 - 17:15

Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

Liver 5 (Transplant Oncology)

Chair: Shintaro Yagi *(Department of Hepato-Biliary-Pancreatic Surgery and Transplantation/Pediatric Surgery, Kanazawa University, Japan)*

MO25-1 **Pre-transplant Treatment Is Not A Risk Factor for Hepatocellular Carcinoma Recurrence After LDLT**

Hiroto Kayashima, Noboru Harada, Yuki Nakayama, Katsuya Toshida, Yuriko Tsutsui, Takahiro Tomiyama, Akinari Morinaga, Yukiko Kosai, Takahiro Tomino, Shohei Yoshiya, Yoshihiro Nagao, Shinji Itoh, Tomoharu Yoshizumi (*Department of Surgery and Science, Graduate School of Medical Sciences, Kyushu University, Japan*)

MO25-2 **Optimizing the Safe Washout Period for Liver Transplantation Following Immune Checkpoint Inhibitors with Nivolumab or Pembrolizumab**

Fang-Cheng Kuo[1,3], Cheng-Yen Chen[1,3], San-Chi Chen[2,3], Niang-Cheng Lin[1,3], Chin-Su Liu[1,3] ([1] *Division of Transplantation Surgery, Department of Surgery, Taipei Veterans General Hospital, Taiwan,* [2] *Division of Oncology, Department of Medicine, Taipei Veterans General Hospital, Taiwan,* [3] *College of Medicine, National Yang Ming Chiao Tung University, Taiwan*)

MO25-3 **Tertiary Lymphoid Structures Promote HCC Immunotherapy Response**

Jinyang Li, Xinxiang Yang, Jiye Zhu, Kwan Man (*Department of Surgery, The University of Hong Kong SAR, Hong Kong*)

MO25-4 **The Outcomes of Liver Transplant and Liver Resection for Recurrent HCC Within 5-5-500 Criteria**

Yoshihiro Hirata, Yoshihito Kotera, Takaaki Kato, Goro Honda, Hiroto Egawa (*Division of Hepatobiliary and Pancreatic, Department of Surgery, Tokyo Women's Medical University, Japan*)

MO25-5 **Living Donor Liver Transplantation for Primary Sclerosing Cholangitis with Colon Cancer and Hilar Cholangiocarcinoma After Intensity Modulated Radiotherapy**

Shinichiro Ono, Yasunori Uesato, Yoshihiro Miyagi, Tokuro Baba, Masaaki Kuda, Yoji Nakamura, Tatsuya Kinjo, Hiroyuki Karimata, Mitsuhisa Takatsuki (*Department of Digestive and General Surgery, Graduate School of Medicine, University of the Ryukyus, Japan*)

MO25-6 **Living Donor Liver Transplantation for Hepatocyte Nuclear Factor 1 Homeobox Alpha (HNF1A)-Inactivated Hepatocellular Adenoma in Pediatric Patient**

Young seok Han[1], JaRyung Han[1], Joo Dong Kim[1], Dong Lak Choi[1], Soo Young Park[2], Won Young Tak[2], Yu Rim Lee[2], Se Young Jang[2] ([1] *Hepatobiliary-pancreas Surgery and Liver transplantation, Daegu Catholic University Medical Center, Republic of Korea,* [2] *Department of Internal Medicine, Kyungpook National University Hospital, Republic of Korea*)

Mini Oral 26

16:30 - 17:15

Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

Transplant Immunosuppression 2

Chair: Haruhito Azuma *(Department of Urology, Faculty of Medicine, Osaka Medical and Pharmaceutical University, Japan)*

MO26-1 **Hypothermic Machine Perfusion with H2 Gas Reduced Focal Injury in DCD Rat Liver but Failed to Restore Organ Function**

Moto Fukai[1], Kengo Shibata[2], Sodai Sakamoto[1], Masato Fujiyoshi[1], Sunao Fujiyoshi[2], Kosei Nakamura[1], Takahisa Ishikawa[1], Norio Kawamura[3], Nur Khatijah Mohd Zin[4], Hiroki Bochimoto[4], Tsuyoshi Shimamura[5], Akinobu Taketomi[1,2,3] (*[1] Gastroenterological Surgery 1, Hokkaido Univ. Graduate School of Medicine, Japan, [2] Gastroenterological Surgery 1, Hokkaido Univ. Hospital, Japan, [3] Transplant Surgery, Hokkaido Univ. Graduate School of Medicine, Japan, [4] Department of Cell Physiology, The Jikei University School of Medicine, Japan, [5] Division of Organ Transplantation, Hokkaido Univ. Hospital, Japan*)

MO26-2 **Initial Reduction of Tacrolimus with Additional Everolimus May Not Prevent Early Acute Rejection**

Hajime Sasaki[1,2], Tatsu Tanabe[2], Haruka Higuchi[2], Takashi Tsujimoto[3], Hiroshi Harada[2] (*[1] Jichi Medical University, Japan, [2] Kidney Transplant Surgery, Sapporo City General Hospital, Japan, [3] Pharmacy, Sapporo City General Hospital, Japan*)

MO26-3 **Efficacy and Safety of Early Everolimus Immunosuppressive Regimen in Kidney Transplant Recipients**

Ryohei Yamamoto[1], Mitsuru Saito[1], Nobuhiro Fujiyama[2], Yu Aoyama[1], Ryuichiro Sagehashi[1], Mizuki Kobayashi[1], Soki Kashima[1], Takatoshi Nara[1], Kazuyuki Numakura[1], Shintaro Narita[1], Tomonori Nabuchi[1] (*[1] Uroligy, Akita University Graduate School of Medicine, Japan, [2] Center for Kidney Disease and Transplantation, Akita University Hospital, Japan*)

MO26-4 **Usefulness of Mycophenolic Acid AUC Measurement for Renal Transplant Patients**

Kazuya Kinoshita, Michihiro Maruyama, Satoshi Endo, Takuma Sasaki, Shunsuke Kainuma, Hiroki Morishita, Hisahiro Matsubara (*Department of Frontier Surgery, Graduate School of Medicine, Chiba University, Japan*)

MO26-5 **Effect of Tacrolimus Trough Level on De Novo Donor-Specific Antibody Production in Long-Term Renal Transplant Patients**

Nobuhiro Fujiyama[1], Mitsuru Saito[1,2], Ryouhei Yamamoto[2], Ryuichiro Sagehashi[2], Takuro Saito[2], Yu Aoyama[2], Kazuyuki Numakura[2], Shintaro Narita[2], Tomonori Habuchi[1,2] (*[1] Center for Kidney Disease and Transplantation, Akita University Hospital, Japan, [2] Department of Urology, Akita University Graduate School of Medicine, Japan*)

Mini Oral 27

16:30 - 17:15

Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

Basic and Translational Sciences 2

Chair: Masayoshi Okumi *(Department of Urology, Kyoto Prefectural University of Medicine, Japan)*

MO27-1 **Does Postoperative Inhalation of Carbon Monoxide Prolong Pulmonary Allograft Survival in Miniature Swine?**

Hisashi Sahara[1], Mitsuhiro Sekijima[1], Takehiro Iwanaga[1], Yurika Ichinari[1], Masayuki Tasaki[1], Kazuhiro Takeuchi[2], Akira Shimizu[2], Kazuhiko Yamada[1] (*[1] Division of Experimental Large Animal Research, Life Science and Laboratory Animal Research Unit, Center for Advanced Science Research and Promotion, Kagoshima University, Japan, [2] Department of Analytic Human Pathology, Nippon Medical School, Japan*)

MO27-2 **Farnesoid X Receptor Agonist Enhance the Function and Reduces Apoptosis of Pancreatic β- Cell Line**

Hyuk Jai Jang, Min Jae Jeong, Mee Young Oh (*Surgery, Ulsan University,Gangneung Asan Hospital, Republic of Korea*)

MO27-3 **Important Components of D2O Containing Solution for Liver Cold Storage Using an Isolated Perfused Rat Liver (IPRL)**

Moto Fukai[1], Kengo Shibata[2], Sodai Sakamoto[1], Masato Fujiyoshi[1], Sunao Fujiyoshi[2], Kosei Nakamura[1], Takahisa Ishikawa[1], Norio Kawamura[3], Nur Khatijah Mohd Zin[4], Hiroki Bochimoto[4], Tsuyoshi Shimamura[5], Akinobu Taketomi[1,2,3] (*[1] Gastroenterological Surgery 1, Hokkaido Univ. Graduate School of Medicine, Japan, [2] Department of Gastroenterological Surgery 1, Hokkaido Univ. Hospital, Japan, [3] Department of Transplant Surgery, Hokkaido Univ. Graduate School of Medicine, Japan, [4] Division of Organ Transplantation, Hokkaido Univ. Hospital, Japan, [5] Department of Cell Physiology, The Jikei University School of Medicine, Tokyo*)

MO27-4 **14-3-3 Zeta Enhanced Survival Signals in Renal Tubular Cells Subjected to Simulating Hypothermic Perfusion**

Moto Fukai[1], Kengo Shibata[2], Sodai Sakamoto[1], Masato Fujiyoshi[1], Sunao Fujiyoshi[2], Kosei Nakamura[1], Takahisa Ishikawa[1], Norio Kawamura[3], Nur Khatijah Mohd Zin[4], Hiroki Bochimoto[4], Tsuyoshi Shimamura[5], Akinobu Taketomi[1] (*[1] Gastroenterological Surgery 1, Hokkaido Univ. Graduate School of Medicine, Japan, [2] Gastroenterological Surgery 1, Hokkaido Univ. Hospital, Japan, [3] Department of Transplant Surgery, Hokkaido Univ. Graduate School of Medicine, Japan, [4] Department of Cell Physiology, The Jikei University School of Medicine, Japan, [5] Division of Organ Transplantation, Hokkaido Univ. Hospital, Japan*)

MO27-5 **Rapid and Reliable Steatosis Rat Model (SHRSP5-Dmcr) for Cold Storage Experiments: A Preliminary Study**

Moto Fukai[1], Kengo Shibata[2], Sodai Sakamoto[1], Masato Fujiyoshi[1], Fujiyoshi Sunao[2], Kosei Nakamura[1], Takahisa Ishikawa[1], Norio Kawamura[3], Nur Khatijah Mohd Zin[4], Hiroki Bochimoto[4], Tsuyoshi Shimamura[5], Akinobu Taketomi[1,2,3] (*[1] Gastroenterological Surgery 1, Hokkaido Univ. Graduate School of Medicine, Japan, [2] Gastroenterological Surgery 1, Hokkaido Univ. Hospital, Japan, [3] Department of Transplant Surgery, Hokkaido Univ. Graduate School of Medicine, Japan, [4] Department of Cell Physiology, The Jikei University School of Medicine, Japan, [5] Division of Organ Transplantation, Hokkaido Univ. Hospital, Japan*)

MO27-6 **Urine-Derived Stem Cell Attenuated Renal Fibrosis via Klotho Activation**

Dae Eun Choi[1,2], Hojoon Ko[1], Eu Jin Lee[1], Young Rok Ham[1], Ki Ryang Na[1], Jin Young Jeong[2], Kang Wook Lee[1], Hae Ri Kim[1], Jin Young Jeong[1,2] (*[1] Nephrology, Chungnam National University, Republic of Korea, [2] Medical Science, Chungnam National University, Republic of Korea*)

Mini Oral 28

16:30 - 17:05

Mini Oral Booth D (Central, Kyoto Sangyo Kaikan Hall)

Other Topics 2

Chair: Seiichiro Shishido *(Department of Nephrology, Toho University Faculty of Medicine, Japan)*

MO28-1 **Retroperitoneoscopic Donor Nephrectomy in the Right Side Provides Equivalent Outcomes and Donor Safety Comparable with Left Side**

Sho Nishida[1], Takehiro Ohyama[1], Kyoko Minamisono[1], Hajime Sasaki[1], Kiyohiko Hotta[2], Nobuo Shinohara[2], Daiki Iwami[1] (*[1] Division of Renal Surgery and Transplantation, Jichi Medical University, Japan, [2] Department of Renal and Genitourinary Surgery, Graduate School of Medicine, Hokkaido University, Japan*)

MO28-2 **Transarterial Chemoembolization (TACE) with Radiotherapy for Solitary HCC Bone Metastasis After Living Donor Liver Transplantation**

JaRyung Han, Young Seok Han, Joo Dong Kim, Dong Lak Choi (*Hepatobiliary-pancreas Surgery and Liver Transplantation, Daegu Catholic University Medical Center, Republic of Korea*)

MO28-3 **Our First Experience of Simultaneous Liver and Kidney Transplantation**

Shinya Morita[1], Sotaro Kitaoka[1], Ryohei Takahashi[1], Yasushi Hasegawa[2], Yohei Yamada[2], Kazunobu Shinoda[3], Tadashi Yoshida[4], Hideaki Obara[2], Hiroshi Asanuma[1], Ken Nakagawa[5], Mototsugu Oya[1] (*[1] Department of Urology, Keio University School of Medicine, Japan, [2] Department of Surgery, Keio University School of Medicine, Japan, [3] Department of Urology, St. Marianna University School of Medicine, Japan, [4] Apheresis and Dialysis Center, Keio University School of Medicine, Japan, [5] Department of Urology, Tokyo Dental College Ichikawa General Hospital, Japan*)

MO28-4 **Investigation of Physical Conditions Affecting Visit Intervals in Outpatient Consultations**

Keiko Maeda[1], Yumiko Sasaki[1], Junji Uchida[2] (*[1] Osaka Metropolitan University Hospital, Japan, [2] Department of Urology, Osaka Metropolitan University Graduate School of Medicine, Japan*)

MO28-5 **Effects of Whole-body Vibration on Gait Ability and Balance Among Older Adult Hemodialysis Patients: A Randomized Controlled Trial**

Yuta Asahina[1], Yusuke Sakaguchi[2], Sachio Kajimoto[1], Takayuki Kawaoka[1], Koki Hattori[1], Tatsufumi Oka[1], Jun-ya Kaimori[2], Yoshitaka Isaka[1] (*[1] Department of Nephrology, Osaka University Graduate School of Medicine, Japan, [2] Department of Inter-Organ Communication Research in Kidney Diseases, Osaka University Graduate School of Medicine, Japan*)

November 26 (Sat), 2022

Mini Oral 29

09:30 - 10:15

Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

Liver 6 (Living Donor)

Chair: Taizo Hibi *(Department of Pediatric Surgery and Transplantation, Kumamoto University Graduate School of Medical Sciences, Japan)*

MO29-1 **Discrepancy Between Estimated Graft Volume and Actual Graft Weight in Living Donor Graftectomy**

Kosuke Tanaka, Takashi Ito, Yoichiro Uchida, Yuki Masano, Shinya Okumura, Hisaya Shirai, Shoichi Kageyama, Yukinori Koyama, Satoshi Ogiso, Koichiro Hata, Etsuro Hatano (*Department of Surgery, Division of Hepato-Biliary-Pancreatic Surgery and Transplantation, Kyoto University Graduate School of Medicine, Japan*)

MO29-2 **Daytime Living Donor Liver Transplantation; Surgical Tips with Outcomes**

Koichiro Haruki, Kenei Furukawa, Tomohiko Taniai, Mitsuru Yanagaki, Ryoga Hamura, Munetoshi Akaoka, Yoshihiro Shirai, Shinji Onda, Tadashi Uwagawa, Toru Ikegami (*Division of Hepatobiliary and Pancreatic Surgery, Department of Surgery, The Jikei University School of Medicine, Japan*)

MO29-3 **Minimally Invasive Surgery for Living Liver Donor; Hybrid Technique and Full-Laparoscopic Surgery**

Shogo Kobayashi[1], Takehiro Noda[1,2], Yoshito Tomimaru[1], Kazuki Sasaki[1], Yoshifumi Iwagami[1], Daisaku Yamada[1], Hidenori Takahashi[1], Takehisa Ueno[2,3], Yuichiro Doki[1], Hidetoshi Eguchi[1] ([1] *Department of Gastroetenological Surgery, Osaka University, Japan,* [2] *Department of Transplantation Medicine, Osaka University, Japan,* [3] *Department of Pediatric Surgery, Osaka University, Japan*)

MO29-4 **The Impact of Multiple Bile Ducts on Biliary Complications in Living Donor Liver Transplantation**

Doo Ho Lee, Yeon Ho Park, Doojin Kim, Sang Tae Choi (*Department of Surgery, Gachon University Gil Medical Center, Gachon University College of Medicine, Republic of Korea*)

MO29-5 **Impact of Graft Congestion on Short-Term Outcomes for Pediatric Living Donor Liver Recipients**

Hikaru Aoki, Takashi Ito, Hirata Masaaki, Elena Uebayashi, Hisaya Shirai, Shinya Okumura, Yuki Masano, Tatsuya Okamoto, Eri Ogawa, Etsurou Hatano (*Division of Hepato-Biliary-Pancreatic and Transplant Surgery, Department of Surgery, Graduate School of Medicine, Kyoto University, Japan*)

Mini Oral 30

09:30 - 10:05

Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

Pancreas and Islet 1

Chair: Yoshihide Nanno *(Department of Surgery, Division of Hepato-Biliary-Pancreatic Surgery, Kobe University Graduate School of Medicine, Japan)*

MO30-1 **Decompression Tube Placement for Preventing Duodenal Graft Perforation at Pancreas Transplantation**

Yoshito Tomimaru[1], Shogo Kobayashi[1], Toshinori Ito[2], Kazuki Sasaki[1], Yoshifumi Iwagami[1], Daisaku Yamada[1], Takehiro Noda[1], Hidenori Takahashi[1], Ryoichi Imamura[3], Yuichiro Doki[1], Hidetoshi Eguchi[1] (*[1] Department of Gastroenterological Surgery, Osaka University, Japan, [2] Osaka Center for Cancer and Cardiovascular Disease Prevention, Japan, [3] Department of Urology, Osaka University, Japan*)

MO30-2 **Impact of Total Ischemic Time on Simultaneous Pancreas-kidney Transplantation**

Takeshi Kado[1], Yoshito Tomimaru[1], Shogo Kobayashi[1], Toshinori Ito[2], Ryoichi Imamura[3], Kazuki Sasaki[1], Yoshifumi Iwagami[1], Daisaku Yamada[1], Takehiro Noda[1], Hidenori Takahashi[1], Yuichiro Doki[1], Hidetoshi Eguchi[1] (*[1] Department of Gastroenterological Surgery, Osaka University, Japan, [2] Osaka Center for Cancer and Cardiovascular Disease Prevention, Japan, [3] Department of Urology, Osaka University, Japan*)

MO30-3 **The Comparative Data Between SPK and Kidney Transplant Alone from the Same Brain-Dead Donor**

Taihei Ito[1], Takashi Kenmochi[1], Kei Kurihara[1], Naohiro Aida[1], Makiko N. Mieno[2], Yuki Nakagawa[2], Yoshito Tomimaru[3], Toshinori Ito[3] (*[1] Department of Transplantation and Regenerative Medicine, Fujita Health University, School of Medicine, Japan, [2] The Japanese Kidney Transplant Registry, Japanese Society for Clinical Renal Transplantation, Japan, [3] The Japan Pancreas Transplant Registry, The Japanese Pancreas and Islet Transplantation Association, Japan*)

MO30-4 **The Outcomes of Pancreas Transplantation for Lower-Ranked Candidates**

Takato Waseda[1], Taihei Ito[1], Takashi Kenmochi[1], Kei Kurihara[1], Naohiro Aida[1], Atsushi Suzuki[2], Megumi Shibata[2], Izumi Hiratsuka[2], Midori Hasegawa[3] (*[1] Department of Transplantation and Regenerative Medicine, Fujita Health University, School of Medicine, Japan, [2] Department of Endocrinology, Diabetes and Metabolism, Fujita Health University, School of Medicine, Japan, [3] Department of Nephrology, Fujita Health University School of Medicine, Japan*)

MO30-5 **Significance of The Interposition Graft for the Artery Reconstruction in Pancreas Transplantation**

Daiki Hokkoku[1], Yoshito Tomimaru[1], Shogo Kobayashi[1], Toshinori Ito[2], Kazuki Sasaki[1], Yoshifumi Iwagami[1], Daisaku Yamada[1], Takehiro Noda[1], Hidenori Takahashi[1], Yuichiro Doki[1], Hidetoshi Eguchi[1] (*[1] Osaka University, Graduate School of Medicine, Department of Gastroenterological Surgery, Japan, [2] Osaka Center for Cancer and Cardiovascular Disease Prevention, Japan*)

Mini Oral 31

09:30 - 10:15

Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

Covid-19 1

Chair: Kazuya Omoto *(Yochoumachi Clinic, Japan)*

MO31-1 **Study of Acquisition of COVID-19 Neutralizing Antibody in Organ Transplant Patients**

Shuji Akimoto[1], Takashi Onoe[1,2], Hiroshi Morimoto[3], Tomomasa Fujii[1], Shinji Yamaguchi[1], Yoshiyuki Shibata[1], Sho Tazuma[1], Haruki Sada[1], Norimitsu Shimada[1], Hirofumi Tazawa[1], Takahisa Suzuki[1], Takeshi Sudo[1], Yosuke Shimizu[1], Hirotaka Tashiro[1,2] (*[1] National Hospital Organization, Kure Medical Center and Chugoku Cancer Center, Surgery, Japan, [2] National Hospital Organization, Kure Medical Center and Chugoku Cancer Center, Clinical Research, Japan, [3] Hiroshima Prefectural Hospital, Transplant Surgery, Japan*)

MO31-2 **Drug Interaction Between Paxlovid and Tacrolimus in a Kidney Transplant Patient with COVID-19**

YingYu Huang[1], Ying-Pao Hsu[1], Che-Chuan Loong[4,5], Chin-Su Liu[4,5], Yuh-Lih Chang[1,2,3] (*[1] Department of Pharmacy, Taipei Veterans General Hospital, Taiwan, [2] Department of Pharmacy, National Yang Ming Chiao Tung University, Taiwan, [3] Department and Institute of Pharmacology, National Yang Ming Chiao Tung University, Taiwan, [4] School of Medicine, National Yang Ming Chiao Tung University, Taiwan, [5] Division of Transplantation Surgery, Department of Surgery, Taipei Veterans General Hospital, Taiwan*)

MO31-3 **Humoral Response to SARS-CoV-2 mRNA Vaccine in Kidney Transplant Recipients**

Tomoko Hamaya[1], Singo Hatakeyama[2], Tohru Yoneyama[3], Hirotake Kodama[1], Takeshi Fujita[4], Reiichi Murakami[4], Shunji Narumi[5], Hirofumi Tomita[4], Chikara Ohyama[1,2] (*[1] Department of Urology, Hirosaki University Graduate School of Medicine, Japan, [2] Department of Advanced Blood Purification Therapy, Hirosaki University School of Medicine, Japan, [3] Department of Glycotechnology, Center for Advanced Medical Research, Hirosaki University School of Medicine, Japan, [4] Department of Cardiology and Nephrology, Hirosaki University School of Medicine, Hirosaki, Japan, [5] Department of Transplant Nephrology and Surgery, Japanese Red Cross Aichi Medical Center Nagoya Daini Hospital, Japan*)

MO31-4 **Comparison of COVID-19 After Kidney Transplantation in First to Fifth Waves and Sixth Wave in Japan**

Kenta Futamurta, Norihiko Goto, Yuki Hasegawa, Kei Tanaka, Hiroaki Yonishi, Keitarou Nishizawa, Manabu Okada, Takahisa Hiramitsu, Syunji Narumi, Yoshihiko Watarai (*Transplant Nephrology and Surgery, Japanese Red Cross Aichi Medical Center Nagoya Daini Hospital, Japan*)

MO31-5 **Humoral Immunogenicity of Two Doses of BNT162b2 in Pediatric Solid Organ Transplant Recipients**

Jee Yeon Baek[1], Kyong Ihn[2,3], Hong Koh[1], Keum Hwa Lee[1], Min Young Kim[1,5], Hyojung Park[1,5], Bonhyang Na[1,5], Sinyoung Kim[6], Ji-Man Kang[1,5], Jun Yong Choi[7], Younhee Park[6], Myoung Soo Kim[2,3,4] (*[1] Department of Pediatrics, Severance Children's Hospital, Yonsei University College of Medicine, Republic of Korea, [2] Division of Transplantation Surgery, Severance Hospital, Yonsei University Health System, Republic of Korea, [3] Department of Surgery, Yonsei University College of Medicine, Republic of Korea, [4] The Research Institute for Transplantation, Yonsei University College of Medicine, Republic of Korea, [5] Institute for Immunology and Immunological Diseases, Yonsei University College of Medicine, Republic of Korea, [6] Department of Laboratory Medicine, Severance Hospital, Yonsei University College of Medicine, Republic of Korea, [7] Department of Internal Medicine, Severance Hospital, Yonsei University College of Medicine, Republic of Korea*)

MO31-6 **A Case Report of A Renal Transplant Patient with Left Abducens Nerve Palsy Following COVID-19 Vaccination**

Kazuaki Yamanaka, Shota Fukae, Ryo Tanaka, Ayumu Taniguchi, Shigeaki Nakazawa, Ryoichi Imamura, Norio Nonomura (*Department of Urology, Osaka University Graduate School of Medicine, Japan*)

Mini Oral 32

10:20 - 10:55

Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

Liver 7 (Surgical Technique)

Chair: Kazuaki Tokodai *(Department of Surgery, Tohoku University Graduate School of Medicine, Japan)*

MO32-1 **Liver Only Living Donor Transplantation for Polycystic Disease on Chronic Hemodialysis**

Mitsuru Yanagaki, Koichiro Haruki, Tomohiko Taniai, Kenei Furukawa, Yoshiaki Tanji, Munetoshi Akaoka, Yoshihiro Shirai, Shinji Onda, Tadashi Uwagawa, Takeshi Gocho, Norimitsu Okui, Toru Ikegami (*Division of Hepatobiliary and Pancreatic Surgery, The Jikei University School of Medicine, Japan*)

MO32-2 **Long Jumping Graft with Superficial Femoral Vein for Portal Vein Thrombosis After Living Liver Transplantation**

Satoshi Mii, Takeshi Takahara, Yutaro Kato, Koichi Suda (*Department of Surgery, Fujita Health University, Japan*)

MO32-3 **Single Center Experience of Using Right Liver Graft with Dual Portal Veins in Living Donor Liver Transplantation**

Cheng-Yen Chen[1,3], Chinsu Liu[1,3], Che-Chuan Loong[1,3], Cheng-Yuan Hsia[2,3], Niang-Cheng Lin[1,3] (*[1] Division of Transplantation Surgery, Department of Surgery, Taipei Veterans General Hospital, Taiwan, [2] Division of General Surgery, Department of Surgery, Taipei Veterans General Hospital, Taiwan, [3] College of Medicine, National Yang Ming Chiao Tung University, Taiwan*)

MO32-4 **Portal Venous Bypass Is Not Associated with Prevention of Acute Reperfusion Syndrome in Liver Transplantation**

J. Curran Henson[1], Davis Campbell[2], Hailey Hardgrave[1], Allison Wells[1], Marie Burdine[1], Emmanouil Giorgakis[1], Lyle Burdine[1] (*[1] Department of Surgery, University of Arkansas for Medical Sciences, USA, [2] College of Medicine, University of Arkansas for Medical Sciences, USA*)

MO32-5 **Portal Venous Bypass Is Not Associated with Prevention of Early Allograft Dysfunction in Liver Transplantation**

J. Curran Henson[1], Davis Campbell[2], Hailey Hardgrave[1], Allison Wells[1], Marie Burdine[1], Emmanouil Giorgakis[1], Lyle Burdine[1] (*[1] Department of Surgery, University of Arkansas for Medical Sciences, USA, [2] College of Medicine, University of Arkansas for Medical Sciences, USA*)

Mini Oral 33

10:20 - 11:05

Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

Pancreas and Islet 2

Chair: Takayuki Anazawa *(Department of Surgery, Kyoto University, Japan)*

MO33-1 **Case-Series of Post-Transplant Lymphoproliferative Disorders After Pancreas Transplantation**

Hiroki Imamura[1], Yoshito Tomimaru[1], Shogo Kobayashi[1], Toshinori Ito[2], Kazuki Sasaki[1], Yoshifumi Iwagami[1], Daisaku Yamada[1], Takehiro Noda[1], Hidenori Takahashi[1], Yuichiro Doki[1], Hidetoshi Eguchi[1] (*[1] Department of Gastroenterological Surgery, Graduate School of Medicine, Osaka University, Japan, [2] Osaka Center for Cancer and Cardiovascular Disease Prevention, Japan*)

MO33-2 **Impact of CMV Infection Graft Loss After PTx: A Single Institution Study in Japan**

Keisuke Toya[1], Yoshito Tomimaru[1], Shogo Kobayashi[1], Toshinori Ito[2], Kazuki Sasaki[1], Yoshifumi Iwagami[1], Daisaku Yamada[1], Takehiro Noda[1], Hidenori Takahashi[1], Ryoichi Imamura[3], Yuichiro Doki[1], Hidetoshi Eguchi[1] (*[1] Department of Gastroenterological Surgery, Graduate School of Medicine, Osaka University, Japan, [2] Osaka Center for Cancer and Cardiovascular Disease Prevention, Japan, [3] Department of Urology, Graduate School of Medicine, Osaka University, Japan*)

MO33-3 **Estimation of Pancreas Graft Rejection by Donor-derived Cell-free DNA**

Keizo Kaku, Yasuhiro Okabe, Shinsuke Kubo, Yu Sato, Takanori Mei, Hiroshi Noguchi, Masafumi Nakamura (*Department of Surgery and Oncology, Graduate School of Medical Sciences, Kyushu University, Japan*)

MO33-4 **Feasibility of Islet Transplantation for Recurrent Type 1 DM After Pancreas Transplantation**

Aya Izuwa, Takayuki Anazawa, Hang Su, Norio Emoto, Kenta Inoguchi, Kei Yamane, Seiichiro Tada, Etsuro Hatano (*Division of Hepatobiliary Pancreatic Surgery and Transplantation, Department of Surgery, Graduate School of Medicine Kyoto University, Japan*)

MO33-5 **Prevascularized Subcutaneous Islet Transplantation Using a Bioabsorbable Medical Device**

Norio Emoto[1], Takayuki Anazawa[1], Aya Izuwa[1], Hang Su[1], Nanae Fujimoto[1], Kenta Inoguchi[1,2], Kei Yamane[1,3], Seiichiro Tada[1,4], Etsuro Hatano[1] (*[1] Department of Surgery, Graduate School of Medicine, Kyoto University, Japan, [2] Department of Surgery, Hamamatsu Rosai Hospital, Japan, [3] Department of Surgery, Shimane Prefectural Central Hospital, Japan, [4] Department of Surgery, Shizuoka Municipal Hospital, Japan*)

Mini Oral 34

10:20 - 11:05

Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

Covid-19 2

Chair: Hiroshi Harada *(Harada Urological Clinic, Japan)*

MO34-1 **Rapid Deterioration of Renal Function Following COVID-19 in the Renal Transplant Recipient**

Shigeaki Nakazawa[1], Seigo Machiya[1], Shota Fukae[1], Ryo Tanaka[1], Ayumu Taniguchi[1], Kazuaki Yamanaka[1], Shiro Takahara[2], Tomoko Namba-Hamano[3], Ryoichi Imamura[1], Norio Nonomura[1] (*[1] Department of Urology, Osaka University of Graduate School of Medicine, Japan, [2] Kansai Medical Hospital Renal Transplantation Clinic, Japan, [3] Department of Nephrology, Osaka University Graduate School of Medicine, Japan*)

MO34-2 **Short-Term Renal Outcomes After SARS-CoV-2 Infection in Kidney Transplant Recipients in Taiwan**

Hsiu-Chen Chan[1], Mei-Yi Wu[2,3,4], Wan-Chen Shen[1], Pao-Ting Wu[2], Mai-Szu Wu[2,3,4] (*[1] Department of Pharmacy, Shuang Ho Hospital, Taipei Medical University, Taiwan, [2] Division of Nephrology, Department of Internal Medicine, Shuang Ho Hospital, Taipei Medical University, Taiwan, [3] Division of Nephrology, Department of Internal Medicine, School of Medicine, College of Medicine, Taipei Medical University, Taiwan, [4] Taipei Medical University Research Center of Urology and Kidney, Taipei Medical University, Taiwan*)

MO34-3 **Single Center Experience of COVID-19 Management Among Kidney Transplant Recipient in Omicron Pandemic**

Hyuk Huh, Beongwoo Kim, Yunmi Kim, Taehee Kim, Yeong Hoon Kim (*Department of Internal Medicine, Inje University Busan Paik Hospital, Republic of Korea*)

MO34-4 **The Impact of Covid-19 Infection on Renal Function in Kidney Transplant Recipients**

Shu Okamoto, Hidefumi Kishikawa, Toshimitsu Tanaka, Yoko Maegawa, Takahiro Yoshida, Masahiro Nakagawa (*Urology,Hyogo Prefectural Nishinomiya Hospital,Japan*)

MO34-5 **COVID-19 in Kidney Transplant Recipients: A Single Center Experience**

Koichi Tsutahara, Airi Miki, Teppei Wakita, Yuki Horibe, Masaru Tani, Yoichi Kakuta, Tetsuya Takao (*Department of Urology, Osaka General Medical Center, Japan*)

MO34-6 **A Case of Acute Kidney Injury Caused by Myoglobin Cast Nephropathy with SARS-CoV-2 Infection**

Daihi Sato[1], Shinichiro Tsunoda[1], Tomoko Namba-Hamano[2], Yuki Asada[1], Yuki Yoshii[1], Shin Teshirogi[1], Ken Terashima[1], Sho Miki[1], Atsuyuki Morishima[1], Katsuhiko Sakaguchi[1], Yutaka Yamaguchi[3] (*[1] Department of Kidney Center, Sumitomo Hospital, Japan, [2] Department of Nephrology, Osaka University Graduate School of Medicine, Japan, [3] Yamaguchi's Pathology Laboratory, Japan*)

Mini Oral 35

11:10 - 11:55

Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

Liver 8, Intestinal Transplantation, Histopathology

Chairs: Kenji Yuzawa *(National Hospital Organization Mito Medical Center, Japan)*
Tomoko Namba-Hamano *(Department of Nephrology, Osaka University Graduate School of Medicine, Japan)*

MO35-1 **Graft HuR Expression Is Associated with HO-1 Level, Local Inflammation and Recipient Outcome in Liver Transplantation**

Kojiro Nakamura[1,2], Shoichi Kageyama[2], Hirofumi Hirao[2,3], Kentaro Kadono[2,3], Takahiro Ito[4], Hidenobu Kojima[2,3], Kenneth Dery[3], Jerzy Kupiec-Weglinski[3], Kenji Yoshino[1], Takamasa Yamamoto[1], Masato Matsuura[1], Tetsuya Shiota[1], Toshiyuki Hata[1], Atsushi Itami[1], Takahisa Kyogoku[1] (*[1] Department of Surgery, Kobe City Nishi-Kobe Medical Center, Japan, [2] Department of Surgery, Kyoto University, Japan, [3] Dumont-UCLA Transplantation Center, USA, [4] Department of Hepatobiliary Pancreatic and Transplant Surgery, Mie University, Japan*)

MO35-2 **NGFR+ HSC1 and α-SMA+ HSC2 Infiltration Predicted Post-Operative Graft Survival**

Sui Yan Tam, Yum Hung Fredrick Cheng, Wai Ho Oscar Yeung, Kwan Man (*The University of Hong Kong, Hong Kong*)

MO35-3 **Basic Study of Machine Perfusion for Porcine Small Intestine**

Hiromichi Obara[1,2], Daisuke Ishii[2], Yuga Okazawa[1], Hiroyoshi Iwata[2], Mizuho Ohara[2], Asuka Toriumi[2], Motoshi Wada[3], Naoto Matsuno[1,2] (*[1] Tokyo Metropolitan University, Japan, [2] Transplantation technology and therapeutic development, Asahikawa Medical university, Japan, [3] Pediatric Surgery, Tohoku University,Japan*)

MO35-4 **Recoverability of Diabetic Nephropathy of Donor Kidney After Kidney Transplantation**

Kyo Won Lee[1], Jae Berm Park[1], Min Jung Kim[2] (*[1] Department of Surgery, Samsung Medical Center, Republic of Korea, [2] Department of Surgery, Seoul Medical Center, Republic of Korea*)

MO35-5 **Clinicopathological Analyses of Chronic Vascular Rejection After Kidney Transplantation**

Tomokazu Shimizu[1], Shoichi Iida[1], Kazuya Omoto[2], Masashi Inui[3], Taiji Nozaki[4], Hiroshi Toma[1], Hideki Ishida[2], Toshio Takagi[2] (*[1] Urology and Transplant Surgery, Toda Chuo General Hospital, Japan, [2] Urology, Tokyo Women's Medical University, Japan, [3] Urology, Tokyo Women's Medical University Yachiyo Medical Center, Japan, [4] Urology, Juntendo University Urayasu Hospital, Japan*)

MO35-6 **Impact of De Novo Focal Segmental Glomerulosclerosis in Renal Allografts on Graft Survival**

Kazuaki Yamanaka[1], Shota Fukae[1], Ryo Tanaka[1], Ayumu Taniguchi[1], Shigeaki Nakazawa[1], Takahiro Yoshida[2], Tomoko Namba-Hamano[3], Masahiro Nakagawa[2], Ryoichi Imamura[1], Hidefumi Kishikawa[2], Norio Nonomura[1] (*[1] Department of Urology, Osaka University Graduate School of Medicine, Japan, [2] Department of Urology, Hyogo Prefectural Nishinomiya Hospital, Japan, [3] Department of Nephrology, Osaka University Graduate School of Medicine, Japan*)

Mini Oral 36

11:10 - 11:55

Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

Kidney 13 (Nutrition, Diabetes 3, QOL)

Chair: Atsuyuki Morishima *(Sumitomo Hospital, Japan)*

MO36-1 **Obesity Affected the Renal Function After Kidney Transplantation**

Chin Te Lin (*Chang Gung Memorial Hospital, Taiwan*)

MO36-2 **Efficacy and Safety of 12-Month Daprodustat Administration in Post-Renal Transplant Patients**

Daiki Nagawa[1], Reiichi Murakami[1], Mirei Himura[1], Ikuyo Kinjo[1], Takeshi Fujita[1], Michiko Shimada[1], Hirofumi Tomita[1], Shingo Hatakeyama[2], Takahiro Yoneyama[2], Yasuhiro Hashimoto[2], Chikara Ohyama[2] (*[1] Hirosaki University, Department of Cardiology and Nephrology, Japan, [2] Hirosaki University, Department of Urology, Japan*)

MO36-3 **Usage of Metformin in Kidney Transplant Recipients with Post-Transplantation Diabetes Mellitus**

Dongyeon Lee[1], Jiyun Jung[2,3], Jangwook Lee[3,4], Sung Joon Shin[3,4,5], Sichan Kim[1], Chung Hee Baek[1], Su-Kil Park[1], Hyosang Kim[1] (*[1] Division of Nephrology, Department of Internal Medicine, Asan Medical Center, University of Ulsan College of Medicine, Republic of Korea, [2] Data management and Statistics Institute, Dongguk University Ilsan Hospital, Republic of Korea, [3] Research Center for Chronic Disease and Environmental Medicine, Dongguk University College of Medicine, Republic of Korea, [4] Department of Internal Medicine, Dongguk University Ilsan Hospital, Republic of Korea, [5] Department of Internal Medicine, Dongguk University College of Medicine, Republic of Korea*)

MO36-4 **Total Cell Free DNA as Noninvasive Biomarker of DGF After Kidney Transplantation from DCD**

Mamoru Kusaka[1,2], Akihiro Kawai[1,2], Kiyoshi Takahara[2], Hitomi Sasaki[2], Taihei Ito[3], Takashi Kenmochi[3], Ryoichi Shiroki[2] (*[1] Department of Urology, Fujita Health University Okazaki Medical Center, Japan, [2] Department of Urology, Fujita Health University, Japan, [3] Transplantation and Regenerative Medicine, Fujita Health University, Japan*)

MO36-5 **Therapeutic Effects of ADSCs on Experimental Chronic renal Failure/Uremia and Implications in Prevention from Renal Loss After Transplantation**

Shuk-Man Ka[1], Bang-Gee Hsu[2,3], Cheng-Hsu Chen[4], Chia-Chao Wu[5], Ann Chen[6], Horng-Jyh Harn[7,8], Shinn-Zong Lin[3,9] (*[1] Graduate Institute of Aerospace and Undersea Medicine, Department of Medicine, National Defense Medical Center, Taiwan, [2] Division of Nephrology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Taiwan, [3] School of Medicine, Tzu Chi University, Taiwan, [4] Division of Nephrology, Department of Internal Medicine, Taichung Veterans General Hospital, Taiwan, [5] Division of Nephrology, Department of Medicine, Tri-Service General Hospital, National Defense Medical Center, Taiwan, [6] Department of Anatomical Pathology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Taiwan, [7] Department of Medical Research, China Medical University Hospital, Taiwan, [8] Bioinnonation Center, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Taiwan, [9] Department of Neurosurgery, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Taiwan*)

MO36-6 **Impact of Nocturnal Polyuria and Sleep Quality in Kidney Transplant Recipients with Nocturia**

Shunta Hori[1], Kazumasa Torimoto[1], Mitsuru Tomizawa[1], Tatsuo Yoneda[1], Kuniaki Inoue[1], Nobutaka Nishimura[1], Yosuke Morizawa[1], Daisuke Gotoh[1], Yasushi Nakai[1], Makito Miyake[1], Nobumichi Tanaka[1,2], Kiyohide Fujimoto[1] (*[1] Urology, Nara Medical University, Japan, [2] Prostate Brachytherapy, Nara Medical University, Japan*)

Mini Oral 37

11:10 - 11:55

Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

Basic and Translational Sciences 3

Chair: Kenta Iwasaki *(Aichi Medical University, Japan)*

MO37-1 **The Impact of Propionic Acid Induced by Dietary Fiber on Mice Liver Ischemia and Reperfusion Injury**

Kosuke Tanaka[1,2], Yoichiro Uchida[1,2], Junya Kawasoe[2], Hiroshi Kawamoto[1,2], Kenichi Saga[1,2], Takeshi Watanabe[3], Tomoyuki Miyauchi[2], Shungo Ueda[2], Kojiro Taura[2], Hiroaki Terajima[2], Etsuro Hatano[1] (*[1] Department of Surgery, Graduate School of Medicine, Kyoto University, Japan, [2] Department of Gastroenterological Surgery and Oncology, Kitano Hospital Medical Research Institute, Japan, [3] Division of Immunology, Institute for Frontier Life and Medical Sciences, Kyoto University, Japan*)

MO37-2 **Effects of Periodontal Pathogen-Induced Intestinal Dysbiosis on Transplant Immunity in an Allogenic Skin Graft Model**

Takanori Mei[1], Hiroshi Noguchi[1], Ryutaro Kuraji[2], Shinsuke Kubo[1], Yu Sato[1], Keizo Kaku[1], Hideya Ohnishi[3], Yasuhiro Okabe[1], Masafumi Nakamura[1] (*[1] Department of Surgery and Oncology, Graduate School of Medical Sciences, Kyushu University, Fukuoka,Japan, [2] Department of Periodontology, The Nippon Dental University School of Life Dentistry at Tokyo, Tokyo, Japan, [3] Department of Cancer and Research, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan*)

MO37-3 **Gut Microbiota in Immunoglobulin a Nephropathy**

Shigeaki Nakazawa[1], Daisuke Motooka[2], Shota Fukae[1], Ryo Tanaka[1], Ayumu Taniguchi[1], Kazuaki Yamanaka[1], Tomoko Namba-Hamano[3], Ryoichi Imamura[1], Norio Nonomura[1] (*[1] Department of Urology, Osaka University Graduate School of Medicine, Japan, [2] Department of Infection Metagenomics, Research Institute for Microbial Diseases, Osaka University, Japan, [3] Department of Nephrology, Osaka University Graduate School of Medicine, Japan*)

MO37-4 **Discovery of Cellular and Molecular Pathways Involved in the Development of Anti HLA Antibody Through Single Cell RNA Sequencing in Highly Sensitized Mouse Model**

Hanbi Lee[1], Sang Hun Eum[2], Yoo-Jin Shin[3], Sheng Cui[3], Sun Woo Lim[3], Chul Woo Yang[1], Byung Ha Chung[1] (*[1] Division of Nephrology, Department of Internal Medicine, Seoul St. Marys Hospital, College of Medicine, The Catholic University of Korea, Republic of Korea, [2] Division of Nephrology, Department of Internal Medicine, Incheon St. Marys Hospital, College of Medicine, The Catholic University of Korea, Republic of Korea, [3] Transplant Research Center, College of Medicine, The Catholic University of Korea, Republic of Korea*)

MO37-5 **IL-2 Receptor Engineering Enhances Regulatory T Cell Function Suppressed by Calcineurin Inhibitor**

Toshihito Hirai[1], Po-Yu Lin[2], Teresa L Ramos[2], K Christopher Garcia[2], Robert S Negrin[2] (*[1] Tokyo Women's Medical University, Japan, [2] Stanford University, USA*)

MO37-6 **Ferroposis Related Gene Signature in TCMR After Kidney Transplantation**

Weixun Zhang[1,2], Xiaodong Zhang[1,2] ([1] *Department of Urology, Beijing Chao-Yang Hospital, Capital Medical University, China,* [2] *Institute of Urology, Capital Medical University, China*)

Mini Oral 38

12:00 - 12:45

Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

Xenotransplantation, Sex and Gender

Chairs: Masayoshi Okumi *(Department of Urology, Kyoto Prefectural University of Medicine, Japan)*
Yuki Nakagawa *(Department of Urology, Juntendo University Graduate School of Medicine, Japan)*

MO38-1 **CD31 & CD177 Suppress Not Only Neutrophils & Macrophages but NK Cell-mediated Xenogeneic Rejection**

Shuhei Kogata, Akira Maeda, Pei-Chi Lo, Keigo Iemitsu, Koki Takase, Kazunori Masahata, Masafumi Kamiyama, Hiroshi Eguchi, Hiroomi Okuyama, Shuji Miyagawa (*Department of Pediatric Surgery, Osaka University Graduate School of Medicine, Japan*)

MO38-2 **Comparison of Graft Survival Between Full Thickness and Lamellar Pig-to-Monkey Corneal Xenotransplantation from the Same Genetically Engineered Pig with Minimal Immunosuppression**

Ik Jin Yun[1], Ki Cheul Shin[2], Wan Seop Kim[3], Keon Bong Oh[4], Hye Sun Shin[1], Yu Rim Ahn[1] ([1] *Department of Surgery, Konkuk University Hospital, Seoul, Republic of Korea,* [2] *Department of Ophthalmology, Konkuk University Hospital, Republic of Korea,* [3] *Pathology, Konkuk University Hospital, Republic of Korea,* [4] *Animal Biotechnology, National Institute of Animal Science, Republic of Korea*)

MO38-3 **Current Status of Genetically Engineered Pig to Monkey Kidney Xenotransplantation in Korea**

Ik Jin Yun (*Department of Surgery, Konkuk University Hospital, Republic of Korea*)

MO38-4 **Recipient Sex Hormone Affect Transplant Outcomes in an Age-specific Fashion**

Ryoichi Maenosono[1], Yeqi Nian[2], Jasper Iske[2], Haruhito Azuma[1], Stefan G Tullius[2] ([1] *Department of Urology, Osaka Medical and Pharmaceutical University, Japan,* [2] *Division of Transplant Surgery, Department of Surgery, Brigham and Womens Hospital, Harvard Medical School, USA*)

MO38-5 **Gender Differences in MicroRNA Expressions as Related to Long-Term Graft Function in Kidney Transplant Patients**

Sien Yu Ko[1], Chia-Tien Hsu[2], Shang-Feng Tsai[2,3,4], Shih-Ting Huang[1,5], Cheng-Hsu Chen[2,3,4,5] ([1] *School of Medicine, Chung Shan Medical University, Taiwan,* [2] *Division of Nephrology, Department of Internal Medicine, Taichung Veterans General Hospital, Taiwan,* [3] *Department of Post-Baccalaureate Medicine, College of Medicine, National Chung Hsing University, Taiwan,* [4] *Department of Life Science, Tunghai University, Taiwan,* [5] *School of Medicine, Chung Shan Medical University, Taiwan*)

MO38-6 **Kidney Transplantation for a Transgender Male: A Case Report**

Akihiro Kosoku[1,2], Tomoaki Iwai[1], Hiroo Masuda[3], Kazuya Kabei[1], Shunji Nishide[3], Junji Uchida[1] ([1] *Urology, Osaka Metropolitan University Graduate School of Medicine, Japan,* [2] *Urology, Meijibashi Hospital, Japan,* [3] *Urology, Osaka City General Hospital, Japan*)

Mini Oral 39

12:00 - 12:45

Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

Kidney 14 (Antibody Mediated Rejection 1)

Chair: Daisuke Ishii *(Department of Urology, Kitasato University School of Medicine, Japan)*

MO39-1 **Influence of HLA Epitope Mismatch on The Kidney Allograft After Transplantation**

Miyuki Furusawa[1,4], Hideki Ishida[1,2], Taichi Kanzawa[1], Kouhei Unagami[2], Kazuya Omoto[1,4], Tomokazu Shimizu[1,5], Takafumi Yagisawa[1], Junpei Iizuka[1], Masashi Inui[1,3], Kazunari Tanabe[1], Toshio Takagi[1] (*[1] Department of Urology, Tokyo Women's Medical University, Japan, [2] Department of Transplant Medicine, Tokyo Womens Medical University Hospital, Japan, [3] Department of Urology, Tokyo Womens Medical University Yachiyo Medical Center, Japan, [4] Department of Transplant Center, Yocho-machi Clinic, Japan, [5] Department of Urology, Todachuo General Hospital, Japan*)

MO39-2 **Impact of Low-level Donor-specific Anti-HLA Antibody on Post-transplant Clinical Outcomes of Kidney Transplant Recipients**

Haeun Lee, Chul Woo Yang, Byung Ha Chung (*Division of Nephrology, Department of Internal Medicine, Seoul St. Marys Hospital, College of Medicine, The Catholic University of Korea, Republic of Korea*)

MO39-3 **A Case of CAAMR Caused by Pre-existing anti-DQ DSA in SLE Recipient Without History of Sensitization**

Masaya Yoshida[1], Shigeyoshi Yamanaga[2], Mikihisa Hiraki[1], Hinoka Nishiyama[1], Seiya Fukuoka[1], Arisa Uchida[1], Kiho Yoshimaru[1], Yuji Hidaka[2], Takashi Yamasaki[1], Hiromi Yoshimura[1], Mariko Toyoda[3], Teruhiko Ito[1] (*[1] Japanese Red Cross Kumamoto Hospital Department of Clinical Laboratory, Japan, [2] Japanese Red Cross Kumamoto Hospital Department of Surgery, Japan, [3] Japanese Red Cross Kumamoto Hospital Department of Nephrology, Japan*)

MO39-4 **Outcomes of Treatments for Acute Antibody-Mediated Rejection After Kidney Transplantation**

Taro Banno[1], Chika Nagahisa[1], Shuhei Nozaki[1], Ryoichi Maenosono[2], Takafumi Yagisawa[1], Taichi Kanzawa[1], Kohei Unagami[3], Kazuhiko Yoshida[1], Toshihito Hirai[1], Junpei Izuka[1], Hideki Ishida[1,3], Toshio Takagi[1] (*[1] Department of Urology, Tokyo Women's Medical University, Japan, [2] Department of Urology, Osaka Medical and Pharmaceutical University Hospital, Japan, [3] Department of Organ Transplant Medicine, Tokyo Women's Medical University, Japan*)

MO39-5 **A Case of Living Kidney Transplantation Suspected of Hyper-acute Rejection During Kidney Transplant Surgery**

Tomokazu Shimizu[1], Shoichi Iida[1], Hiroshi Toma[1], Kazuya Omoto[2], Taiji Nozaki[3], Masashi Inui[4], Hideki Ishida[2], Toshio Takagi[2] (*[1] Transplant Surgery and Urology, Toda Chuo General Hospital, Japan, [2] Urology, Tokyo Women's Medical University, Japan, [3] Urology, Juntendo University Urayasu Hospital, Japan, [4] Urology, Tokyo Women's Medical University Yachiyo Medical Center, Japan*)

MO39-6 **Genetic Polymorphisms in CXCR5 Are Associated with *De Novo* Donor-specific Antibody Formation After Kidney Transplantation**

Kosuke Ono, Kentaro Ide, Ryosuke Nakano, Hiroshi Sakai, Naoki Tanimine, Hiroyuki Tahara, Masahiro Ohira, Yuka Tanaka, Hideki Ohdan (*Department of Gastroenterological and Transplant Surgery, Hiroshima University, Japan*)

Mini Oral 40

12:00 - 12:45

Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

Basic and Translational Sciences 4

Chair: Xiao-Kang Li *(National Center for Child Health & Development, Japan)*

MO40-1 **Graft Perfusion with An HSP90 Inhibitor Prolongs Graft Survival**

Toshiaki Tanaka, Takeshi Maehana, Kohei Hashimoto, Ko Kobayashi, Naoya Masumori (*Department of Urology, Sapporo Medical University, Japan*)

MO40-2 **Protective Effect of Berberine Against Tacrolimus-Induced β-Cell Dysfunction**

Hyuk Jai Jang, Min Jae Jeong, Mee Young Oh (*Surgery, Ulsan University, Gangneung Asan Hospital, Republic of Korea*)

MO40-3 **Fucoidan Alleviates the FK506-Induced Renal Damage via Antioxidant Effect and Inhibiting Apoptosis**

Hyuk Jai Jang, Min jae Jeong, Mee Young Oh (*Ulsan University, Gangneung Asan Hospital, Republic of Korea*)

MO40-4 **Recombinant Thrombomodulin Alpha Attenuates Kidney Graft Damage After Long Cold Ischemia Time in a Rat Kidney Transplant Model**

Satoshi Tamaki[1], Kazunobu Shinoda[2], Masayuki Shimoda[3], Shinya Morita[1], Hiroshi Asanuma[1], Mototsugu Oya[1] ([1] *Keio University, Japan,* [2] *Department of Urology, St. Marianna University School of Medicine, Japan,* [3] *Department of Pathology, Jikei University School of Medicine, Japan*)

MO40-5 **Feasibility of Organ Transportation by The Drone: An Experimental Study Using a Rat Model**

Takahiro Enjoji, Akihiko Soyama, Masayuki Fukumoto, Li Peilin, Kunihito Matsuguma, Takanobu Hara, Hajime Matsushima, Yasuhiro Maruya, Tomohiko Adachi, Masaaki Hidaka, Susumu Eguchi (*Department of Surgery, Nagasaki University Graduate School of Biomedical Sciences, Japan*)

MO40-6 **Downregulated PGC1α Drives Steatotic Liver Graft Injury by Metabolic Reprogramming of M1 Macrophage**

Jiang Liu[1,2], Oscar WH. Yeung[1], Li Pang[1], Kevin TP. Ng[1], Jia-Hong Dong[2], Kwan Man[1] ([1] *Department of Surgery & HKU-Shenzhen Hospital, School of Clinical Medicine, LKS Faculty of Medicine, the University of Hong Kong, Hong Kong,* [2] *Hepato-Pancreato-Biliary Center, Beijing Tsinghua Changgung Hospital, Tsinghua University, China*)

Mini Oral 41

14:00 - 14:45

Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

Liver 9 (Long-Term Outcome, Adverse Event 1)

Chair: Takumi Fukumoto *(Department of Gastroenterological Surgery, Division of Hepato-Biliary-Pancreatic Surgery, Kobe University Graduate School of Medicine, Japan)*

MO41-1 **Central Pontine Myelinolysis After Liver Transplantation; A Case Report**

Naoya Sato, Atsushi Nishimagi, Akira Kenjo, Yasuhide Kofunato, Teruhide Kofunato, Junichiro Haga, Makoto Muto, Shigeyuki Tsukida, Shigeru Marubashi (*Fukushima Medical University, Japan*)

MO41-2 **Significance of Tenascin-C Levels in Recipients with Prolonged Jaundice After Living Donor Liver Transplantation**

Toru Shinkai[1,2], Naohisa Kuriyama[1], Masanobu Usui[3], Aoi Hayasaki[1], Takehiro Fujii[1], Yusuke Iizawa[1], Akihiro Tanemura[1], Yasuhiro Murata[1], Masashi Kishiwada[1], Daisuke Katoh[4], Takeshi Matsumoto[5], Hideo Wada[6], Toshimichi Yoshida[4], Shuji Isaji[1], Shugo Mizuno[1] (*[1] Department of Hepatobiliary Pancreatic and Transplant Surgery, Mie University Graduate School of Medicine, Japan, [2] Department of Disaster and Emergency Medicine, Mie University Graduate School of Medicine, Japan, [3] Department of Palliative Medicine, Fujita Health University Faculty of Medicine, Japan, [4] Department of Pathology and Matrix Biology, Mie University Graduate School of Medicine, Japan, [5] Department of Hematology and Oncology, Mie University Graduate School of Medicine, Japan, [6] Department of Molecular Pathobiology and Cell Adhesion Biology, Mie University Graduate School of Medicine, Japan*)

MO41-3 **Gene Polymorphisms and Risk Factors of Neurological Complications After Liver Transplantation**

Haojun Wang[1,2], Wei Wang[1] (*[1] Department of Urology, Beijing Chaoyang Hospital, Capital Medical University, China, [2] Capital Medical University, China*)

MO41-4 **Risk Factor and Management of Biliary Stricture After Living Donor Liver Transplantation**

Tomohiko Taniai, Kenei Furukawa, Koichiro Haruki, Mitsuru Yanagaki, Ryoga Hamura, Munetoshi Akaoka, Rui Marukuchi, Shinji Onda, Yoshihiro Shirai, Tadashi Uwagawa, Toru Ikegami (*Division of Hepatobiliary and Pancreatic Surgery, Department of Surgery, The Jikei University School of Medicine, Japan*)

MO41-5 **De Novo Malignancy After Living Liver Transplantation: A Single-center Long-Term Experience**

Yuichi Masuda, Atsuyoshi Mita, Yasunari Ohno, Koji Kubota, Tsuyoshi Notake, Akira Shimizu, Yuji Soejima (*Division of Gastroenterological, Hepato-Biliary-Pancreatic, Transplantation and Pediatric Surgery, Department of Surgery, Shinshu University School of Medicine, Japan*)

MO41-6 **Metachronous Double De Novo Malignancy After Living Donor Liver Transplantation: A Case Report**

Atsushi Nishimagi, Naoya Sato, Shigeyuki Tsukida, Makoto Muto, Junichiro Haga, Yasuhide Kofunato, Teruhide Ishigame, Takashi Kimura, Akira Kenjo, Shigeru Marubashi (*Fukushima Medical University, Department of Hepato-Biliary-Pancreatic and Transplant Surgery, Japan*)

Mini Oral 42

14:00 - 14:45

Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

Heart 1

Chair: Yasumasa Tsukamoto *(Department of Transplantation, National Cerebral and Cardiovascular Center, Japan)*

MO42-1 **Urgent Desensitization in Heart Transplantation: A Ten-Year Experience in a Tertiary Medical Center**

Hsun Yi Fu[1], Yi-Chia Wang[2], Chuan-I Tsao[3], Sz-Han Yu[3], Yih-Sharng Chen[3], Heng-Wen Chou[3], Nai-Hsin Chi[3], Chih-Hsien Wang[3], Ron-Bin Hsu[3], Shu-Chien Huang[3], Hsi-Yu Yu[3], Nai-Kuan Chou[3] (*[1] National Taiwan University Hospital Hsin-Chu Branch, Taiwan, [2] Department of Anesthesiology, National Taiwan University Hospital, Taiwan, [3] Department of Cardiac Surgery, National Taiwan University Hospital, and School of Medicine, National Taiwan University, Taiwan*)

MO42-2 **SARS-CoV-2 Antibody Response AfterSARS-CoV-2 Vaccine in Heart Transplant Recipients**

Hidetoshi Hattori[1], Michiru Nomoto[1], Noriko Kikuchi[1], Atsushi Suzuki[1], Natsumi Endo[2], Yuki Ichihara[3], Satoshi Saito[3], Junichi Yamaguchi[1], Hiroshi Niinami[3], Shinichi Nunoda[4] (*[1] Department of Cardiology, Tokyo Women's Medical University, Japan, [2] Department of Organ Transplant Medicine, Tokyo Womens Medical University, Japan, [3] Department of Cardiovascular Surgery, Tokyo Women's Medical University, Japan, [4] Department of Therapeutic Strategy for Severe Heart Failure, Tokyo Women's Medical University Graduate School of Medicine, Japan*)

MO42-3 **Low-Density Lipoprotein Concentration and Cardiovascular Event After Heart Transplantation**

Masaki Tsuji[1], Yoshitaka Isotani[1], Nobutaka Kakuda[1], Chie Bujo[1,2], Junichi Ishida[1], Eisuke Amiya[1,2], Masaru Hatano[1,3], Issei Komuro[1], Minoru Ono[4] (*[1] Department of Cardiovascular Medicine, Graduate School of Medicine, The University of Tokyo, Japan, [2] Department of Therapeutic Strategy for Heart Failure, The University of Tokyo, Japan, [3] Department of Advanced Medical Center for Heart Failure, The University of Tokyo, Tokyo, Japan, [4] Department of Cardiac Surgery, Graduate School of Medicine, The University of Tokyo, Japan*)

MO42-4 **Acute Cellular Rejection with Discrepancy Between Cardiac Histopathological and Imaging Findings**

Tasuku Hada[1], Shotaro Komeyama[1], Hiroki Mochizuki[1], Takuya Watanabe[1], Satsuki Fukushima[2], Tomoyuki Fujita[2], Yasumasa Tsukamoto[1] (*[1] Department of Transplant Medicine, National Cerebral and Cardiovascular Center, Japan, [2] Department of Cardiovascular Surgery, National Cerebral and Cardiovascular Center, Japan*)

MO42-5 **Application of A Newly Developed Organ Fixator to Heart Transplantation: Investigation in a Pig Model**

Shinji Torai[1,2], Kanta Kurauchi[2], Eiji Kobayashi[1] (*[1] The Jikei University School of MedicineDepartment of Kidney Regenerative Medicine, Japan, [2] SCREEN Holdings Co., Ltd., Japan*)

MO42-6 **Clinical Impacts of the Utilization of Marginal Donor Hearts on Short-term and Long-Term Outcomes**

Masaro Nakae, Daisuke Yoshioka, Koichi Toda, Masashi Kawamura, Tetsuya Saito, Takuji Kawamura, Ai Kawamura, Ryohei Matsuura, Yusuke Misumi, Masaki Taira, Kazuo Shimamura, Shigeru Miyagawa (*Department of Cardiovascular Surgery, Osaka University Graduate School of Medicine, Japan*)

Mini Oral 43

14:00 - 14:49

Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

Covid-19 3

Chair: Takahisa Hiramitsu *(Japanese Red Cross Aichi Medical Center Nagoya Daini Hospital, Japan)*

MO43-1 **Antibody Acquisition After SARS-CoV-2 Vaccination in Japanese Kidney Transplant Patients**

Hidetaka Deguchi[1], Atsuhiko Sakamoto[2], Nobuyuki Nakamura[3], Yasuhiro Okabe[4], Yoshifumi Miura[5], Kosuke Masutani[1] (*[1] Division of Nephrology and Rheumatology, Fukuoka University, Japan, [2] Department of General Medicine, Fukuoka University, Japan, [3] Department of Urology, Fukuoka University, Japan, [4] Department of Surgery and Oncology, Kyushu University, Japan, [5] Department of General Surgery, Harasanshin Hospital, Japan*)

MO43-2 **COVID-19 Infection in Post LDLT Patients and The Use of Everolimus**

Yukiko Kosai-Fujimoto, Noboru Harada, Yuki Nakayama, Katsuya Toshida, Takahiro Tomiyama, Takahiro Tomino, Shohei Yoshiya, Yoshihiro Nagao, Hiroto Kayashima, Shinji Itoh, Tomoharu Yoshizumi (*Department of Surgery and Science, Kyushu University Hospital, Japan*)

MO43-3 **Clinical Outcome of COVID-19 in Pediatric Liver Transplantation Recipients**

Ryuji Komine[1], Seisuke Sakamoto[1], Seiichi Shimizu[1], Hajime Uchida[1], Noriki Okada[1], Toshimasa Nakao[1], Tasuku Kodama[1], Akinari Fukuda[1], Masaki Yamada[2,3], Kensuke Shoji[2], Takanori Funaki[2], Chikara Ogimi[2], Mureo Kasahara[1] (*[1] Organ Transplantation Center National Center for Child Health and Development, Japan, [2] Department of Advanced Medicine for Virus Infections, National Center for Child Health and Development, Japan, [3] Division of Infectious Diseases, Department of Medical Subspecialties, National Center for Child Health and Development, Japan*)

MO43-4 **Adjustment of Immunosuppressants to Facilitate AntiCovid19 Antibody Production After mRNA Vaccination in Liver Transplant Recipients**

Wei-Chen Lee[1,2], Hao-Chien Hung[1], Jin-Chiao Lee[1], Chung-Guei Huang[3,4], Po-Wei Huang[3], Po-Wen Gu[3], Yu-Chao Wang[1], Chih-Hsien Cheng[1], Tsung-Han Wu[1], Chen-Fang Lee[1,2], Ting-Jung Wu[1,2], Hong-Shiue Chou[1,2], Kun-Ming Chan[1,2] (*[1] Division of Liver and Transplantation Surgery, Department of General Surgery, Chang-Gung Memorial Hospital, Taiwan, [2] Chang-Gung University College of Medicine, Taiwan, [3] Department of Laboratory Medicine, Chang-Gung Memorial Hospital, Taiwan, [4] Department of Medical Biotechnology and Laboratory Science, Chang-Gung University College of Medicine, Taiwan*)

MO43-5 **Antibody Response After SARS-CoV-2 mRNA Vaccines in Previously Infected Kidney Transplant Recipients**

Hiroko Beppu[1], Hiroki Shirakawa[2,3], Kazuya Omoto[3,4], Ayumi Ishiwatari[1], Tatsuya Fukuda[5], Kohei Unagami[4,6,7], Hideki Ishida[4,7], Takahiro Sanada[8], Tomoko Honda[8], Mitsuhiro Miyashita[9], Masanari Itokawa[10], Michinori Kohara[8], Sachiko Wakai[1] (*[1] Department of Nephrology, Tokyo Metropolitan Okubo Hospital, Japan, [2] Department of Urology, Tokyo Metropolitan Okubo Hospital, Japan, [3] Department of Urology, Tokyo Womens Medical University, Japan, [4] Department of Organ Transplant Medicine, Yocho-machi Clinic, Japan, [5] Department of Endocrinology and Metabolism, Tokyo Metropolitan Okubo Hospital, Japan, [6] Department of Nephrology, Tokyo Womens Medical University, Japan, [7] Department of Organ Transplant Medicine, Tokyo Womens Medical University, Japan, [8] Department of Microbiology and Cell Biology, Tokyo Metropolitan Institute of Medical Science, Japan, [9] Research Center for Social Science and Medicine, Tokyo Metropolitan Institute of Medical Science, Japan, [10] Schizophrenia Research Project, Tokyo Metropolitan Institute of Medical Science, Japan*)

MO43-6 **The Outcome of Heart Transplant Recipients After Three Doses of Covid-19 Vaccine**

Chuan-I Tsao[1], Chih-Yuan Lee[2], Chien-Chia Chen[2], Pei-Yin Hsieh[1], Nai-Kuan Chou[3], Chih-Hsien Wang[3], Nai-Hsin Chi[3], Shu-Chien Huang[3], Hsi-Yu Yu[3], Ron-Bin Hsu[3], Yih-Sharng Chen[3] (*[1] Department of Nursing, National Taiwan University Hospital,Taiwan, [2] Division of General Surgery,National Taiwan University Hospital,Taiwan, [3] Division of Cardiac Surgery, Department of Surgery, National Taiwan University Hospital,Taiwan*)

MO43-7 **Outcomes of Kidney Transplantation Recipients with SARS-CoV-2 Infection: A Single-Center Experience**

Eri Sekido[1,2], Kohei Unagami[3], Satomi Koshida[3], Rikako Oki[3], Sachi Okabe[3], Makoto Toguchi[2], Ryo Minoda[2], Taichi Kanzawa[2], Toshihito Hirai[2], Kazuya Omoto[2,4], Masashi Inui[1], Hideki Ishida[3], Toshio Takagi[2] (*[1] Urology, Tokyo Women's Medical University Yachiyo Medical Center, Japan, [2] Urology, Tokyo Women's Medical University, Japan, [3] Organ Transplant Medicine, Tokyo Women's Medical University, Japan, [4] Tokiwakai Yochomachi Clinic, Japan*)

Mini Oral 44

14:50 - 15:35

Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

Liver 10 (Long-Term Outcome, Adverse Event 2)

Chair: Takeshi Takahara *(Department of Surgery, Fujita Health University, Japan)*

MO44-1 **Living-Donor Liver Transplantation for Primary Biliary Cholangitis: A Single-Institution Experience Over 10 Years**

Mitsuru Yanagaki, Kenei Furukawa, Tomohiko Taniai, Koichiro Haruki, Rui Marukuchi, Munetoshi Akaoka, Yoshihiro Shirai, Shinji Onda, Michinori Matsumoto, Tadashi Uwagawa, Toru Ikegami (*Division of Hepatobiliary and Pancreatic Surgery, The Jikei University School of Medicine, Japan*)

MO44-2 **The Factors of Predicting Over-Time Weight Increase After Liver Transplantation**

Yuhi Shimura, Kaori Kuramitsu, Masahiro Kido, Shohei Komatsu, Hidetoshi Gon, Kenji Fukushima, Takeshi Urade, Shinichi So, Daisuke Tsugawa, Tadahiro Goto, Sadaki Asari, Hiroaki Yanagimoto, Hirochika Toyama, Takumi Fukumoto (*The Department of Surgery, Kobe University Graduate School of Medicine, Japan*)

MO44-3 **Mitral and Aortic Valve Calcifications and Long-Term Survival After Liver Transplantation**

Jun-Hyeop Jeong, Hye-Mee Kwon, In-Gu Jun, Jun-Gol Song, Gyu-Sam Hwang (*Department of Anesthesiology and Pain Medicine, Laboratory for Cardiovascular Dynamics, Asan Medical Center, University Ulsan College of Medicine, Republic of Korea*)

MO44-4 **Effect of Abdominal Aortic Calcification on Postoperative Renal Function in Liver Transplantation**

Ryuta Ide, Masahiro Ohira, Yuki Imaoka, Tomoaki Bekki, Koki Imaoka, Ryosuke Nakano, Hiroshi Sakai, Naoki Tanimine, Hiroyuki Tahara, Kentaro Ide, Tsuyoshi Kobayashi, Yuka Tanaka, Hideki Ohdan (*Department of Gastroenterological and Transplantation Surgery, Hiroshima University, Japan*)

MO44-5 **Renal Dysfunction After Living-Donor Liver Transplantation in Tohoku University**

Koji Miyazawa, Kazuaki Tokodai, Atsushi Fujio, Kashiwadate Toshiaki, Kengo Sasaki, Muneyuki Matsumura, Hiroki Yamana, Hiroaki Mitsugashira, Takashi Kamei, Michiaki Unno (*Surgery, Tohoku University, Japan*)

MO44-6 **Nodular Regenerative Hyperplasia Presenting Non-Cirrhotic Portal Hypertension After Liver Transplantation: A Case Report**

Masahiro Shinoda[1], Yoko Ito[1,2], Mina Komuta[3], Takashi Ito[4], Junko Mukoyama[1], Fumihiko Kato[1], Ayu Kato[1], Nobuhiro Nitori[1], Takashi Hatori[1], Yohei Yamada[2], Yasushi Hasegawa[2], Etsuro Hatano[4], Yuko Kitagawa[2], Tatsuo Kuroda[2], Osamu Itano[5] (*[1] Digestive Diseases Center, International University of Health and Welfare Mita Hospital, Japan, [2] Surgery, Keio University School of Medicine, Japan, [3] Pathology, International University of Health and Welfare, School of Medicine, Japan, [4] Division of Hepato-Biliary-Pancreatic Surgery and Transplantation, Department of Surgery, Graduate School of Medicine, Kyoto University, Japan, [5] Department of Hepato-Biliary-Pancreatic and Gastrointestinal Surgery, School of Medicine, International University of Health and Welfare, Japan*)

Mini Oral 45

14:50 - 15:35

Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

Heart 2

Chair: Koichi Toda *(Osaka University, Japan)*

MO45-1 **Heart Transplantation After Mustard Operation for Transposition of Great Arteries -Report of a Case-**

Ryuichi Taketomi, Nobuki Koyama, Kentaro Yuda, Kota Itagaki, Masayuki Otani, Katsuhiro Hosoyama, Koki Ito, Yusuke Suzuki, Shintaro Katahira, Goro Takahashi, Kiichiro Kumagai, Yoshikatsu Saiki (*Division of Cardiovascular Surgery, Tohoku University Graduate School of Medicine, Japan*)

MO45-2 **Extracorporeal Membrane Oxygenation Duration as A Bridge to Transplant: Should We Differ the Status?**

Mira Fauziah Salam[1,2], Chuan-I Tsao[3], Yih-Sharng Chen[4,5] ([1] *National Cardiovascular Center Harapan Kita, Indonesia,* [2] *Department of Cardiology and Vascular Medicine-Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia,* [3] *Department of Nursing, National Taiwan University Hospital, Taipei, Taiwan,* [4] *Division of Cardiovascular Surgery. Department of Surgery, National Taiwan University Hospital, Taiwan,* [5] *College of Medicine, National Taiwan University, Taipei, Taiwan*)

MO45-3 **Impact of Bilirubin Level in the Result of Ventricular Assist Device Implantation: How High Can Be to Acceptable for the Outcome?**

Yih-Sharng Chen, Chuan-I Tsao, Hsun-Yi Fu, Heng-Wen Chou, Nah-Kuan Chou (*National Taiwan University Hospital, Taiwan*)

MO45-4 **The Effect of Pre-VAD Implant Renal Function on the Post-transplant Survival in Japan**

Yugo Kunibe, Masahiko Ando, Ryu Inoue, Daisuke Ishii, Hiroyuki Kaneko, Takayuki Gyoten, Hyoe Komae, Mitsutoshi Kimura, Shogo Shimada, Haruo Yamauchi, Minoru Ono (*Department of Cardiac Surgery, The University of Tokyo Hospital, Japan*)

MO45-5 **Functional Recovery of Failing Heart by Mechanical Unloading Associated with c-Myc Expression via aPKC–FoXOs Pathway**

Takuji Kawamura, Daisuke Yoshioka, Masashi Kawamura, Tetsuya Saito, Ai Kawamura, Yusuke Misumi, Koichi Toda, Shigeru Miyagawa (*Department of Cardiovascular Surgery, Osaka University Graduate School of Medicine, Japan*)

Mini Oral 46

14:50 - 15:35

Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

Covid-19 4, Other Topics 3

Chair: Nobuyuki Nakamura *(Department of Urology, Fukuoka University Faculty of Medicine, Japan)*

MO46-1 **SARS-CoV-2 Antibody Kinetics After Second Dose of Vaccination in Solid Organ Transplant Recipients**

Kohei Unagami[1,5], Ryoichi Imamura[2], Rikako Oki[1,5], Yoshito Tomimaru[2], Daisuke Nakajima[3], Yuki Masano[3], Takashi Ito[3], Mikiko Yoshikawa[4], Kazuya Omoto[1,5], Miyaji Kyakuno[6], Tomomi Mori[1], Hidetoshi Hattori[1], Hideki Ishida[1], Shiro Takahara[7], Hiroto Egawa[1] ([1] *Tokyo Women's Medical University, Japan,* [2] *Osaka University, Japan,* [3] *Kyoto University, Japan,* [4] *Kyoto Prefectural University of Medicine, Japan,* [5] *Yochomachi Clinic, Japan,* [6] *Takatsuki General Hospital, Japan,* [7] *Kansai Medical Clinic, Japan*)

MO46-2 **Outcome and Effect of Vaccination in SARS-CoV-2 Omicron Infection in Kidney Transplant Recipients**

Chenghsu Chen[1,2,3,4], Shang-Feng Tsai[1,2,3], Ming-Ju Wu[1,2] (*[1] Division of Nephrology, Department of Internal Medicine, Taichung Veterans General Hospital, Taiwan, [2] Department of Post-Baccalaureate Medicine, College of Medicine, National Chung Hsing University, Taiwan, [3] Department of Life Science, Tunghai University, Taiwan, [4] School of Medicine, China Medical University, Taiwan*)

MO46-3 **COVID-19 in Renal Transplants; Multi-center Experience in Osaka**

Shigeaki Nakazawa[1,2,3,4], Shota Fukae[1], Ryo Tanaka[1,4], Ayumu Taniguchi[1], Kazuaki Yamanaka[1,2,4], Miyaji Kyakuno[3], Shiro Takahara[2], Tomoko Namba-Hamano[4,5], Ryoichi Imamura[1,2], Norio Nonomura[1], Ryoichi Imamura[1,2] (*[1] Department of Urology, Osaka University Graduate School of Medicine, Japan, [2] Kansai Medical Hospital Renal Transplantation Clinic, Japan, [3] Aijinkai Takatsuki Clinic, Japan, [4] Aijinkai Inoue Clinic, Japan, [5] Department of Nephrology, Osaka University Graduate School of Medicine, Japan*)

MO46-4 **COVID-19 in Kidney Transplant Recipients and Vaccination After COVID-19 Infection**

Toyofumi Abe[1], Ryo Tanaka[2], Ayumu Taniguchi[2], Shigeaki Nakazawa[2], Kazuaki Yamanaka[2], Tomoko Namba-Hamano[3], Shiro Takahara[4], Norio Nonomura[2], Ryoichi Imamura[2] (*[1] Department of Urology, Sumitomo Hospital, Japan, [2] Department of Urology, Osaka University Graduate School of Medicine, Japan, [3] Department of Nephrology, Osaka University Graduate School of Medicine, Japan, [4] Kansai Medical Hospital, Japan*)

MO46-5 **Cost Effectiveness of Kidney Transplantation in High-Immunological Risk Patients in a Japan Cohort**

Ryoichi Maenosono[1,3], Kohei Unagami[1,2], Rikako Oki[1,2], Yuya Fujiwara[1,3], Takafumi Yagisawa[1], Taichi Kanzawa[1], Toshihito Hirai[1], Kazuya Omoto[1], Haruhito Azuma[3], Hideki Ishida[1,2], Toshio Takagi[1] (*[1] Department of Urology, Tokyo Women's Medical University, Japan, [2] Department of Organ Transplant Medicine, Tokyo Womens Medical University, Japan, [3] Department of Urology, Osaka Medical and Pharmaceutical University, Japan*)

MO46-6 **Poor Exercise Tolerance Before Kidney Transplantation Causes Long-Term Muscle Loss**

Masaaki Yanishi, Yuya Koito, Hidefumi Kinoshita (*Department of Urology and Andrology, Kansai Medical University, Japan*)

Mini Oral 47

15:40 - 16:25

Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

Kidney 15 (Antibody Mediated Rejection 2, Risk factor)

Chair: Takaaki Kobayashi *(Aichi Medical University School of Medicine, Department of Renal Transplant Surgery, Japan)*

MO47-1 **Desensitization of Donor-Specific Antibody-Positive Renal Transplant Patients: A Single Institution Experience**

Naoki Yokoyama, Yoji Hyodo, Shun Nishioka, Takahito Endo, Takuya Fujimoto, Yuki Tashiro, Masato Fujisawa (*Division of Urology, Kobe University Graduate School of Medicine, Japan*)

MO47-2 **Low-dose Rituximab Induction Therapy in Immunologic High-risk Renal Transplantation Provides Favorable Graft Outcomes Without Increasing Cytomegalovirus Infection: A 5-Year Follow-up**

Kasumi Yoshinaga[1], Takanori Sekito[1], Yuki Maruyama[1], Tomoaki Yamanoi[1], Shingo Nishimura[1], Yasuhiro Onishi[2], Hiroshi Morinaga[2], Hidemi Takeuchi[2], Katsuyuki Tanabe[2], Takuya Sadahira[1], Kohei Edamura[1], Yasuyuki Kobayashi[1], Toyohiko Watanabe[1], Jun Wada[2], Motoo Araki[1] (*[1] Department of Urology, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Japan, [2] Department of, Nephrology, Rheumatology, Endocrinology and Metabolism, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Japan*)

MO47-3 **Fabry Disease Screening in High Risk Renal Disease Patients in Taiwan: A Single Center Study**

Chia Yu Shih[1], Shang Feng Tsai[1,2], Ming Ju Wu[1,2,4], Tung Min Yu[1], Cheng Hsu Chen[1,2,3,4] (*[1] Taichung Veterans General Hospital, Taiwan, [2] Department of Post-Baccalaureate Medicine, College of Medicine, National Chung Hsing University, Taiwan, [3] Department of Life Science, Tunghai University, Taiwan, [4] School of Medicine, China Medical University, Taiwan*)

MO47-4 **An Autophagy-Associated Diagnostic Model for Antibody-Mediated Rejection in Renal Transplantation**

Yuxuan Wang, Yue Xu, Di Zhang, Hao Zhang, Xiaopeng Hu (*Department of Urology, Beijing Chao-Yang Hospital, Capital Medical University, China*)

MO47-5 **Serum Phenylacetylglutamine Is A Risk Factor for Aortic Stiffness in Kidney Transplantation Patient**

Yen-Cheng Chen[1,2], Ching-Chun Ho[1,2], Ming-Che Lee[3,4], Bang-Gee Hsu[2,5] (*[1] Department of Surgery, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Taiwan, [2] School of Medicine, Tzu Chi University, Taiwan, [3] Division of General Surgery, Department of Surgery, Wan Fang Hospital, Taipei Medical University, Taiwan, [4] Department of Surgery, School of Medicine, College of Medicine, Taipei Medical University, Taiwan, [5] Division of Nephrology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Taiwan*)

MO47-6 **Incidence, Risk Factors and Clinical Outcomes of Neutropenia After Kidney Transplantation**

Yoji Hyodo, Naoki Yokoyama, Takahito Endo, Shun Nishioka, Takuya Fujimoto, Yuki Tashiro, Takeshi Ishimura, Masato Fujisawa (*Department of Urology, Kobe University Graduate School of Medicine, Japan*)

Mini Oral 48

15:40 - 16:25

Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

Kidney 16 (Pathology 1)

Chair: Tomoko Namba-Hamano *(Department of Nephrology, Osaka University Graduate School of Medicine, Japan)*

MO48-1 **Affectors Related to Worse Kidney Allograft Survival in Chronic Active Antibody-Mediated Rejection**

Kazunobu Shinoda[1,2], Kei Sakurabayashi[2], Hideyo Oguchi[2], Taichi Arai[2], Kenta Nishikawa[2], Takashi Yonekura[2], Yoshihiro Itabashi[2], Masaki Muramatsu[2], Takeshi Kawamura[2], Seiichiro Shishido[2], Ken Sakai[2] (*[1] Urology, St Marianna University School of Medicine, Japan, [2] Nephrology, Toho University Faculty of Medicine, Japan*)

MO48-2 **The Effect of Steroid Pulse Therapy for the Reduction of Acute Rejection Episode in Subclinical Borderline Changes: An Open-Label, Randomized Clinical Trial**

Eun Sung Jeong[1], Kyo Won Lee[2], Manuel Lim[2], Jaehun Yang[2], Ji Eun Kwon[2], Jae Berm Park[2] ([1] *Department of Surgery, Dongguk University Ilsan Hospital, Republic of Korea,* [2] *Department of Surgery, Samsung Medical Center, Republic of Korea*)

MO48-3 **The Protective Role of Protocol Biopsy for Allograft Kidney Maintenance in Kidney Transplantation**

Wonil Jo[1], Okjoo Lee[1], Kyo Won Lee[2], JaeBerm Park[2], Jung Eun Lee[3], Na Young Hwang[4], Kyunga Kim[4] ([1] *Soonchunhyang Univ. Bucheon Hospital, Surgery, Republic of Korea,* [2] *Department of Surgery, Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea,* [3] *Department of Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea,* [4] *Department of Statistics and Data, Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea*)

MO48-4 **Follow-Up Outcomes of Transplanted Kidneys with Borderline Changes**

Atsuro Sawada[1], Yuki Teramoto[2], Jin Kono[1], Takeshi Sano[1], Yuki Kita[1], Takashi Kobayashi[1] ([1] *Department of Urology, Kyoto University, Japan,* [2] *Department of Diagnostic Pathology, Kyoto University, Japan*)

MO48-5 **A Case of De Novo Subclinical Full-House Pattern Deposition in 1 Year Kidney Allograft Biopsy**

Noriyuki Kounoue[1], Hideyo Oguchi[1], Yuko Hamasaki[1], Tetuo Mikami[2], Junya Hashimoto[1], Ayuko Zaitsu[1], Yujiro Aoki[1], Seiichiro Shishido[1], Yutaka Yamaguchi[3], Ken Sakai[1] ([1] *Department of Nephrology, Toho University Faculty of Medicine, Japan,* [2] *Department of Pathology, Toho University Faculty of Medicine, Japan,* [3] *Yamaguchi's Pathology Laboratory, Japan*)

MO48-6 **Water Intake, Baseline Biopsy and Kidney Function After Living Donor Kidney Transplantation**

Shigeyoshi Yamanaga[1], Yuji Hidaka[1], Chiaki Kawabata[2], Mariko Toyoda[2], Yasuhiro Yamamoto[3], Akito Inadome[3], Hiroshi Yokomizo[1] ([1] *Department of Surgery, Japanese Red Cross Kumamoto Hospital, Japan,* [2] *Department of Nephrology, Japanese Red Cross Kumamoto Hospital, Japan,* [3] *Department of Urology, Japanese Red Cross Kumamoto Hospital, Japan*)

Mini Oral 49

15:40 - 16:25

Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

Kidney 17 (Genetic Influence)

Chair: Masashi Kato *(Nagoya Univesity Graduate School of Medicine, Japan)*

MO49-1 **Clinical Application of Genetic Testing in Pediatric Kidney Transplant Recipients with FSGS**

Kenichiro Miura[1], Naoto Kaneko[1], Taeko Hashimoto[1,2], Kiyonobu Ishizuka[1], Yoko Shirai[1], Masataka Hisano[3], Hiroko Chikamoto[1], Yuko Akioka[1,4], Shoichiro Kanda[1,5], Yutaka Harita[5], Toshiyuki Yamamoto[6], Motoshi Hattori[1] ([1] *Department of Pediatric Nephrology, Tokyo Women's Medical University, Japan,* [2] *Department of Pediatrics, Yamagata University School of Medicine, Japan,* [3] *Department of Nephrology, Chiba Children's Hospital, Japan,* [4] *Department of Pediatrics, Saitama Medical University, Japan,* [5] *Department of Pediatrics, the University of Tokyo, Japan,* [6] *Institute of Medical Genetics, Tokyo Women's Medical University, Japan*)

MO49-2 **Prescribing Prevalence of Medications with Potential Genotype-Guided Dosing in Kidney Transplant Recipients**

Yen-Lin Chang[1], Cheng-Hsu Chen[2], Tzu-Hung Hsiao[3], Yi-Ming Chen[4], Ming-Fen Wu[1] ([1] *Department of Pharmacy, Taichung Veterans General Hospital, Taiwan,* [2] *Division of Nephrology, Department of Internal Medicine, Taichung Veterans General Hospital, Taiwan,* [3] *Department of Medical Research, Taichung Veterans General Hospital, Taiwan,* [4] *Division of Allergy, Immunology and Rheumatology, Department of Internal Medicine, Taichung Veterans General Hospital, Taiwan*)

MO49-3 **Medication for Kidney Transplant Recipients with Familial Mediterranean Fever: A Case Series**

Hiroaki Yonishi[1], Norihiko Goto[1], Masahiko Yazawa[2], Yuki Nakamura[3], Kenta Futamura[1], Keitaro Nishizawa[1], Yuki Hasegawa[1], Kei Tanaka[1], Manabu Okada[1], Takahisa Hiramitsu[1], Toshihiro Ichimori[1], Shunji Narumi[1], Yoshihiko Watarai[1] ([1] *Department of Transplant and Endocrine Surgery, Japanese Red Cross Aichi Medical Center Nagoya Daini Hospital, Japan,* [2] *Division of Nephrology and Hypertension, Department of Internal Medicine, St. Marianna University School of Medicine, Japan,* [3] *Department of Nephrology and Rheumatology, Iwate Prefectural Central Hospital, Japan*)

MO49-4 **Association of ACTN3 Polymorphism with Sarcopenia in Kidney Transplant Recipients**

Takuya Fujimoto[1], Yuki Tashiro[1], Takahito Endo[1], Shun Nisioka[1], Naoki Yokoyama[1], Yoji Hyoudo[1], Takeshi Ishimura[1], Michiko Takahashi[2], Kazuhiro Yamamoto[3], Ikuko Yano[3], Masato Fujisawa[1] ([1] *Division of Urology, Department of Surgery Related, Faculty of Medicine, Kobe University Graduate School of Medicine, Japan,* [2] *Department of Internal Medicine Division of Diabetes and Endocrinology, Kobe University Graduate School of Medicine, Japan,* [3] *Department of Pharmacy, Kobe University Hospital, Japan*)

MO49-5 **A Gene Signature Based on Peripheral Blood for Spontaneous Immune Tolerance in Renal Transplantation**

Di Zhang (*Department of Urology, Beijing Chaoyang Hospital, China*)

MO49-6 **Identification of a Six Gene Peripheral Blood Signature Diagnosing Subclinical Acute Rejection After Renal Transplantation**

Hao Zhang, Yue Xu, Yuxuan Wang, Xiaopeng Hu, Xiaodong Zhang (*Department of Urology, Beijing Chao-Yang Hospital, Capital Medical University, China*)

Mini Oral 50

16:30 - 17:15

Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

Kidney 18 (Antibody Mediated Rejection 3, Pathology 2)

Chair: Ken Sakai *(Faculty of Medicine School of Medicine (Omori), Toho University, Japan)*

MO50-1 **Novel Mixed Lymphocyte Reaction Assay that Predicts Chronic Antibody Mediated Rejection in Kidney Transplant**

Naoya Iwahara, Kiyohiko Hotta, Takayuki Hirose, Nobuo Shinohara (*Department of Urology, Hokkaido University Hospital, Japan*)

MO50-2 **De Novo Class II Antibodies, Especially DQ, Have A Significant Impact on CAAMR and Renal Graft Loss**

Kazuki Kitajima[1], Daisuke Ishii[1], Tetsuya Abe[2], Yutaka Shiono[1], Fumino Noguchi[3], Yuki Imura[3], Yasuo Takeuchi[2], Kazunari Yoshida[1], Masatsugu Iwamura[1] ([1] *Department of Urology, Kitasato University of School of Medicine, Japan,* [2] *Department of Nephrology, Kitasato University of School of Medicine, Japan,* [3] *Transplant Support Office, Kitasato University Hospital, Japan*)

MO50-3 **Clinical Impacts of Allograft Biopsy in Recipients with Transplantation Vintage Greater than Ten Years**

Tomoko Namba-Hamano[1], Takayuki Hamano[1,2], Shota Fukae[3], Ryo Tanaka[3], Ayumu Taniguchi[3], Shigeaki Nakazawa[3], Kazuaki Yamanaka[3], Miyaji Kyakuno[4], Ryoichi Imamura[3], Norio Nonomura[3], Yoshitaka Isaka[1] (*[1] Department of Nephrology, Osaka University Graduate School of Medicine, Japan, [2] Department of Nephrology Nagoya City University Graduate School of Medical Sciences, Japan, [3] Department of Urology, Osaka University Graduate School of Medicine, Japan, [4] Department of Kidney Transplantation, Takatsuki General Hospital, Japan*)

MO50-4 **Effects of Treating Subclinical Rejection 2 Wks After KT, As Determined by 1 Yr Histologic Outcomes**

Okjoo Lee[1], Kyo Won Lee[2], Jae Berm Park[2], Jung Eun Lee[3], Ghee Young Kwon[4], Na Young Hwang[5], Kyunga Kim[5] (*[1] Department of Surgery, Soonchunhyang University Bucheon Hospital, Soonchunhyang University College of Medicine, Republic of Korea, [2] Department of Surgery, Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea, [3] Department of Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea, [4] Department of Pathology and Translational Genomics, Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea, [5] Statistics and Data Center, Research Institute for Future Medicine, Samsung Medical Center, Republic of Korea*)

MO50-5 **Can Urine Sediment Substitute for Urine Cytology in Predicting BKVN in Renal Transplant Recipients?**

Takanori Sekito[1], Motoo Araki[1], Kasumi Yoshinaga[1], Tomoaki Yamanoi[1], Yuki Maruyama[1], Takuya Sadahira[1], Shingo Nishimura[1], Kohei Edamura[1], Yasuyuki Kobayashi[1], Katsuyuki Tanabe[2], Hidemi Takeuchi[2], Hiroshi Morinaga[2], Jun Wada[2], Hiroyuki Yanai[3] (*[1] Urology, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Science, Japan, [2] Nephrology, Rheumatology, Endocrinology and Metabolism, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Japan, [3] Department of Pathology, Okayama University Hospital, Japan*)

MO50-6 **Comparison of Urinary Liver Fatty Acid Binding Protein and Pathological Biopsy Findings at 1 Year After Kidney Transplantation**

Jun-ichi Teranishi[1], Daiji Takamoto[1], Hiroaki Ishida[1], Takashi Kawahara[1], Hiroji Uemura[1], Kazuhide Makiyama[2] (*[1] Department of Urology and Renal Transplantation, Yokohama City University Medical Center, Japan, [2] Department of Urology, Yokohama City University, Japan*)

Mini Oral 51

16:30 - 17:15

Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

Kidney 19 (ABO-Incompatible, Hypogammaglobulinemia)

Chair: Naotake Akutsu *(Department of Clinical Research, National Hospital Organization Chibahigashi National Hospital, Japan)*

MO51-1 **Eculizumab Was Effective for TMA After ABO-i Living-Donor Kidney Transplantation: Case Report**

Yuki Hasegawa, Kei Tanaka, Hiroaki Yonishi, Keitaro Nishizawa, Kenta Futamura, Manabu Okada, Takahisa Hiramitsu, Norihiko Goto, Shunji Narumi, Yoshihiko Watarai (*Japan Red Cross Aichi Medical Center Nagoya Daini Hospital, Japan*)

MO51-2 **Ideal Dose of Rituximab in ABO-Incompatible Kidney Transplantation with Low Anti-A/B Antibody Titers**

Manabu Okada[1], Sunji Narumi[1], Norihiko Goto[1], Takahisa Hiramitsu[1], Kenta Futamura[1], Yuki Hasegawa[1], Keitaro Nishizawa[1], Hiroaki Yonishi[1], Kei Tanaka[1], Takaaki Kobayashi[2], Kazuharu Uchida[3], Makoto Tsujita[3], Asami Takeda[4], Toshihiro Ichimori[1], Yoshihiro Watarai[1] (*[1] Department of Transplant and Endocrine Surgery, Japanese Red Cross Aichi Medical Center Nagoya Daini Hospital, Japan, [2] Department of Renal Transplant Surgery, Aichi Medical University School of Medicine, Japan, [3] Department of Renal Transplant Surgery, Masuko Memorial Hospital, Japan, [4] Department of Nephrology, Japanese Red Cross Aichi Medical Center Nagoya Daini Hospital, Japan*)

MO51-3 **Short-Term Outcome of ABO Incompatible Kidney Transplantation in Elderly End-Stage Kidney Disease Patients**

Naoki Nagasaka, Masashi Inui, Yu Kijima, Eri Sekido, Kaori Yamashita (*Tokyo Women's Medical University Yachiyo Medical Center, Japan*)

MO51-4 **Outcomes of ABO-Compatible Living Kidney Transplantation Recipients with Low Immunological Risk**

Yuya Fujiwara[1], Kohei Unagami[2], Ryoichi Maenosono[1], Rikako Oki[2], Taro Banno[3], Taichi Kanzawa[3], Takafumi Yagisawa[3], Toshihito Hirai[3], Omoto Kazuya[3], Toshio Takagi[3], Haruhito Azuma[1], Hideki Ishida[3] (*[1] Department of Urology, Osaka Medical and Pharmaceutical University, Japan, [2] Department of Organ Transplant Medicine, Tokyo Women's Medical University, Japan, [3] Department of Urology, Tokyo Women's Medical University, Japan*)

MO51-5 **Acute Antibody-Mediated Rejection After Massive Plasma Transfusion in ABO Incompatible Kidney Transplant Recipient – Difficult Decisions Regarding Plasma Selection Must Be Made When Massive Hemorrhage Occurs After ABO Incompatible Renal Transplantation**

Yusuke Yamada[1], Michio Nojima[1], Shigeo Hara[2], Mutsushi Kawakita[3], Yuta Mine[3], Akihiro Kanematsu[1], Shingo Yamamoto[1] (*[1] Kidney Transplant Center and Department of Urology, Hyogo Medical University, Japan, [2] Department of Pathology, Kobe City Medical Center General Hospital, Japan, [3] Department of Urology, Kobe City Medical Center General Hospital, Japan*)

MO51-6 **The Time Dependent Changes in Serum Immunoglobulin Levels and Risk Factors of Hypogammaglobulinemia After Kidney Transplantation**

EunAh Jo[1], Sangil Min[1], Ahram Han[1], Jongwon Ha[1], Hye Young Woo[1], Ara Cho[1], Eun Young Song[2], Hajeong Lee[3], Yong Chul Kim[3] (*[1] Department of Surgery, Seoul National University College of Medicine, Republic of Korea, [2] Department of Laboratory Medicine, Seoul National University College of Medicine, Republic of Korea, [3] Department of Nephrology, Seoul National University College of Medicine, Republic of Korea*)

Mini Oral 52

16:30 - 17:05

Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

Kidney 20 (Immunosuppression)

Chair: Shunji Narumi *(Japanese Red Cross Aichi Medical Center Nagoya Daini Hospital, Japan)*

MO52-1 **A Case of Short-Term Use of rATG for Acute TCMR After Donated Kidney Transplantation**

Keitaro Nishizawa[1], Kenta Futamura[1], Yuki Hasegawa[1], Kei Tanaka[1], Hiroaki Yonishi[1], Manabu Okada[1], Takahisa Hiramitsu[1], Norihiko Goto[1], Toshihiro Ichimori[1], Shunji Narumi[1], Asami Takeda[2], Yoshihiko Watarai[1] (*[1] Department of Transplant and Endocrine Surgery, Japanese Red Cross Aichi Medical Center Nagoya Daini Hospital, Japan, [2] Department of Nephrology, Japanese Red Cross Aichi Medical Center Nagoya Daini Hospital, Japan*)

MO52-2 Withdrawn

MO52-3 **A RCT on Early Conversion to Low-dose Calcineurin Inhibitor Combined with Sirolimus in Renal Transplantation Patients**

Xiang Zheng, Wei Wang, Xiaodong Zhang (*Department of Urology, Beijing Chaoyang Hospital Affiliated Capital Medical University, China*)

MO52-4 **Long Term Outcomes of Low Dose r-ATG and Basiliximab Induction in Kidney Transplantation from ECD**

Sunghae Park, Jieun Kwon, Jaehun Yang, Sang Oh Yun, Namkee Oh, Sunghyo An, Sung Jun Jo, Seung Wook Han, Jae-Berm Park, Kyo Won Lee (*Samsung Medical Center, Republic of Korea*)

MO52-5 **Immune Status of Kidney Transplantation Patients Receiving Everolimus with Low-Dose Ciclosporin**

Asuka Tanaka, Kentaro Ide, Yuka Tanaka, Masahiro Ohira, Hiroyuki Tahara, Hideki Ohdan (*Department of Gastroenterological and Transplant Surgery, Hiroshima University, Japan*)

ABSTRACT

Presidential Adress

Keynote Lecture

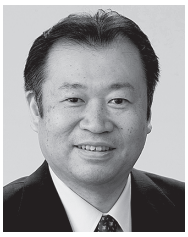
State-of-the-art Lecture

Plenary Session

Basic Science in Transplantation

Women in Transplantation

PA



What Can and Should TSS Do for the Future of Organ Transplantation in Asia?

Ryoichi Imamura

Department of Urology, Osaka University Graduate School of Medicine, Japan

Academic Degrees

2007	Ph.D., Osaka University Graduate School of Medicine
1996	M.D., Nara Medical University

Professional Trainings and Experiences

2017-present	Professor, Dept. of Urology, Osaka University Hospital
2014-present	Associate Professor, Dept. of Urology, Osaka University Graduate School of Medicine
2013-2014	Deputy Director, Dept. of Urology, Osaka General Medical Center
2010-2013	Medical Director, Dept. of Urology, Osaka General Medical Center
2009-2010	Medical Director, Dept. of Urology, Osaka Police Hospital
2008-2009	Assistant Medical Director, Dept. of Urology, Osaka Police Hospital
2007-2008	Research Fellow, Dept. of Medicine, Division of Nephrology, Indiana University
2007	Clinical Fellow, Dept. of Urology, Osaka University Graduate School of Medicine
1999-2003	Medical Staff, Dept. of Urology, Osaka Seamen's Hospital
1998-1999	Medical Resident, Dept. of Urology, Osaka Rosai Hospital
1996-1998	Medical Resident, Dept. of Urology, Osaka Medical Center for Cancer and Cardiovascular Diseases

Medical Award

2017	Best Poster Award (15th Congress of the Asian Society Transplantation)
2011	Annual Meeting Award (99th The Japanese Urological Association)
2009	Annual Meeting Award (97th The Japanese Urological Association)
2008	Fresenius Award (13th Congress of the European Society for Organ Transplantation)

Transplantation Science Symposium Asian Regional Meeting (TSS Asia) was launched with the activity of emphasizing basic research of The Transplantation Society (TTS). This meeting mainly targets young clinical transplant physicians and surgeons in Asian countries. This is because the main goal of TSS Asia is to provide them with information on the cutting-edge basic and translational research.

The main members at the time of establishment were recommended in principle by transplant societies in China, Hong Kong, Korea, Taiwan, and Japan. The first academic meeting was held in Tokyo in 2016. There were about 200 visitors. The second academic meeting was held in Taipei in 2018. The content of the program was greatly expanded in the clinical section, and the number of visitors also increased. The third academic meeting was held in Beijing in 2020. It was held online due to the pandemic of COVID-19, and more than 1,000 people attended the lecture. The operation of TSS Asia is already entering a new generation period.

There are already two major academic societies in Asia related to organ transplantation, The Asian Society of Transplantation (AST) and Asian Transplant Week (ATW). I expect that, in the future, TSS Asia will further promote its activities of introducing basic research and translational research, which are its areas of expertise, while emphasizing the division of roles with AST and ATW for the overall development of organ transplantation in Asian countries.

KL01

The Role of Natural Killer Cells in the Immune Response in Liver Transplantation

Hideki Ohdan

Department of Gastroenterological and Transplant Surgery, Graduate School of Biomedical & Health Sciences, Hiroshima University, Japan

Education:
1993-1997 Ph.D.Graduate School of Medical Sciences, Hiroshima University
1982-1988 M.D.School of medicine, Hiroshima University
Professional Career:
2018-Present Dean, Graduate School of Biomedical & Health Sciences
2012-Present Professor and Chairman, Dept. of Gastroenterology and Transplant Surgery, Graduate School of Biomedical and Health Sciences, Hiroshima University
2008-2012 Professor and Chairman, Dept. of Surgery, Division of Frontier Medical Science, Programs for Biomedical Research, Graduate School of Biomedical Sciences, Hiroshima University
2007-2008 Associate Professor, Dept.t of Surgery, Division of Frontier Medical Science, Programs for Biomedical Research, Graduate School of Biomedical Sciences, Hiroshima University
2003-2007 Assistant Professor, Dept. of surgery, Hiroshima University Hospital
2000-2003 Medical Stuff, Dept. of surgery, School of medicine, Hiroshima University
1997-2000 Research associate, Harvard Medical School/ Massachusetts General Hospital
1992-1993 Research and Clinical Resident, Dept. of Surgical Research, Research Institute, National Cardiovascular Center
1990-1992 Senior Resident Surgeon, Dept. of surgery, School of medicine, Hiroshima University
1988-1990 Junior Resident Surgeon, Dept. of surgery, School of medicine, Hiroshima University
Education:
1993-1997 Ph.D.Graduate School of Medical Sciences, Hiroshima University
1982-1988 M.D.School of medicine, Hiroshima University
Professional Career:
2018-Present Dean, Graduate School of Biomedical & Health Sciences
2012-Present Professor and Chairman, Dept. of Gastroenterology and Transplant Surgery, Graduate School of Biomedical and Health Sciences, Hiroshima University
2008-2012 Professor and Chairman, Dept. of Surgery, Division of Frontier Medical Science, Programs for Biomedical Research, Graduate School of Biomedical Sciences, Hiroshima University
2007-2008 Associate Professor, Dept.t of Surgery, Division of Frontier Medical Science, Programs for Biomedical Research, Graduate School of Biomedical Sciences, Hiroshima University
2003-2007 Assistant Professor, Dept. of surgery, Hiroshima University Hospital
2000-2003 Medical Stuff, Dept. of surgery, School of medicine, Hiroshima University
1997-2000 Research associate, Harvard Medical School/ Massachusetts General Hospital
1992-1993 Research and Clinical Resident, Dept. of Surgical Research, Research Institute, National Cardiovascular Center
1990-1992 Senior Resident Surgeon, Dept. of surgery, School of medicine, Hiroshima University
1988-1990 Junior Resident Surgeon, Dept. of surgery, School of medicine, Hiroshima University
Awards
Distinguished Professor, Hiroshima University (2017-)
Research encouragement award from Uehara Memorial Foundation (2000)
Research Interests
Liver Transplantation, Xenotransplantation, Gastroenterological Surgery, Immunology

Natural killer (NK) cells are thought to provide a first line of defense against invading infectious microbes and neoplastic cells by exerting an effector function without the necessity for priming. They are highly heterogeneous lymphocytes with a diverse repertoire of phenotypes and functions. Their role in organ transplantation is not well defined, as it varies depending on the pathology encountered. Because NK cells are relatively unaffected by the immunosuppressive agents currently used after organ transplantation, it is important to understand how NK cells affect graft rejection and immunoregulatory mechanisms after organ transplantation.

Unlike other organs, the liver is rich in resident NK cells, and it is likely that donor liver-derived NK cells will be released into the circulating blood after transplantation and have a complex impact within the recipient immune system. We have previously demonstrated that liver mononuclear cells derived from donor liver perfusate contain a large number of NK cells that have vigorous cytotoxicity against hepatocellular carcinoma (HCC) cells with the expression of tumor necrosis factor-related apoptosis-inducing ligand, a critical molecule for NK cell-mediated anti-tumor cell killing, after IL-2 stimulation. We conducted the phase I study of the adoptive transfer of liver-derived NK cells stimulated with IL-2 in liver transplant recipients with HCC, proving that this treatment was well tolerated and reduced the HCC recurrence rate after liver transplantation. We have also proved that adoptive immunotherapy with NK cells was associated with the reduced post-transplant bloodstream infections.

In this session, I will introduce the results of our basic and clinical research on the peculiarities of liver-resident NK cells, as well as related research results by others.

KL02

Bridging Ischemia-Reperfusion Injury and Heterologous Alloimmunity to Mediate Acute Graft Rejection

Robert Fairchild

Transplant Center, Cleveland Clinic, USA

EDUCATION:
1971-75 Ohio State University, Columbus, OH; B.A. in Microbiology, August 25, 1975
1977-79 Department of Microbiology, Miami University, Oxford, OH; M.S., May 20, l980
1979-84 Department of Microbiology, University of Missouri-Columbia, Columbia, MO; Ph.D., May 19, 1984;
PROFESSIONAL APPOINTMENTS:
1984-1987 Postdoctoral Fellow, Division of Clinical Immunology, University of Colorado Health Sciences Center, Denver, CO
1987-1989 Instructor, Department of Microbiology and Immunology, University of Colorado Health Sciences Center, Denver, CO
1989-1990 Assistant Professor, Department of Microbiology and Immunology, University of Colorado Health Sciences Center, Denver, CO
1990-1997 Assistant Staff, Departments of Immunology and Urology, Cleveland Clinic Foundation, Cleveland, OH
1996-2003 Assistant Professor (Adjunct), Department of Pathology, Case Western University School of Medicine, CWRU, Cleveland, OH
1997-2001 Associate Staff, Departments of Immunology and Urology, Cleveland Clinic Foundation, Cleveland, OH
2001- Staff, Department of Immunology and Urological Institute, Cleveland Clinic Foundation, Cleveland, OH
2002- Professor of Molecular Medicine, Cleveland Clinic Lerner College of Medicine of Case Western Reserve University, Cleveland, OH
2003- Professor, Department of Pathology, Case Western Reserve University School of Medicine, Cleveland, OH
PROFESSIONAL SOCIETY AFFILIATIONS:
American Association of Immunologists, 1988-
Society for Leukocyte Biology, 1993-
Transplantation Society, 1996-
American Society of Transplantation, 2002-
American Society for Investigative Pathology, 2003-

Effector memory (em) T cells responding to inflammatory stimuli must first infiltrate the peripheral tissue site and then undergo antigen-driven activation to proliferate and express effector functions to eliminate the provocation. Mechanisms mediating em T cell proliferation with these sites remain poorly understood. Microbial pathogens generate em T cells that are often reactive to allogeneic MHC molecules (heterologous immunity) and are a risk factor for acute allograft rejection. We have reported the rapid infiltration of em T cells into complete MHC-mismatched heart allografts within 24 hours after transplant to unsensitized recipients in mouse models. These em T cells are activated to express IFN-g and granzyme B and directly mediate CTLA-4Ig resistant acute rejection of allografts subjected to prolonged, but not minimal, cold ischemic storage prior to transplant. This em T cell proliferation within allografts requires graft production of p40 homodimers (HD), but not IL-12 or IL-23 heterodimers. While p40HD have been reported to stimulate myeloid cell function, their impact on T cell activation is unknown. The p40HD do not directly stimulate the donor-reactive em T cell proliferation; rather, this proliferation is driven by p40HD binding to IL-12 receptor beta1 dimers on allograft dendritic cells (DC) to stimulate IL-15 production. Targeting p40HD or IL-15 in unsensitized recipients of high-ischemic allografts attenuates the early donor-reactive em T cell response and abrogates CTLA-4Ig resistant acute rejection, promoting long-term allograft survival. These findings expose a novel function of p40HD in connecting ischemia-reperfusion injury induced inflammation to elicitation of heterologous donor-reactive em CD8 T cell responses within allografts and identify new targets to inhibit these responses and improve graft outcomes.

KL03

Interspecies Organogenesis: Generation of Transplantable Organs *in vivo*

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Professor, Department of Genetics and the Institute for Stem Cell Biology and Regenerative Medicine, Stanford University School of Medicine. Hiro Nakauchi is recognized as a pioneer in the field of stem cell research and single cell biology. He demonstrated that a single hematopoietic stem cell (HSC) can reconstitute the entire blood-lymphatic system of irradiated (HSC-removed) mice. His experience in HSC research led to the idea of "organ niche" and successfully created a rat pancreas in mice, a groundbreaking demonstration of cross-species organogenesis. His research focuses on linking discoveries in stem cell biology, immunology, molecular biology and developmental engineering to effective stem cell therapies.

Organ transplantation remains the only cure for a growing number of patients suffering from end-stage organ failure. However, an absolute lack of donor organs is a major roadblock to this therapy. Recently, a heart from the hypoimmunogenic pig was transplanted into a patient with end-stage heart failure, and the patient survived for two months without evidence of immunological rejection. This is an important step toward the use of xenogeneic organs for clinical transplantation.

In contrast to above approach, we propose to use developing pig embryo's environment to form human iPS cell-derived organs. We postulated that blastocysts derived from a mutant mouse strain in which the gene necessary to form a particular organ was deficient could provide relevant "organ niches" for normal ESCs or iPSCs to developmentally complement this defect. To prove this hypothesis, we knocked out a master regulator of pancreas development (the Pdx1 gene) and then injected normal ES cells to complement this deficiency to generate a newly formed pancreas composed entirely of injected ESC-derived cells. We generated functionally normal mouse-sized rat pancreases in mice (Kobayashi et al., ***Cell***. 2010) and in the reverse experiment, we generated functional rat-sized mouse pancreases in rats. Islets prepared from these mouse pancreata generated in rats were transplanted into mice with streptozotocin-induced diabetes. The transplanted islets successfully maintained normal host blood glucose levels for over 370 days without immunosuppression (Yamaguchi and Sato et al. ***Nature***. 2017). These data provide proof-of-principle evidence for the therapeutic potential of PSC-derived organs generated by interspecies organogenesis. However, interspecies chimeras with high donor chimerism also display embryonic lethality and malformation during early embryogenesis, hindering high chimeric fetus formation. To circumvent this problem, we used Insulin-like growth factor 1 receptor (Igf1r) deficient embryos as a host. Since the Igf1r deletion increases donor chimerism from the mid to late developmental stages, highly chimeric fetuses can evade the early developmental arrest observed in interspecies chimera formation. Indeed, Igf1r KO hosts create what we have termed, "cell competitive niche", which significantly increases donor chimerism in both intra- and inter-species chimeras. The enhanced donor chimerism continuously increased and even took over the whole organs in intra-species chimeras as well as inter-species chimeras (Nishimura et al. ***Cell Stem Cell*** 2021). This approach, now being tested in large animals, should facilitate donor cell contribution to host tissues, which may result in in whole-organ generation across wide evolutionary distances.

KL04

Emerging Topics in Organ Transplantation: Addressing the Organ Shortage Crisis and Refining Immunosuppression

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MD Distinguished Chair in Transplant Surgery, Chief Division of Transplant Surgery, Director, Transplant Surgery Research Laboratory, Brigham and Women's Hospital, Professor of Surgery, Harvard Medical School, Executive Editor, Transplantation, Vice President, The Transplantation Society, USA

Keynote Lecture

Stefan G. Tullius, MD, PhD, FACS, is the Joseph E. Murray, MD Distinguished Chair in Transplant Surgery, Chief of Transplant Surgery and Director of the Transplant Surgery Research Laboratory at Brigham and Women's Hospital, Boston, Massachusetts, Professor of Surgery at Harvard Medical School, Executive Editor of Transplantation, and Vice President, The Transplantation Society.

Dr. Tullius received an MD (Summa Cum Laude) from the Johann-Wolfgang Goethe University in Frankfurt/Main, Germany, a PhD from the Charite in Berlin, Germany, and a (honorary) Master of Arts from Harvard University.

Dr. Tullius is an internationally recognized clinician/scientist, a frequent invited speaker, and visiting professor. He is also an Associate Editor of Transplant International, Associate Editor of the Korean Journal of Transplantation, and has served as Associate and Consulting Editor of the American Journal of Transplantation. He served on the Board of the European Society of Organ Transplantation (ESOT) and was the founding Chair of the Basic Science Committee of ESOT. He has chaired several committees for the AST and was the founding Chair of ASTs Vascular Composite Tissue Transplant Committee. Dr. Tullius has been on the Board of The Transplantation Society (TTS), currently serves as Vice President, and recently as Senior Treasurer. He has served on the Board of Directors for UNOS as Regional Councilor (New England), is currently a member of the Declaration of Istanbul Custodian group, Vice President of the International Society of Uterus Transplantation, and a member of the Board of the National Kidney Registry. He has published > 300 scientific manuscripts and book chapters.

His clinical interests focus on kidney/pancreas transplantation, individualized immunosuppression, optimized utilization of organs for transplantation and organ preservation/perfusion. Dr. Tullius has also contributed with pioneering work in face, hand and uterus transplantation.

Dr. Tullius has organized several International meetings. He chaired the Transplantation Science Symposium in Cape Cod, Massachusetts (2011) and co-chaired the meetings in Lorne, Australia (2015), and Victoria, Canada (2017). He was also on the Executive Organizing Committee of the TTS International Congresses in Hong Kong (2016), Madrid (2018), and TTS 2020 Virtual. He is currently on the Executive Organizing Committee of the World Transplant Congress 2025 and a group leader of the International Transplant Congress in Buenos Aires (2022).

He has a most productive, continuously NIH-funded research laboratory. Work originating from his laboratory includes significant contributions to the understanding of immunosenescence and alloimmunity, the clinical practice of organ allocation, effects of organ quality, organ rejuvenation, obesity, organ preservation and composite tissue transplantation. Dr. Tullius is also an enthusiastic teacher and has mentored > than 40 post-docs/graduate students who moved on into accomplished careers and have received several awards under his mentorship.

He has established strong clinical and research collaborations around the world aiming to support and to promote the advancement of the field.

In recognition of his contributions, Dr. Tullius has received several awards including the Pichlmayr Award of the German Transplant Society, the Clinical Science Investigator Award of the American Society of Transplantation (AST), the Joseph E. Murray/Simon J. Simonian Mentoring Award (x2), the Excellence in Transplantation Award by the National Kidney Foundation (2020), the Outstanding Achievement

Organ transplantation represents a uniquely successfully clinical field that has progressed rapidly from pioneering efforts available for few to the treatment of choice for patients with irreversible organ failure. Yet, outcomes remain imperfect. At the same time, numerous patients do not live long enough to benefit from the treatment as organs do not come available in time.

In the recent past, we have witnessed exciting progress in the preservation and storage of organs for transplant. In addition, our advanced understanding of organ aging has allowed us to identify novel ways to recondition and rejuvenate organs.

The 'One Organ for a Lifetime' concept represents a desirable outcome in transplantation. Yet, organ transplants do not function long enough and patients frequently require several transplants during a lifetime while suffering from the side effects of immunosuppression and their imperfect and unspecific mode of action.

Novel insights into the complexity of alloimmunity shaped by individual aspects including immunosenescence and biological sex may allow us to address immunosuppression in a more specific way. Moreover, novel and allospecific immunosuppression may provide more effective future treatment approaches.

SL

Personalized Immunosuppressive Therapy in Organ Transplantation by Integrating Genomic and Cell Biological Data

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Education:

1990-1993 (M.T.)Department of Hygienic Technology, School of Health Science Yamaguchi University
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Career:

2006-2009 Fellowship Researcher, Hiroshima University
2009-2014 Assistant Professor, Department of Surgery, Division of Frontier Medical Science, Graduate School of Biomedical Sciences, Hiroshima University
2014-2017 Associate professor, Department of Surgery, Division of Frontier Medical Science, Graduate School of Biomedical Sciences, Hiroshima University
2018- Associate professor, Department of Gastroenterological and Transplant Surgery, Graduate School of Biomedical and Health Sciences, Hiroshima University

Academic Activities:
Membership of The Transplantation Society, Japan Society of Transplantation, Japan Liver Transplantation Society, The Japanese Society for Immunology

We have been conducting research with the aim of implementing personalized immunosuppressive therapy by hierarchically applying genomic analysis of immune-related molecules and cell biological immune monitoring.
In liver and kidney transplant recipients, single nucleotide polymorphism (SNP) analysis of genes encoding immune-related molecules (PD-1, IL-10, TGFBR2, CTLA4, IL12B, NFATC2, STAT4, CX3CR1, CAV, HMGB1, TLR4, MIF, BAFF, NLRP3, TNF-α, KLRB1, IL-18, IRF-5) was performed to identify associations with the incidence of rejection, infection and other various complications. Based on the candidate gene analyses, we created an algorithm to extract patients with immunological risk. Biological immune-monitoring (mix lymphocyte reaction assay using CFSE-dye method: CFSE-MLR) has been applied intensively to patients selected by the genomic algorithm, and the dose of immunosuppressants has been tuned based on immune-monitoring.
Clinical application of SNP information of genes related to immune responses is expected to further improve the efficiency and safety of organ transplantation medicine. Similar to medical care for lifestyle-related diseases and cancer, the use of "artificial intelligence" may be required for genetic analyses.

PS01-1

Live Donor Renal Transplantation for DSA+ Recipients

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2004- American Society of Transplantation
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1997- The Surgical Association, Taiwan, R.O.C

Experiences:
1998- Visiting Surgeon, Department of Surgery, National Taiwan University Hospital
1997-1998 Clinical Fellow in Transplant Surgery at University of Cambridge, Addenbrookes Hospital, U.K.
1992-1997 Residency in Surgery, National Taiwan University Hospital

Appointments:
2017 - Professor, Department of Surgery, National Taiwan University School of Medicine
2019 - Vice Superintendent, National Taiwan University Hospital Hsin-Chu Branch

Donor-specific antibody (DSA) has been one of main obstacles to successful kidney transplantation. Desensitization regimens including intravenous immunoglobulin (IVIG) and various apheresis protocols were described with an aim to overcome serious antibody-mediated rejection and bring about sustainable renal allograft function. Previously, we reported our results of live donor kidney transplants (2007 ~ 2013) with DSA and a desensitization regimen including, rituximab, double filtration plasmapheresis (DFPP) and high-dose IVIG (2 g/Kg in total) in 2016. We found that patients with a strong DSA (MFI > 10,000) had a 100% rejection rate at 1 month, and the rejection rates of those with intermediate DSA (MFI 5000 ~ 10,000) and low DSA (MFI 1000 ~ 5000) were 40% and 15.4%, respectively. The DSA levels were statistically significant for post-transplant acute rejection in patients with DSA. We would report the recent results of our desensitization regimen for live donor kidney transplantation with DSA (~ 2018), though failure to be desensitized and severe rejection after transplantation still happened. We accordingly employed a new desensitization protocol including bortezomib induction therapy for patients with strong DSA. Cases with bortezomib induction therapy in addition to our IVIG-based desensitization regimen would be presented.

PS01-2

Outcomes of High-Risk Living Donor Kidney Transplantation Compared to Deceased Donor Kidney Transplantation

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EDUCATION
- M.D.: Seoul National University Medical College, 1991 - 1995
- M.S.: Seoul National University Medical College, 1997 - 1999
- Ph.D. (Immunology): Seoul National University Medical College, 2003 2006
- Postdoctoral fellow (Transplantation immunology): University of Pennsylvania, 2004 2006
- Visiting scholar, Tokyo Womens Medical University, 2010

CAREER
- Resident: Department of Internal Medicine, Seoul National University Hospital, 1996 - 2000
- Public health doctor : Korean FDA, 2000 - 2002
- Fellowship : Division of Nephrology, SNUH, 2003 2004
- Assistant Professor: Gachon University of Medicine and Science, 2007-2009
- Professor : Transplantation center, Seoul National University Hospital, 2009- 2021.8
- Professor : Division of Nephrology, Department of Internal Medicine, Yonsei University, 2021.8-

AWARD
- Young Investigator Award, the American Society of Transplantation (2006)
- New Key Opinion Leader Award, The Transplantation Society (2008)
- Young Investigator Award, Korean Society of Nephrology (2008)
- Academic Award, the Korean Society for Transplantation (2014)

MAIN RESEARCH INTERESTS
1. Roles of immunosuppressive cells in transplantation and their application to clinic
- Development of chimeric antigen receptor (CAR) regulatory T cells and mesenchymal stem cells for suppressing allograft rejection
- Immune regulation of warm and cold ischemia-reperfusion injury

2. Mechanisms and control of anti-carbohydrate antibody-mediated rejection in transplantation
- Control of anti-blood group antibody-mediated rejection in ABO-incompatible Transplantation
- Control of xenograft rejection in xenotransplantation

HLA-incompatible (HLAi) and ABO-incompatible (ABOi) living donor (LD) kidney transplantation (KT) are one of efforts to increase KT opportunity for sensitized end-stage renal disease (ESRD) patients. However, there have been controversies about benefits of this high-risk LDKT compared to waiting for DDKT. To elucidate this issue, we compared outcomes of HLAi LDKT with those who wait for HLAc DDKT. In addition, we compared outcomes of ABOi LDKT with those who wait for ABOc DDKT. One hundred eighty nine patients underwent HLAi LDKT after desensitization between 2006 and 2018 in two centers (42 with a positive complement-dependent cytotoxicity cross-match, 89 with a positive flow cytometric cross-match, and 58 with a positive donor-specific antibody with negative cross-match). The distribution of matched variables was comparable between the HLAi LDKT group and the matched control groups (waiting-list-only group, n=930; waiting-list-or-HLAc-DDKT group, n=930). The HLAi LDKT group showed significantly better patient survival rate compared to the waiting-list-only group ($P < 0.001$) and the waiting-list-or-HLAc-DDKT group ($P < 0.001$). Furthermore, HLAi LDKT group showed significant survival benefit as compared with the matched groups at all strength of DSA. Next, 426 patients underwent ABOi LDKT between 2010 and 2020. The distribution of matched variables was comparable between the ABOi LDKT group and the matched control groups (waiting-list-only group, n=1,278; waiting-list-or-ABOc-DDKT group, n=1,278). The ABOi LDKT group showed significantly better patient survival rate compared to the waiting-list-only group ($P = 0.020$) and the waiting-list-or-ABOc-DDKT group ($P = 0.040$). In conclusion, both HLAi and ABOi LDKT could have a survival benefit as compared with patients who were waitlisted for or received HLAc and ABOi DDKT, suggesting HLAi or ABOi LDKT as a good option for sensitized ESRD patients in countries with prolonged waiting times for DDKT.

PS01-3

Enhance Access to Kidney Transplant: Strategies to Overcome Immunological Barrier

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Dr Maggie Ma graduated from the Medical School, the University of Hong Kong and completed her specialist training in nephrology in 2011. She received further training in the field of kidney transplantation at Westmead Hospital, Sydney, Australia under the supervision of Professor Jeremy Chapman in 2013 and had training in blood group incompatible kidney transplant in Tokyo Women University Hospital, Tokyo, Japan, under the supervision of Professor Kazunari Tanabe in 2016. Dr Ma has played a crucial role in pioneering ABO-incompatible and HLA-incompatible kidney transplantation in Hong Kong, with the first case performed at Queen Mary Hospital in 2017 and 2020 respectively.
She is now the Director of Combined Renal Replacement Therapy Services in Queen Mary Hospital and Members of the Paired Kidney Donation Programme Working Group of Hong Kong Hospital Authority. She is also the President of Hong Kong Society of Transplantation and Vice President of Asian Society of Transplantation.

Living donor kidney transplantation is an essential component in the kidney transplant program. Blood group and Human Leucocyte Antigen compatibilities are the two major immunological barriers for kidney transplantation. Incompatible transplantation and kidney paired donation are two main strategies to overcome such immunological barrier. Integrating these two strategies would be able to improve access to and reduce waiting time for living kidney transplantation.

PS01-5

Our Strategy for Immunologically High-Risk Kidney Transplantation

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Education :
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Career:
2002-2004 Junior Resident, Urology, Hokkaido University affiliated hospitals, Japan
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2012-2014 Instructor, Urology, Hokkaido University, Japan
2014-2015 Research fellow, Kidney transplant surgery, Massachusetts General Hospital, USA
2015-2016 Research fellow, Kidney transplant surgery, Columbia University, USA
2016-2022 Instructor, Urology and kidney transplant surgery, Hokkaido University and affiliated hospitals, Japan
2022- Chief of kidney transplant surgery, Sapporo City General Hospital, Japan
Associations:
2002- Japanese Urological Association: Board Certified Urological Surgeon (2007) and Supervisor Surgeon (2012)
2009- Japanese Society for Clinical Renal Transplantation: Board Certified Kidney Transplant Surgeon (2011)
2010- Japan Society for Transplantation: Board Certified Kidney Transplant Surgeon (2012)
Awards:
Award of Japan Society for Transplantation, 2013

More than half a century has passed since the introduction of kidney transplantation medicine in Japan; however, the number of deceased-donor kidney transplantations remains small, meaning that we still have to rely on living-donor kidney transplantation. Because living kidney donors are limited to relatives in Japan, immunologically high-risk transplants, such as ABO-incompatible kidney transplantation (ABOiKTx) and anti-HLA donor-specific antibody-positive kidney transplants (DSApKTx) must sometimes be performed. As such, we have extensive experience in the treatment of ABOiKTx. We have found that by performing desensitization with rituximab and plasmapheresis before transplantation, graft survival equivalent to ABO blood group-compatible kidney transplantation can be obtained. The antibody titer of anti-blood group antibodies is a significant problem in ABOiKTx. At our institution, we used to perform transplantation without preoperative plasmapheresis when the anti-blood group antibody titer was low. However, there have been occasional cases of acute antibody-mediated rejection with thrombotic microangiopathy in patients who did not undergo plasmapheresis prior to transplantation. As such, since even patients with low titer antibodies now undergo at least one preoperative plasmapheresis in our institute, we achieved no incidence of perioperative antibody-mediated rejection. In 2019, high-dose intravenous immunoglobulin (IVIg) was indicated as a preoperative desensitization therapy in Japan for DSApKTx. We analyzed 9 cases in which high-dose IVIg desensitization therapy was performed with a protocol of Rituximab, plasmapheresis and doses of 0.5-1.0 g/kg IVIg from 8 days before transplantation. Although one patient experienced headache as an adverse effect, the other eight cases showed no symptoms. Kidney transplantation was discontinued in the first case because the anti-donor antibody was positive on the day of transplantation. However, the possibility of false-positive antibodies in high-dose IVIg has since become apparent, and recent cases have been transplanted regardless of the results on the day. Five of the eight transplant recipients experienced rejection, two because of acute antibody-mediated rejection and three because of acute T-cell rejection around one month after transplantation. All cases improved with anti-rejection therapy and were engrafted. Immunologically high-risk kidney transplantation can be safely performed with the use of rituximab, plasmapheresis, and high-dose IVIg.

PS02-1

Quick Preparation of ABO-Incompatible Living Donor Liver Transplantation for Acute Liver Failure

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Postgraduate Training:
1989 - 1994 Surgical resident, Department of Surgery, Chang Gung Memorial Hospital
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1996.6 - 1998.5 Research fellow, Transplantation Department, UPMC, University of Pittsburgh

Academic Appointment: Chief, Division of Liver and Transplantation Surgery
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Professional Affiliations:
1. Surgical Association, Republic of China
2. Formosa Medical Association
3. Surgical Society of Gastroenterology, R.O.C.
4. Taiwan Transplantation Society
5. International Society of transplantation
6. Member of American Society of Transplantation
7. Member, internation society of liver transplantation
8. Member, IHPBA

Professional Activities:
Chair, Taiwan transplantation society, 2015-2017
The Council member of Taiwan Transplantation Society
The Council member of Taiwan Surgery Society
The Council member of Taiwan Liver Tumor Society

Acute liver failure is life-threatening and has to be treated by liver transplantation urgently. When deceased donors or ABO-compatible living donors are not available, ABO-incompatible (ABO-I) living donor liver transplantation (LDLT) becomes the only choice. How to prepare ABO-I LDLT urgently is an unsolved issue. A quick preparation regimen was designed, which was consisted of bortezomib (3.5mg) injection to deplete plasma cells and plasma exchange to achieve isoagglutinin titer ≤ 1: 64 just prior to liver transplantation and followed by rituximab (375mg/m^2) on post-operative day one to deplete B-cells. Eight patients received this quick preparation regimen to undergo ABO-I LDLT for acute liver failure from 2012 to 2019. They aged between 50 and 60 years. The median MELD score was 39 with a range from 35 to 48. It spent 4.75 ± 1.58 days to prepare such an urgent ABO-I LDLT. All the patients had successful liver transplantations, but one patient died of antibody-mediated rejection at post-operative month 6. The 3-month, 6-month, and 1-year graft/patient survival were 100%, 87.5%, and 75%, respectively. In conclusion, this quick preparation regimen can reduce isoagglutinin titers quickly and make timely ABO-I LDLT feasible for acute liver failure.

PS02-2

Effect of Fc-γ Receptor Polymorphism on Rituximab-Mediated B Cell Depletion in ABO-Incompatible Adult Living Donor Liver Transplantation

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05/2018 – 03/2022 **Columbia Medical Center, Columbia Center for Translational Immunology**, New York, NY
Postdoctoral researcher
04/2013 – 05/2018 **Graduate School of Biomedical & Health Sciences, Hiroshima University**, Hiroshima, Japan
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EDUCATION
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Doctor of Philosophy in Medical Science (Ph.D.) awarded
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TRAINING
04/2008 – 03/2010 **Hachinohe City Hospital**, Hachinohe, Japan
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[Background] The prophylactic use of rituximab, an anti-CD20 IgG1 is currently indispensable for ABO-incompatible (ABOi) adult living donor liver transplantation (LDLT). The rituximab depletes B cells by complement-dependent cytotoxicity, antibody (Ab)-dependent cell-mediated cytotoxicity (ADCC), and stimulation of apoptosis. ADCC is initiated by interactions between the Fc segment of IgG and Fc gamma receptors (FcγRs) on monocytes, macrophages, dendritic cells, and/or natural killer (NK) cells. The affinity of FcγR for rituximab differs based on single-nucleotide polymorphisms (SNPs) in FcγRs. Therefore, the SNPs in FcγRs potentially influence the effects of rituximab. This study aimed to explore the effect of the SNPs on clinical response to rituximab and outcomes in patients of ABOi-LDLT.
[Methods] SNPs of FCGR2A [131H/R] and FCGR3A [158F/V], alleles encoding FcγR, were identified in 20 patients desensitized with rituximab before ABOi LDLT. The effect of these SNPs on B cell elimination and outcomes was analyzed in the patients.
[Results] The isoform encoded by FCGR2A [131H/H] had a higher affinity for IgG1, and accordingly, the effects of rituximab on B cells were more profound in individuals with FCGR2A [131H/H] than in individuals with FCGR2A [131H/R or R/R]. Specifically, the time to B-cell reappearance in the peripheral blood was significantly delayed, and total serum IgM levels were significantly lower early after LDLT in individuals with FCGR2A [131H/H], even though these SNPs did not significantly affect the reduction of anti-blood group A/B antibodies. The incidence of blood stream infection was also significantly higher in individuals with FCGR2A [131H/H], and this SNP was associated with poor prognosis. Despite no significant effect of FCGR3A [158F/V] on B cell elimination, the incidence of infection was significantly higher in individuals with FCGR3A [158F/V or F/F] than in individuals with FCGR3A [158V/V] which has a low affinity for IgG3, important for innate immunity against infection.
[Conclusions] The SNPs of FCGR2A and FCGR3A are likely to be predisposing factors for severe infectious complications after ABOi LDLT, despite the lack of a significant influence of these SNPs on the reduction of anti-blood group A/B antibodies. This study will be a good foundation for further studies on larger cohorts.

PS02-3

ABO-Incompatible Adult Living Donor Liver Transplantation Under the Desensitization Protocol With Rituximab

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PS02-4

ABO-Incompatible Liver Transplantation: Kyushu Experience

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Fellow in General Surgery, Saiseikai Karatsu Hospital (1998-2000); Research Fellow, Recanati/Miller Transplant Institute, Mount Sinai NY, USA (2000-2001); Fellow in General Surgery, Shin Nakama Hospital (2002-2003); Assistant Professor, Kyushu University (2003-2006); Assistant Professor, University of Tokushima (2006-2007); Assistant Professor, Kyushu University (2007-2008); Chief of HPB surgery, Saiseikai Fukuoka General Hospital (2008-2010);
Associate Professor, Kyushu University (2010-2021); Professor, Dept. of Surgery and Science, Kyushu University (2022-)
Associations:
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Awards:
Research award, Japan Society of Hepatology, 2014
High Citation Award, Japan Society of Hepatology, 2016

ABO incompatible (ABOi) liver transplantation (LT) can be performed with relative safety in infants. In the last century, adult patients remained at considerable risk of early fatal outcome because preformed antibodies to donor-blood group antigen induced severe antibody mediated rejection (AMR) with a high rate of bile duct and vascular complications. Although living donor LT (LDLT) has been established as a treatment for patients with end-stage liver disease, donor selection is limited to mostly relatives and spouses. Hence, ABO-I LDLT is often performed in Japan. Various methods including local infusion therapy via portal vein or hepatic artery, plasma pheresis, high dose calcineurin inhibitors, and steroids with other immunosuppressive regimens and simultaneous splenectomy were performed to avoid AMR after LDLT. Severe infection and portal vein thrombosis were problems to be solved. Rituximab was introduced worldwide for adult LDLT. AMR was not observed in patients with rituximab prophylaxis earlier than 7 days before LDLT. Early rituximab prophylaxis significantly depleted B cells and memory B cells in the spleen. One hundred and fourteen patients underwent LDLT and received grafts from ABOi donors at Kyushu University Hospital. Our present protocol for ABOi LDLT is rituximab desensitization 3 weeks prior to LDLT, plasma exchange when anti A/B titer 1024 or more, mycophenolate mofetil induction since 7 days before LDLT. Splenectomy or local infusion is not indicated. We herein present our experience and outcome of ABOi LDLT and review the literatures.

PS03-1

Lung Trasplantation for Pulmnary Arterial Hypertension —A Single Institutional Experience in 26 Years

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EDUCATION:
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PROFESSIONAL TRAINING
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Visiting Fellow,
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EMPLOYMENT:
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Introduction:
Lung transplantation (LTx) is a therapeutic option for the patients with irreversible pulmonary arterial hypertension (PAH), which is often characterized by sustained increase in pulmonary vascular resistance and eventually leads to mortality if untreated. However, it is very difficult to take care these patients either in intraoperative, perioperative or postoperative periods. Besides, limited experience is probably the reason why post-LTx survival is worse in PAH than other end-stage lung diseases in our institute, such as chronic obstructive pulmonary disease. Here we reported our single center experience in LTx for patients with end-stage PAH.
Material and methods:
This is a retrospective cohort study in which we enrolled the end-stage PAH patients who received LTx in a tertiary transfer center between January 1995 to December 2021.
Results:
There were 26 patients were enrolled into this study, including 9 males and 17 females, and two of them received re-transplantation. The mean age at which they underwent LTx was 34.5 ± 12.4 years, and the preoperative mean pulmonary arterial pressure (mPAP) before LTx was 65.7 ± 19.9 mmHg. There were 16 idiopathic PAH patients, and the others had either congenital heart disease or pulmonary venous occluded disease (PVOD) leading to secondary PAH. Bilateral LTx was performed for 16 patients, who had statistically better survival than those undergoing single LTx (median survival: 6.0 years versus 0.2 years, p=0.022). Superior survival was also noted in the last 14 PAH patients who received LTx after 2008 (median survival: 6.0 versus 0.2 years, p=0.004).
Conclusion:
There were notable survival benefits for PAH patients who underwent bilateral LTx and those who underwent LTx after 2008.

PS03-2

Lung Transplantation for Pulmonary Hypertension: Perioperative Considerations

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Education
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3/2012 ~ 8/2018 Assistant Professor in General Thoracic Surgery, Asan Medical Center, Seoul, Korea
9/2018 ~ Associate Professor, Thoracic & Cardiovascular Surgery, Asan Medical Center, Seoul, Korea

Licensure
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Professional Societies
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In this abstract titled 'Lung transplantation (LT) for pulmonary hypertension (PH): perioperative considerations', I propose to discuss LT in patients with group 1.1 PH (e.g. IPAH) according to the definition of PH in the recently updated 2022 ESC/ERS guidelines. IPAH is a rare disease as 2.9% of all adult lung transplants were diagnosed with IPAH according to a 2019 ISHLT registry report. Until September 2022, 8 IPAH patients received LT at Asan Medical Center (AMC) (8/212. 3.8%). Below, I present several perioperative considerations of LT for PH based on our experience at AMC, including the usefulness of balloon atrial septostomy (BAS) or Potts shunt as palliative treatments, the necessity of prophylactic postoperative VA-ECMO, and surgical treatment for PH patients with huge PA enlargement.

1. Septostomy or Potts shunt as palliation procedure: Even though it is difficult to believe that septostomy or shunt can slow the progression of IPAH or replace LT, and procedure-related mortality was estimated to be as high as 5%, and typically in patients with RAP > 20 mmHg or SaO2 < 90% are thought to be a contraindication for septostomy, it serves as a bridge to LT by stabilizing the patient's hemodynamics prior to LT. As a post-tricuspid shunt, the Potts shunt, which connects the LPA and descending aorta, has many advantages (such as reducing RV afterload, improving LV geometry, transporting oxygenated blood to the head and upper extremities, etc.), and provides midterm outcomes that are comparable to LT. however, it reports operative mortality of 20%, and there are some technical issues about closing Potts shunt during lung transplantation. Among AMC-IPAH patients, we have experienced LT in 1 PFO, 1 ASD, 1 septostomy patient, and 1 patient awaiting LT with a Potts shunt.

2. Prophylactic usage of postoperative VA-ECMO: There are encouraging studies for prophylactic use of postoperative VA-ECMO after LT in IPAH patients because VA-ECMO may be able to control left ventricular dysfunction caused by increased left heart preload. However, we do not routinely employ VA-ECMO in AMC, because the documented risk of bleeding complications being as high as 75%, and critical LV dysfunction can be prevented by meticulous ICU care (sedation, slow weaning, ventilator and fluid management, etc.), and whenever necessary VA-ECMO can be immediately applied in ICU. We also experienced lower limb ischemia after VA-ECMO in a patient with small femoral arteries.

3. Aneurysmal change of PA: If the IPAH patient had huge PA enlargement, it was usually considered as an indication for heart-lung transplantation (HLT). According to a recently published article on the surgical strategy in the IPAH patient with a huge PA aneurysm, bilateral sequential LT with whole pulmonary arteries may be the appropriate approach for these patients.

PS03-3

Living-Donor Lobar Versus Cadaveric Lung Transplantation for Pulmonary Hypertension

Hiroshi Date

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Hiroshi Date, MD is a Chairman and Professor, Department of Thoracic Surgery, Kyoto University, Japan. After graduating from Okayama University School of Medicine in 1984, he was trained by Drs Joel D Cooper and G Alexander Patterson at Washington University as a research (1989-91) and a clinical lung transplant fellow (1994-5). He also spent a year (1993-4) as a general thoracic fellow at The Cleveland Clinic Foundation. In 1998, he performed the first successful living-donor lobar lung transplantation in Japan. Since then, he has performed more than 350 lung transplants resulting in about 70% survival rate at 10-years. Dr. Date has performed more than 4,000 thoracotomies and has authored more than 600 peer-reviewed publications in various fields of general thoracic surgery including thoracic malignancy and lung transplantation.

OBJECTIVE: Living-donor lobar lung transplantation (LDLLT) is a life-saving procedure for critically ill patients with various lung diseases including pulmonary hypertension (PH). However, because only one or two lobes are implanted, there are obvious concerns regarding whether heart failure with pulmonary edema may develop after LDLLT. The purpose of this study was to compare the preoperative condition and outcome of LDLLT with those of conventional cadaveric lung transplantation (CLT) for patients with PH. METODS: Between December 2010 and December 2021, we performed 34 lung transplants including 12 LDLLTs (5 single and 7 bilateral) and 22 CLTs (all bilateral) for PH. Preoperative variables and early and late outcomes were retrospectively compared between the two procedures. RESULTS: The average age was significantly younger in the LDLLT group than the CLT group (16.5 y vs 30.7 y, $p = 0.007$). Based on preoperative variables of less ambulatory ability (50 vs 100%, $p < 0.001$) and higher proportion of WHO class 4 (83.3 vs 18.2%, $p < 0.001$), LDLLT patients were more debilitated than CLT patients. Hospital death was similar between the two groups (8.3 vs 9.1%, $p > 0.99$). One and 5-year survival rates were also similar between the two groups (90.0 and 90.0% vs 90.9 and 75.5%, $P = 0.49$, Figure). All living donors returned to their previous lifestyles without restriction. CONCLUSIONS: Although LDLLT patients with PH were sicker preoperatively, LDLLT patients demonstrated survival rates similar to CLT patients. LDLLT is a viable option for patients with PH.

PS04-1

Current Status and Challenges for Clinical Application of Liver Regeneration Medicine

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1992-1998 M.D. Keio University School of Medicine, Japan
1998-1999 Internship, Department of Surgery, Keio University, Japan
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2003-2004 Chief Resident, Department of Surgery, Keio University, Japan
2004-2007 Staff Surgeon, Hino Municipal Hospital, Japan
2007-2010 Surgery Research Fellow, Massachusetts General Hospital, Harvard Medical School and Shriners Hospitals for Children, Boston, MA.
2010- Assistant Professor, Department of Surgery, Keio University, Japan
2018- Assistant Professor & Lecturer, Department of Surgery, Keio University, Japan
Awards:
Nov 2008 AASLD Young Investigator Travel Award
Oct 2010 The 1st JSGE International Topic Conference Best Poster Award
Mar 2011 Best Poster Award at Annual Meeting of the Japanese Society of Regenerative Medicine
Nov 2011 Young Investigator Award, Keio University School of Medicine Alumni Association (Sanshikai)
Jun 2012 The 4th Annual Research Award Grant of Japanese Society of Anti-Aging Medicine
July 2013 JSGS Young Investigator of the Year 2013
Nov 2015 AASLD Presidential Poster of Distinction
Nov 2018 The Japan Society for Organ Preservation and Biology, Chairmans award
Nov 2020 The Japan Urological Association, Congress Award
Nov 2022 20th JSGS, Chairmans award

Unlimited organ availability would represent a paradigm shift in transplantation. Human induced pluripotent stem cells (hiPSCs) are a promising cell source for elucidating disease pathology and therapy. The mass supply of hiPSC-derived cells is technically feasible. Carriers that can contain a large number of hiPSC-derived cells and evaluate their functions in vivo-like environments will become increasingly important for understanding disease pathogenesis or treating end-stage organ failure. However, long-term in vivo engraftment and function of scaled-up bioengineered liver grafts which can contain a large number of parenchymal cells as well as endothelial cells have not been previously reported. Therefore, we aimed to create a human-scale transplantable liver graft engineered on a porcine liver-derived scaffold. We repopulated the scaffold parenchyma with primary hepatocytes or hiPSCs and the vascular system with endothelial cells. For in vivo functional testing, we performed auxiliary transplantation of the repopulated scaffold in pigs with induced liver failure. It was observed that the auxiliary bioengineered liver graft with primary hepatocytes improved liver function for 28 days and exhibited upregulation of liver-specific genes, however the grafts contained hiPSCs failed to show the clinical benefit. The result provides definitive evidence for the feasibility of engineering human-scale transplantable liver grafts for clinical applications, but further study is required.

PS04-2

Assembly and Function of an Engineered Liver Graft Generated Solely from Human Induced Pluripotent Stem Cells-Towards Autologous Liver Transplantation

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Education
1999-2005 M.D., Kyushu University, Fukuoka Japan
2007-2011 Ph.D in Graduate school of Medical Sciences, Kyushu University.
I researched the association between liver cancer progression and diacylglycerol kinase and researched the liver regeneration.
Work Experience
2005-2007 A resident of Kyushu University hospital and Kitakyushu Medical Center.
2011-2014 A staff surgeon of Department of Surgery, Hiroshima Red Cross Hospital and Atomic Bomb Survivors Hospital, Hiroshima, Japan.
2014 -2015 An assistant professor of Department of Surgery and Science, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan.
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2017-2020 An assistant professor of Department of Surgery and Science, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan.
2021-present A staff surgeon of Department of Surgery, Fukuoka City Hospital
I work as a liver transplantation and hepatobiliary pancreatic surgeon.
LICENSURE and CERTIFICATION:
National Board of Medicine, Registration No. 450110
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Honors
2009 Clinical research award of the 64th General Meeting of Japanese Society of Gastroenterological Surgery, Japan.
2015 Uehara Memoria Foundation
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Backgrounds: End-stage liver disease must be treated by transplantation, which is limited by shortage of organ donors and postulates lifelong immune suppression. Human induced pluripotent stem cells (hiPSCs) have the capability of revolutionizing research and therapy of liver diseases by providing a source of hepatocytes for autologous cell/engineered liver therapy. However, iPSCs-derived hepatocytes (hiPSC-Heps) usually resulted in immature phenotype and the transplantable liver tissue generated from iPSCs has never been established. The purpose of this study is to develop the differentiation protocols from iPSCs to functioned cells and to assemble transplantable liver grafts entirely derived from iPSC. Methods: We developed protocols for the differentiation of mature hiPSCs-Heps, cholangiocytes (hiPSCs-Chols) and vascular endothelial cells (hiPSCs-VECs). To engineer transplantable liver grafts using iPSCs-Heps were reseeded into decellularized liver scaffolds, subsequently hiPSCs-VECs and hiPSCs-Chols. The regenerated human iPSC-derived liver were tested in vitro and remained for 4 days after auxiliary liver transplantation in immune compromised engineered ($IL2rg^{-/-}$) rats to test the function in vivo. Result: The resulting hiPSCs-Heps expressed liver-specific transcription factors, miRNA122, albumin and secrete urea similar to human adult hepatocytes. The resulting iPSCs-liver-graft showed adequate hepatic-parenchyma-like morphology and supports liver-specific function including cell-cell contact, repopulation, and urea synthesis in vitro. Human specific albumin and alpha-1 antitrypsin was detected in rat serum at 4 days after transplantation of iPSCs-derived-liver-graft. Conclusion: Our results provide a proof of principle for the generation of a transplantable liver graft derived from human iPSCs, which could be used in the future autologous-transplantation to treat end-stage liver disease.

PS04-3

Small Molecule-Mediated Cellular Reprogramming and the Cellular Niche of Human Liver

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06/2021 - Present. Postdoctoral Fellow, Max-Planck-Institute of Molecular Cell Biology and Genetics, Germany
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Awards
2021. S-Oil Excellent Thesis Award (The Korean Academy of Science and Technology, KAST)
2021. Best Poster Award (Korean Society for Stem Cell Research)
2019. Young Investigator Research Award (Korean Society for Molecular Cellular Biology)
2019. Best Presentation Award (HBP Surgery Week)
2019. Young Scientist Award (Korean Society for Stem Cell Research)
2016. Poster Presentation Award (Asian Transplantation Week)

Regenerative medicine is gaining huge attention as an alternative method for liver transplantation. However, it is necessary to develop a cell source with similar functional properties to the cell-of-origin and free from immune rejection, for this approach to be effective as a regenerative medicine treatment. In previous studies, we generated hepatic progenitors from human primary hepatocytes using a cocktail of small molecules and growth factors. Hepatic progenitors exhibit high proliferation capacity and become bipotent in vitro, by presenting hepatocytes and biliary epithelial cell differentiation ability. In several liver regeneration models, hepatic progenitors effectively repopulated the damaged parenchyma upon intrasplenic transplantation. In subsequent studies, we demonstrated the utility of small molecule-mediated hepatic progenitors as a cell source for tissue engineering and gene therapy. Nonetheless, the liver is not only composed of parenchymal but also nonparenchymal cells, including liver mesenchymal, immune, and endothelial cells. Therefore, understanding the liver cellular niche provides the opportunity to improve the effectiveness of cellular therapies as regenerative medicine treatments. To investigate cell-cell interactions between parenchymal and non-parenchymal cells, we isolated and cultured biliary and mesenchymal cells from human liver and co-cultured them using a microfluid approach. The combinatorial effect of expandable bi-potent progenitors in the presence of the cellular niche has the potential to effectively increase the clinical applicability of regenerative approaches for patients with liver disease.

PS04-5

TBD

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PS05-1

Utility of Contrast-enhanced Ultrasonography in Predicting Graft Endocrine Function in Pancreas Transplantation

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Honors and Awards
2022: Research Award, the 49th Congress of the Japanese Pancreas and Islet Transplantation Association
2019: JST Award, the Japan Society for Transplantation
2018: Research Award, the 50th Annual Meeting of Fujita Medical Society
2016: Research Award, the 43rd Congress of the Japanese Pancreas and Islet Transplantation Association

Objective Contrast-enhanced ultrasonography (CEUS) can be used to detect tissue perfusion. We applied CEUS to pancreas transplantation (PT) and clarified the association between early endocrine function and blood flow immediately after transplantation. In this study, we re-examined the association between tissue perfusion and endocrine function with additional cases for up to a year after PT. Methods Forty-seven patients in whom tissue perfusion could be measured by CEUS within 24 hours of PT were enrolled in the study and analyzed. The time between the time to peak intensity in the parenchyma and that in the vein was defined as delta-Tp-(P-V)24h. At one month and one year after transplantation, the glucagon stimulation test (GST) was used to evaluate the relationship between delta-Tp-(P-V)24h and endocrine function. Results As in the previous report, the cases were divided into two groups by delta-Tp-(P-V)24h: the standard good group (n = 36) and the delayed group (n = 11). In the GST at one month after PT, the median delta-C peptide (CPR) of the standard group was significantly higher than that of the delayed group (2.84 [2.31–.61] vs. 1.43 [1.15–992] , p <0.01), and the proportion of delta-CPR >2 ng/ml (indicating better insulin secretion) was significantly higher in the standard group (31/36 cases vs 3/11 cases, p <0.01). In the GST at one year after PT, the median delta-CPR of both groups was comparable (3.44 [2.57–.05] vs. 2.36 [1.31–.71] , p = 0.08). However, the proportion of delta-CPR >2 ng/ml was significantly higher in the standard group (30/32 cases vs. 6/10 cases, p <0.01). Conclusion Tissue perfusion after pancreas transplantation was found to be associated with endocrine function one year after PT. Following PT, CEUS could be used to evaluate tissue perfusion and predictendocrine function.

PS05-2

Generation of iPSC-Derived Insulin-producing Cells from Patients with Type 1 and Type 2 Diabetes Compared with Healthy Control

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1983 MD, The Catholic University Medical College
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Career:
2004-Present Professor, Department of Endocrinology & Metabolism, Seoul St. Mary's Hospital
2007-2009 Medical Director, Seoul St. Mary's Hospital
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2014-2016 Executive Director, Bureau of HT R&D Planning and Budget Management, Korea Health Industry Development Institute:
2019-2021 Dean, The Catholic University of Korea, Graduate School
2019-Present Chair, A special committee for Digital healthcare in The Presidential Committee on the 4th industrial revolution
2020-2021 Chairman, Board of Directors, Korean Diabetes Association(KDA)
Research Interests:
Diabetes, Beta-cell biology, Smart Healthcare
Awards:
2010 Health Industry Technology Merit Award- Minister of Health and Welfare Citation
2014 Korea ICT Innovation Awards 2014- Presidential Prize
2019 ICT-based Medical Policy Merit Award-Minister of Health and Welfare Award
2020 The Asian Association for the Study of Diabetes(AASD)-The Yutaka Seino Distinguished Leadership Award

For surrogation of β cells, patient-specific induced pluripotent stem cells (iPSCs) could be promising, as cells derived from the "self" allow autologous transplantation. However, only a few studies have investigated about insulin-producing cells (IPCs) using iPSCs of patients with type 1 diabetes (T1D). In this study, we generated IPCs using iPSCs derived from patients with T1D and type 2 diabetes (T2D) and compared them with IPCs from a non-diabetic (ND) individual. To facilitate differentiation of human iPSCs into IPCs, we induced PDX-1 gene expression using Ad-PDX-1/VP16. IPCs derived from T1D- and T2D-specific iPSCs expressed islet-specific markers such as Pdx-1, MafA, Beta2/NeuroD, and insulin, similar to IPCs derived from ND-specific iPSCs. In addition, IPCs derived from T1D- and T2D-specific iPSCs showed comparable glucose-stimulated insulin secretion as IPCs derived from ND-specific iPSCs. These results suggest the potential for autologous transplantation using patient-specific iPSCs in patients with T1D and T2D. This study was clinically significant because the patients with T2D also showed progressive declines insulin secretory function over time.

PS05-3

Islet Transplantation and β Cell Regenerative Medicine

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Education:
2009 Ph.D. Graduate Student of Medicine at Fukushima Medical University
2001 M.D. Graduated from Fukushima Medical University, School of Medicine
1995 Graduated from High School
Professional Training and Employment:
2015 Assistant Professor in Department of Surgery, Kyoto University
2010 Assistant Professor in Department of Surgery, Fukushima Medical University
2007-2009 Postdoctoral associate in Shulze Diabetes Institute, Department of Surgery, University of Minnesota
2005-2007 Resident in Gastroenterological Surgery, Department of Surgery 1, Fukushima Medical University
2005 Medical Staff in General Surgery, Fukushima Rosai Hospital
2004 Resident in Gastroenterological Surgery, Fukushima Medical University
2003 Medical Staff in General Surgery, Yurin Hospital
2002 Resident in General Surgery, Aizu General Hospital
2001 Resident in General Surgery, Fukushima Medical University

Islet transplantation can provide a practical cure for patients with type 1 diabetes who experience severe hypoglycemic events. According to international registry data, the rate of insulin independence three years after islet transplantation is approximately 50%, comparable to that of pancreas transplant alone. A Japanese clinical trial of islet transplant also confirmed the efficacy of islet transplantation. Our hospital has had a five-year islet graft survival rate of 80% since using T cell depleting antibody as immunosuppressive therapy. In all cases, severe hypoglycemic events disappeared, and glycemic control improved. However, limited access to islet tissue has hindered the widespread implementation of islet transplantation. Thus, we propose widespread implementation of diabetic cell therapy through βcell regenerative medicine using induced pluripotent stem cells (iPSCs). To this end, we successfully produced highly pure and safe pancreatic endocrine progenitor cell aggregates from iPSCs, and we are currently working to prove their safety through non-clinical studies. Overcoming immune rejection and the side effects of immunosuppressive agents is essential even when iPSC-derived tissue is used. We aimed to induce immune tolerance in allogeneic cell transplantation therapy by inducing/amplifying regulatory T cells (Treg) using novel cell culture methods. Currently, the in vivo stability and therapeutic efficacy of inducible Tregs are being verified in an animal model of islet transplantation. In addition to improving islet transplantation outcomes, the practical application of regenerative medicine would substantially contribute to solving the challenges of diabetic cell therapy.

PS05-4

Islet Xenotransplantation in Korea

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Education
2000: Research Associate, Diabetes Center, UCSF, CA, U.S.A.
1998-2000: PostDoc, University of Chicago, IL, U.S.A.
1989-1993: Ph.D., Seoul National University, Korea
1983-1987: Medical Doctor, Seoul National University College of Medicine, Korea
Career
2009-present: Professor, Department of Microbiology and Immunology, Seoul National University College of Medicine, Korea
2012-2016: Chairman, Department of Microbiology and Immunology, Seoul National University College of Medicine, Korea
2004-2009: Associate Professor, Department of Microbiology and Immunology, Seoul National University College of Medicine, Korea
2010-2012: Associate Dean for Research Affairs, Seoul National University College of Medicine, Korea
Associations
2012-2016: Councilor, International Xenotransplantation Association
2000-present: Councilor, The Korean Society for Transplantation
2000-present: Councilor, The Korean Association of Immunologists
2017-2018: President, The Korean Association of Immunologists
2018-present: Head, Foreign Affairs, Asian Pancreas, and Islet Transplantation Association
2018-present: Councilor, Asian Pancreas, and Islet Transplantation Association
2017: co-chair, The scientific program committee of the 14th Congress of the International Xenotransplantation Association
2018: co-chair, The scientific program committee of the 27th International Congress of the Transplantation Society
2020: co-chair, The scientific program committee of the 28th International Congress of the Transplantation Society
Awards
2012: Seoul National University Hospital Academic Awards
2013: Korean Medical Association Academic Award (Eu-Dang Academic Award)
2022: Beomseok Medical Award

Porcine islet xenotransplantation has been highlighted as an alternative to allo-islet transplantation. In an effort to achieve the clinical application of islet xenotransplantation, we have been working on porcine naked adult islet xenotransplantation in the NHP model to get preclinical efficacy and safety data that could meet the requirements released by the International Xenotransplantation Association (IXA) consensus statements on conditions for undertaking clinical trials of porcine islet xenotransplantation. We reported long-term control of diabetes in pig to NHP islet xenotransplantation for longer than 6 months in 5 consecutive experiments with anti-CD154 monoclonal antibody-based immunosuppression (Am J Transplant. 2015;15:2837-50). In one monkey the islet graft survived over 960 days (Xenotransplantation. 2016 Jul;23(4):300-9). For the clinical translation, anti-CD154 sparing regimen should be developed. Induction with ATG and short-term Tacrolimus and maintenance with Sirolimus, JAK3 inhibitor, monthly and bi-monthly belimumab enabled long-term control of diabetes in NHP (Xenotransplantation. 2020 Nov 6:e12659. doi: 10.1111/xen.12659). The clinical protocols have been developed based on these results from the preclinical study. Currently, the protocols for a clinical trial of porcine pancreatic islet xenotransplantation are being reviewed by the Korean Ministry of Food and Drug Safety under the Law of Advanced Regenerative Medicine and Biopharmacology Act.

PS05-5

Pancreas Transplant Alone in Uremic (PTAU) Patients -Taiwan Experience

Shin E Wang, Yi-Ming Shyr, Shih-Chin Chen, Bor-Uei Shyr, Bor-Shiuan Shyr

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Brief Description
Professor Shin-E Wang was graduated from National Yang Ming University in 2002, and completed her surgical residency at Taipei Veterans General Hospital from 2002 to 2007. She is currently working as an associate professor, Chief of minimally Invasive Surgery and attending surgeon in the division of General Surgery, Taipei Veterans General Hospital and National Yang Ming Chiao Tung University, Taiwan. Her major interests include minimal invasive surgery including robotic and laparoscopic surgery, pancreas surgery and pancreas transplant. Her team is very actively involved in minimal invasive surgery, especially robotic Whipple operation (more than 500 RPD cases) and pancreas transplant (more than 170 cases). She was the experts committee member in International Evidence-Based Guidelines for Minimally Invasive Pancreatic Resection, held at Miami.
Academic and Hospital Appointments
2019-present: Chief of minimally Invasive Surgery, Taipei Veterans General Hospital
2009-present: Attending Surgeon, Division of General Surgery, Taipei Veterans
General Hospital
2019-present: Associate Professor of Surgery, National Yang Ming University
2013-2019: Assistant Professor of Surgery, National Yang Ming University.
2009-2013: Instructor of Surgery, National Yang Ming University.
2008-2009: Fellow, Division of General Surgery, Department of Surgery, Taipei Veterans General Hospital
2007-2008: Attending Surgeon, Division of General Surgery, Department of Surgery,
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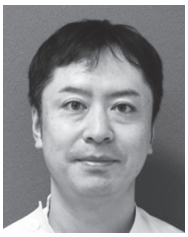
2002-2007: Chief Resident and Resident, Division of General Surgery, Department of
Surgery, Taipei Veterans General Hospital
Association Appointments
2019-3-18: Experts committee member in International Evidence-Based Guidelines for Minimally Invasive Pancreatic Resection 2019 (IG-MIPR 2019)
2018-2021: Councilor () of Taiwan Pancreas Society
2020-2022: Councilor () of Taiwan Surgical Society of Gastroenterology
Medical Training
2002-2007: Chief Resident and Resident, Division of General Surgery, Department of
Surgery, Veterans General Hospital-Taipei
2008-2009: Fellowship training, Division of General Surgery, Department of Surgery,
Veterans General Hospital-Taipei
2013 July. Dec.: Robotic Surgery Fellow in University of Illinois Medical Center
(Prof. Giulianotti) Chicago, U.S.A.
2014 Jan. June: Transplant Fellow in University of Wisconsin Hospital and Clinics
(Prof. Dixon B. Kaufman, Jon S. Odorico and Prof. Hans W. Sollinger), Madison, Wisconsin U.S.A.
2015 May 20 ~ 21: Laparoscopic surgery observer in Samsung Medical Center, Korea (Prof. Jin Seok Heo) and Asan Medical Center, Korea (Prof. Song Cheol Kim)
2015 Nov. 16 ~ 19: Robotic surgery observer in Ruijin Hospital Affiliated with Shanghai Jiao Tong University, Shanghai, China. (Prof. Peng CH)
2016 Dec. 10~17: Robotic surgery observer in Piza University Hospital, Italy (Prof. Ugo Boggi)
2017 Aug. 1 ~ 4: Laparoscopic surgery observer in Zhejuang Provincial Peoples Hospital, China (Prof. Yiping Mou)
2017 Oct. 26 ~ 28 Robotic pancreatic surgery observer inThe General Hospital of Peoples Liberation Army(301 hospital), China (Prof. Rong Liu)
2018 Oct. 2 ~ 5 A-first in pancreaticoduodenectomy observer in Wakayama Medical University Hospital, Japan (Prof. Hiroki Yamaue)
Award and Honor
2010 Award in Excellent Teaching for Interns, Taipei Veterans General Hospital
2010 Award in Excellent Teaching, National Yang-Ming University
2011 Award in Excellent Teaching for Interns, Taipei Veterans General Hospital
2011 Award in Excellent Teaching, National Yang-Ming University
2012 Award in Excellent Teaching for Interns, Taipei Veterans General Hospital
2012 Award in Excellent Teaching, National Yang-Ming University
2013 Award in Excellent Teaching for Interns, Taipei Veterans General Hospital
2014 Award in Excellent Teaching, Taipei Veterans General Hospital
2015 Award in Excellent Video Presentation of Taiwan Robotic Surgery Association
2016 Award in Excellent Video Presentation of Taiwan Robotic Surgery Association
2017 Award in Excellent Video Presentation of Taiwan Robotic Surgery Association
2017 Copper Award of Symbol of national Quality, Safety and Quality Pancreas Transplant
2018 Award in Excellent Video Presentation of Taiwan Robotic Surgery Association
2019 Award in Excellent Video Presentation of Taiwan Robotic Surgery Association
2019 Award in Excellent Teaching, Taipei Veterans General Hospital
2019 Copper Award of Symbol of national Quality, Safety and Quality Minimally Invasive Robotic Pancreatic Surgery - Small Wound for Major Pancreatic Surgery

Theoretically, pancreas transplant alone in uremic (PTAU) patients could also be one of the options for those waiting for both pancreas and kidney grafts, but it has never been reported. There were 160 cases of pancreas transplant in this study, including 16% PTAU. The 5-year patient survival was 66.2% after PTAU, 94.5% after SPK, 95.8% after PAK, and 95.4% after PTA. Rejection of pancreas graft was significantly lower in PTAU group (3.8%), followed by 16.7% in pancreas after kidney transplant (PAK), 29.8% in simultaneous pancreas and kidney transplant (SPK) and 37.0% in pancreas transplant alone (PTA). Fasting blood sugar and serum HbA1c levels after PTAU were not significantly different from those by other subgroups. The 5-year death-censored pancreas graft survival was 100% after PTAU and PAK, and 97.0% after SPK and 77.9% after PTA. However, the 5-year death-uncensored pancreas graft survival was 67.0% after PTAU, 100% after PAK, 91.3% after SPK, and 74.0% after PTA. The superior graft survival in the PTAU group was achieved only if deaths with a functioning graft were censored. In conclusion, given the inferior patient survival outcome, PTAU is still not recommended unless SPK and PAK is not available. Although PTAU could be a treatment option for patients with diabetes complicated by end-stage renal disease (ESRD) in terms of surgical risks, endocrine function, and immunological and graft survival outcomes, modification of the organ allocation policies to prioritize SPK transplant in eligible patients should be the prime goal.

PS06-1



BKV, CMV and EBV Infection After Living-Related Kidney Transplantation in the Last 2 Decades

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Education
M.D., 1995
Nagoya City University, Nagoya, Japan
Ph.D., 2006
Nagoya City University Graduate School of Medicine
Postgraduate training
Residency
1995-1997
Department of Internal Medicine and Pathophysiology
Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan

Clinical Fellow
1997-1999
Department of Cardiology
Gifu Prefectural Tajimi Hospital, Gifu, Japan
1999-2001
Department of Nephrology
Masuko Memorial Hospital, Nagoya, Japan

Transplant fellow (Transplant Nephrology)
2001-2002
Department of Transplant Surgery
Nagoya Daini Red Cross Hospital, Nagoya, Japan
Co-Director (Transplant Nephrology)
2003-2016
Department of Transplant Surgery
Nagoya Daini Red Cross Hospital, Nagoya, Japan

Membership of Academic Societies
American Society of Transplantation (International)
The Transplantation Society (International)
Japanese Transplantation Society (Board)
Japanese Society for Clinical Renal Transplantation (Board)
The Japanese Society of Internal Medicine (Board)
The Japanese Society of Nephrology (Board)
Japanese Circulation Society (Board)
The Japanese Association for Infectious Diseases (Board)
Japanese Society for Dialysis Therapy

Background Recent progress in long-term graft and patient survival has increased recipients who need continuing immunosuppressive therapy for a long time. On the other hand, kidney transplant candidates who have no IgG antibody against CMV and EBV have been increasing. Methods We analyzed the incidence, clinical features, risk factors and prognosis of patients with BK nephropathy (BKN), tissue-invasive CMV disease and EBV-associated post-transplant lymphoproliferative disorder (EBV-PTLD) in 1606 consecutive adults (from January 2000 and December 2021) undergoing living-related kidney transplantation (LRKT) at a single institution, Japanese Red Cross Aichi Medical Center Nagoya Daini Hospital. Results Twenty recipients developed biopsy proven BKN at a median time of 10 months (range, 2–6) after KT. Three recipients lost their graft at 7, 23, and 74 months after the onset of BKN. CMV retinitis was observed in only 1 recipient at 33 months after KT. One developed BALF proven CMV pneumonia. CMV enterocolitis was diagnosed in 6 recipients at a median time of 27 months (range, 2–31) after KT. One Guillain-Barrヲ syndrome (GBS) was triggered by acute infection in CMV-seronegative recipient of seropositive graft. Ten recipients developed proven EBV-PTLD at a median time of 31 months (range, 2–62). EBV-seronegative candidate were 29 (1.8%) out of 1606 recipients. Five (17%) of them developed PTLD. One developed chronic active EBV infection (CAEBV) 18 months after KT and died at 3 months after the onset. Conclusion Under intensfied immunosuppression regimen, recent decline in seroprevalence of EBV and CMV must be taken into account to manage EBV and CMV infection. Together with BKV infection, KT recipients with asymptomatic viremia require monitoring and treatment carefully to avoid the onset of BKN, tissue-invasive CMV disease and EBV-PTLD.

PS06-2

BK Polyomavirus Integration with Carcinogenicity Gradually Dominates Since the Early Non-Neoplastic Stages of Viral Infection

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Consultant, Associate Professor and Associate Chief
Department of Transplantation, Nanfang Hospital, Southern Medical University
Education:
1995.09-2002.07 Clinical medicine major(7-year-program), First Military Medical University, China Master's degree
2004.09-2007.07 Surgery major, Southern Medical University, China Philosophy Doctors degree & Medical Doctors degree
2006.09-2009.05 Organ transplant center, University of Cincinnati, the US Post-doctoral
Career:
2002.06-now Department of Transplantation, Nanfang Hospital, Southern Medical University, China
Registrar, Associate Consultant and Consultant; Teaching Assistant, Lecturer and Associate Professor; Associate Chief
Associations:
1. A committee member of organ transplantation branch of Chinese Medical Association
2. A committee member of organ transplantation branch of Chinese Medical Doctor Association
3. A reviewer of Cell Death & Diseases, American Journal of Transplantation and Transplantation
Awards:
Outstanding young clinical physician award of Guangdong Province

Objectives: To reveal the pathogenesis of BK polyomavirus(BKPyV)-associated diseases which cannot be well explained by theories of lytic infection or large T-mediated cell transformation. Methods: Virome capture sequencing and pathological examination were performed on patients with BKPyV-associated diseases of different stages. Integration sites of high supporting reads in BKPyV-associated nephropathy tissues were visualized by in situ PCR. Multiomics analysis were performed on BKPyV-associated urothelial carcinoma tissues. The sensitivity of tumor organoids to Olaparib was tested. Results: Tandem-like structure of BKPyV integration was identified and carcinogenicity of BKPyV integration was proved to both disturb normal gene expression and increase the expression of viral oncoprotein as host genome-embedded virus. Early in non-cancerous stages of BKPyV-associated diseases, well-amplified integration sites were visualized. Integration intensity, the proportion of microhomology-mediated end joint(MMEJ) integration, and PARP-1 and POLQ gene expression, increased with disease progression. Fallible DNA repair pathways, especially the MMEJ pathway, were significantly activated. Conclusions: BKPyV integration exists, acts in all stages of BKPyV-associated diseases and gradually dominates. Integration of MMEJ mode plays a significant role in transformation of BKPyV lytic infection into carcinogenesis, with PARP-1 and POLQ involvement.

PS06-3

Cytomegalovirus Infection in Pediatric Kidney Transplant Patients: A Single Center Experience

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EDUCATION:
2019-2020:
Global Clinical Scholars Research Training Program
Harvard Medical School
2009-2012:
Medical Doctoral student
Institute of Organ Transplantation, Tongji hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China
2004-2008:
Medical Graduate Student, Achieved Medical Master Degree
Institute of Organ Transplantation, Tongji hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China
07/2002-08/2002:
Exchange student in Heidelberg University, Germany
1997-2003:
Medical Student, Achieved Medical Bachelor Degree
Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China
ACADEMIC AND HOSPITAL APPOINTMENT:
10/2017- present:
Associate chief physician, Transplant Surgeon, Institute of Organ Transplantation, Tongji hospital, Huazhong University of Science and Technology, Wuhan, China
10/2010-09/2017:
Attending physician, Institute of Organ Transplantation, Tongji hospital, Huazhong University of Science and Technology, Wuhan, China
07/2009-09/2010:
Resident physician, Institute of Organ Transplantation, Tongji hospital, Huazhong University of Science and Technology, Wuhan, China
06/2008-06/2009:
Associate researcher in Transplant Immunology, Terasaki Foundation Lab, Los Angeles, USA
07/2003-06/2008
Resident physician, Institute of Organ Transplantation, Tongji Hospital, Huazhong University of Science and Technology, Wuhan, China
COMMITTEE SERVICE:
2016- present: Pediatric Transplantation Committee, Chinese Medical Doctor Association
2019-present: Secretary General, Society of Transplant Technology, China Medicinal Biotechnology Association
CLINICAL RESEARCH INTEREST:
1. HLA allo-antibody monitoring and treatment in organ transplantation
2. Pediatric kidney transplantation
3. Adult renal transplantation using small pediatric deceased donors
4. Pregnancy after transplantation
FUNDED PROJECTS:
PAST:
National Nature Science Foundation of China: RMB 200,000
81001323, 01/2011-12/2013
Role: PI
Title: Study of HLA-DQ antibodies in Chronic renal graft failure
CURRENT :
Astellas Pharma China : RMB 693,450
ISN/Protocol 506-MA-3186, 10/01/2018-12/01/2019,
Role: key sub-PI
Title: Clinical Outcome of Delayed or Standard Prograf Together with Induction Therapy Followed by Conversion to Advagraf in DCD Kidney Transplantation Recipients: A Randomized, Open-label, Multicenter Clinical Trail
Tongji Hospital Clinical Research Flagship Program: RMB 2000,000
2019CR108, 04/01/2019-12/01/2023
Role: key sub-PI
Tile: Kidney Transplantation by using pediatric deceased donors: A Single-center, Prospective and Partially Retrospective, Clinical Observational Study

Objective To summarize the clinical characteristics and treatment of cytomegalovirus (CMV) infection in pediatric kidney transplant patients. Methods From May 2014 to July 2021, a total of 104 pediatric kidney transplants were performed in our centre. Retrospective data including the clinical characteristics of CMV infection, prophylaxis/treatments and outcomes were summarized. Results The majority donor source (92.5%) was pediatric kidney donation after brain/cardiac death. Among these 104 transplants, nine (8.65%) patients experienced CMV infection after transplantation. The median age of the nine patients was 10 years (0.25 -15 years), six of whom were given rabbit anti-thymoglobulin for induction. Pre-transplant CMV IgG were negative in four out of nine. All but one of the nine patients developed early infection before receiving anti-CMV prophylaxis because their renal graft function had not yet returned to normal. The median time from transplant to the diagnosis of CMV infection was 22 (7-15) days. Among these nine children, seven had fever, pneumonia and diarrhea, while two had no symptoms. Three patients were complicated with viral, bacterial or fungal infections. In addition, three patients had acute rejection during CMV infection or after CMV-DNA turned negative. All nine patients recovered and were discharged after comprehensive treatment including ganciclovir or valganciclovir. Median time from onset to CMV-DNA shedding was 32 (17-90) days. Conclusions Antiviral prophylaxis should be initiated earlier after pediatric kidney transplantation, especially in recipients whose preoperative CMV-Ig serostatus is negative.

PS06-4

Manifestations of Post-Transplantation Lymphoproliferative Disorder in Kidney Transplant Recipients

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Education:
University:
1994-2000 School of medicine of Kumamoto university

Residency:
2000-2002 Junior resident in internal medicine, Kumamoto university Hospital
2002-2005 Senior resident of Internal medicine, Japanese Red Cross Kumamoto Hospital
Infectious Disease Trainee:
April 2007-June 2007 Kameda Medical Center
Transplant Trainee:
Oct 2010- March 2011 Japanese Red Cross Nagoya-daini Hospital
Medical Licensure
2000 Full medical license(Japan)

Career:
2020 Present Director of nephrology of Japanese Red Cross Kumamoto Hospital
2012 Assistant director of nephrology of Japanese Red Cross Kumamoto Hospital
2006 Staff of Internal medicine of Japanese Red Cross Kumamoto Hospital

Board Certifications:
2011 Fellow of the Transplant nephrologist of the Japanese Society for Clinical Renal Transplantation
2012 Fellow of the Nephrologist of the Japanese Society of Nephrology
2012 Fellow of the Transplant physician of the Japanese Society for Transplantation
2017 Senior Member of the Japanese Society for Dialysis Therapy
2019 Senior Member of the Japanese Society for Nephrology

Memberships:
The Japanese Society of Nephrology
The Japanese Society for Dialysis Therapy
The Japanese Society for Transplantation
The Japanese Society for Clinical Renal Transplantation
The American society of Transplantation

Professional presentations: given at International Meetings:
2012 24th International Congress of The Transplantation Society, Berlin, Germany
Long-term renal function of older live kidney donors at Japanese single center
2013 13th Congress of the Asian Society of Transplantation, Kyoto, Japan
Long-term Safety of Living Kidney Donors ages 60 and older
2017 APSN/JSN 2017 CME Course, Sendai, Japan ,
BK viral infection and malignancy in renal transplantation: case based discussion

Herpes virus infections occur frequently in kidney transplant recipients (KTRs). Some herpes viruses are responsible not only for life-threatening infections or renal graft injuries but they can also increase the risk of malignancies. Epstein-Barr virus (EBV) is specifically associated with post-transplantation lymphoproliferative disorder (PTLD). An EBV–negative KTR from an EBV-positive donor is at an increased risk for developing PTLD. PTLD are clinical syndromes, ranging from self-limited, polyclonal proliferations to malignancies containing clonal chromosomal abnormalities. We retrospectively analyzed 228 consecutive patients who underwent adult kidney transplantation from January 2009 to December 2020, in our institution.
PTLD can present varied manifestations, including nonspecific febrile illnesses, hepatitis, or gastroenteritis. Although EBV infection has no established preventative or anti-virus treatment, early diagnosis and a multidisciplinary approach to treatment is crucial for improving patients outcomes.

PS07-1

Early Experience with Mobile Phone APP for Recipient Education and Mobile Electric Medical Record System to Improve QOL for Transplant Physician

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[4] *Department of Medical Health Management, Japanese Red Cross Aichi Medcal Center Nagoya Daini Hospital, Japan*

Current position:
2021 - Vice President, Japanese Red Cross Aichi Medical Center Nagoya Daini Hospital
2008 - Director, Department of Transplant Surgery, Kidney Disease Center, Japanese Red Cross Aichi Medical CenterNagoya Daini Hospital
2019 - Visiting Professor, Fujita Medical University, Graduate School of Medicine
2010 - Part-time Instructor, Nagoya University, Graduate School of Medicine
Meijo University, Graduate School of Pharmacology
2011 - Medical Consultant of Japan Organ Transplant Net Work
Research fellow
1995-1997 Department of Urology and Immunology, The Cleveland Clinic Foundation, Cleveland, Ohio, U.S.A.
Previous position
2004-2006 Associate professor/Lecturer, Department of Urology, Hokkaido University Hospital, Sapporo, Japan
Membership of Academic Societies:
American Society of Transplantation (International member)
International Pediatric Transplant Association
Japanese Transplantation Society (Councilor)
Japanese Society of Pediatric Renal Failure (2016 president, Councilor)
Japanese Society for Clinical Renal Transplantation (Councilor)
Japanese Urological Association
Japanese Society for Dialysis Therapy
Japanese Society for Endoscopic surgery
Japanese Society of Endourology
Board certification
1992- Specialist, 1997- Instructor by Japanese Urological Association
2009- Endoscopic Surgical Skill Qualification System in Urological Laparoscopy by Japanese Society for endoscopic surgery and Japanese Society of Endourology
2008- Renal transplantation surgeon by Japanese Society for Clinical Renal Transplantation
2012- Transplant surgeon by Japanese Transplantation Society

Currently, Japanese Ministry of Health, Labour, and Welfare (MHLW) proposed work life reform for doctors to reduce excessive overtime work to less than 960 hours per year after 2024. Because physicians, especially transplant physicians, work hard and long hours, deal regularly with life and death situations with their patients. And they make substantial personal sacrifices to fulfill their obligations for their patients following an unwritten but clearly understood code of rules, norms, and expectations. Indeed, these demanding work of physicians may lead burnout with emotional exhaustion and medical errors. In general, digitalization and digital transformation (DX) have been proven to become significant help for such problems in many fields, And Current COVID-19 pandemic has accelerated to change patient consultation from in-person visits to telemedicine, telemedicine has been successfully used by numerous specialties. However, Digitalization and Digital transformation in transplant community has been lagging or unknown. We will introduce our early experiences and its impacts of 1) Our own mobile phone APP for recipient education. 2) Telemedicine for transplant recipients. 3) Mobile electric medical record system to improve QOL for transplant physician.

PS07-2

AI-based Autosegmentation and Kidney Volumetry: Prediction of Remnant Renal Function in Living Donor and Recipient Renal Function

Sangil Min

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Education:
2001 Doctor of Medicine, Seoul National University, Seoul, Korea
2009 Master of Surgery, Seoul National University College of Medicine, Seoul, Korea
2016 PhD of Surgery, Seoul National University College of Medicine,
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Postgraduate Training:
2001 2002 Intern, Seoul National University Hospital, Seoul, Korea
2002 2006 Resident in Surgery, Seoul National University Hospital, Seoul, Korea
2009 2011 Fellow in Transplantation and Vascular Surgery, Seoul
National University Hospital, Department of Surgery, Seoul, Korea
2017 - 2018 Research fellow in Wake Forest Institute for Regenerative Medicine, Winston-Salem, North Carolina, USA
GCP Training:
Dec 10, 2021 Clinical Trials Center of Seoul National University Hospital
Military Service
2006 2007 Captain, Medical Company Commander, the 202nd Regiment of Foot
2007 2009 General Surgeon and Captain, the Medical Bureau of BLUE HOUSE

Journal Editorial Board:
Vascular Specialist International (eISSN: 2288-7989)
International Journal of Orthopaedics (ISSN 2311-5106)
Journal of Surgical Ultrasound (ISSN 2288-9140)
Journal of the Korean Society for Transplantation (ISSN 1598-1711)
Frontiers in Medicine (ISSN 2296-858X)
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Manuscript Reviewer:
Annals of Vascular Surgery
Pharmacotherapy
Peritoneal Dialysis International
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Journal of Trauma & Treatment
Journal of Clinical Pharmacy and Therapeutics
BMC Cardiovascular Disorder
Frontiers in medicine
Transplantation
American Journal of Transplantation
Honors and Awards:
2012 Scientific award, 42th KSOT and 9th Korea-Japan Transplant Forum
2011 Best Presentation Award in Korean Society of Vascular Surgery
2010 Best Presentation Award in Korean Society of Vascular Surgery
2017 First Place Poster Award in 19th Congress of NCTERMS

An image-processing method on the basis of a deep-learning network allows for automated, comprehensive, and noninvasive structural kidney volume analysis from high-resolution contrast-enhanced CT images. Recently, we developed and validated an automated method to segment and measure whole kidney and renal cortex volume using pre-donation contrast-enhanced abdominal CT images. This method can yield results in less than 3 minutes and the Dice similarity coefficient (DSC) representing the degree of agreement between 3D volumes was 0.93. Deep learning can enable this task in a scalable and reliable manner. Remnant renal function of donors can be estimated using automaged kidney volumetry and baseline characteristics. Artificial intelligence have started to gain widespread use in medicine, including the field of kidney transplantation. Artificial intelligence leads to improved computer-aided diagnostics and personalized predictions that will improve personalized care.

PS08-1

Challenges to the Limit of Treatment for Severe Heart Failure Using Regenerative Medicine

Shigeru Miyagawa

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1994 Graduation from the Osaka University faculty of medicine in 1994
1994-1995 Surgeon in Osaka University Hospital
1995-1997 General Surgeon in Ohtemae Hospital
1997-1998 Cardiovascular Surgeon in Osaka Rousai Hospital
1998-2003 Study in Post graduate Course of Osaka University
2005- Cardiovascular Surgeon in Sakurabashi Watanabe Hospital
2007- Federal Republic of Germany Kerckhoff Klinik cardiovascular surgery visiting doctor, Research fellow in Max Plank institute
2010- Assistant professor in Osaka University
2013- Fulltime lecturer in Osaka University
2015- Associate Professor in Osaka University
2016- Specially Appointed Professor in Osaka University (Dept. Advanced Stem Cell Therapy)
2018- Specially Appointed Professor in Osaka University (Dept. Frontier Regenerative Medicine)
2021- Professor in Osaka University (Dept. Cardiovascular Surgery)
Awards and Fellowships;
2001 Japanese Society of Artificial Organs Original Award
2002 The Japanese College of Cardiology Young Investigator Award
2002 America Heart Association Travel Grant Award
2003 Japanese Society of Artificial Organs JSAO-Grant Award
2004 American Society for Internal Artificial Organs Medforte Innovation Award
2005 Japan Heart Foundation Pfizer Award
2006 Banyu Life Science Foundation International Banyu Fellowship Program
2009 SENSHIN Medical ResearchFoundation Research Grant for Cardiology
2014 The Uehara Memorial Foundation, Japan Research Fellowship
2019 Japanese Society of Regenerative Medicine The JSRM Achievement Award

Although the technology related to heart transplantation and artificial heart has made remarkable progress, there are many problems such as serious donor shortage and artificial heart infection. So the development of a new treatment method which support replacement therapy is desired. We have developed a tissue transplantation method using a cell sheet as a new treatment for heart failure. A clinical trial of autologous myoblast sheet transplantation for DCM with LVAD was performed in 4 patients, and 2 of them showed recovery of cardiac function and withdrew from LVAD. In addition, autologous myoblast sheets were transplanted to ICM and DCM patients without LVAD. A reverse remodeling effect was observed in some of these patients. Currently, autologous myoblast sheet is undergoing PMS for ischemic cardiomyopathy, and Responder and non-Responder to this treatment has been clarified. Furthermore, it is necessary to supplement the lost myocardial tissue in patients with severe heart failure, and we created a cell sheet using iPS cell-derived cardiomyocytes to verify its safety and efficacy. In particular, we demonstrated the synchronous behavior of iPS cell-derived cardiomyocytes with the recipient myocardium and their superiority over the myoblast sheet. Moreover, we constructed large culture method for cardiomyocytes and a safety verification system, and doctor initiated clinical trial was performed. In the future, it is expected that the clinical efficacy of cell sheet treatment for severe heart failure will open a new era for heart failure treatment.

PS08-2

HeartCon, a New LVAD Independently Developed in China

Xiaocheng Liu

TEDA International Cardiovascular Hospital, China

Dr. Xiaocheng Liu, cardiovascular surgeon, president of TEDA International Cardiovascular Hospital (TICH), standing member of Chinese Medical Association, standing member of Chinese Hospital Association, vice president of Asian-Pacific Society for Artificial Organs, AATS member, STS international member, and visiting professor of Tokyo Medical and Dental University.
Dr. Liu practices both adult and pediatric cardiovascular surgeries. He has special interest in VAD, myocardial revascularization and complex congenital heart disease. He graduated from Beijing Union Medical College, Cardiovascular Institute, and took his cardiovascular surgery fellowship in Prince Charles Hospital, Brisbane, Australia. Thereafter, Dr. Liu founded Mudanjiang Cardiovascular Hospital in Heilongjiang Province, China, where he performed the first heart-lung transplant in China. Since 2009, he has led the TICH team to work with the engineers of China Academy of Launch Vehicle Technology to develop the implantable LVAD (HeartCon also known as Rocket Heart), China's first model based on this third-generation technology. The 50 cases clinical trials of the device have been completed successfully, and the device was approved by the CFDA for marketing in July 2022. He also commits to the rescues of orphans and children in poverty suffering from congenital heart disease in China. He leads TICH team has performed more than 14,500 charity cases for children. Dr. Liu has performed more than 10,000 heart surgeries and still does more than 300 emergency and critical surgeries every year.

Objective To analyze and evaluate the safety and efficacy of Chinese LVAD, HeartCon, for the treatment of end-stage heart failure (ESHF) by reporting the results of the clinical trial. Methods This clinical trial was a prospective, single-arm, multi-center and target value method design. There were 50 cases enrolled and 11 centers participated in total. The primary efficacy measure of this trial was more than 60% survival at 90 days after transition to transplantation or transition to cardiac recovery or implantation. Other observed measures included HeartCon implantation success or failure rate, mortality, and pump failure or need for replacement or emergency heart transplantation due to failure. Safety was evaluated for device failure adverse event (AE) rates. Results All 50 cases, including 40 males and 10 females, with a mean age of 48.1 ± 11.0 years and a mean weight of 67.0 ± 18.0 kg, completed the trial in 11 centers, with 2 (4.0%) transitioning to HT and 3 (6.0%) experiencing pump thrombosis. The incidence of device failure was 6.0% (3/50), all of which were pump thrombosis and all resulted in pump replacement; the incidence of postoperative AE was 98.0% (49/50), and no subjects withdrew from the trial due to adverse events. Conclusion This study had the largest sample size in clinical trials of the efficacy and safety of LVAD in China. The results of this clinical trial indicate that HeartCon (approved by CFDA for market this July) is a safe and effective means of left ventricular mechanical assisted circulation for the treatment of patients with ESHF.

PS08-3

Surgery for Ischemic MR in Ischemic Cardiomyopathy

Joon Bum Kim

Department Thoracic and Cardiovascular Surgery, Asan Medical Center, University of Ulsan College of Medicine, Republic of Korea

Education and Degrees:
2001: Yonsei University College of Medicine, Seoul, Korea (M.D.)
2008: Ulsan University College of Medicine, Seoul, Korea (M.S.)
2013: Ulsan University College of Medicine, Seoul, Korea (PhD)

License and Board status:
2001: Medical Licensure in Korea
2006: Board certification in Thoracic and Cardiovascular Surgery in Korea

Professional Training and Employment:

2001 to 2002	Internship in Asan Medical Center, Seoul, Korea
2002 to 2006	Residency in Thoracic and Cardiovascular Surgery, Asan Medical Center
2006 to 2009	Military service as a medical officer (mandatory)
2009 to 2011	Fellow of Cardiovascular Surgery, Asan Medical Center
2011 to 2016	Assistant Professor, Dept. Thoracic and Cardiovascular Surgery, Asan Medical Center
2016 to 2021	Associate Professor, Dept. Thoracic and Cardiovascular Surgery, Asan Medical Center
2022 to date	Professor, Dept. Thoracic and Cardiovascular Surgery, Asan Medical Center
Apr 2014 to Apr 2015	American Association for Thoracic Surgery Evart Graham Memorial Traveling Fellow
Apr 2014 to Feb 2015	Research Fellow in Division of Cardiac Surgery, Massachusetts General Hospital, Harvard Medical School
Feb 2015	Observationship, Division of Cardiac Surgery, Cleveland Clinic
Mar 2015	Observationship, Division of Cardiac Surgery, Herman Memorial Hospital, University of Texas

Director of Adult Cardiac Surgical ICU, Asan Medical Center (2011-2014)
Director of ECMO team, Asan Medical Center (2012-2014)
Director of CPB unit, Asan Medical Center (2017-2019)
Department Chief, Asan Medical Center (2019 to 2021)
Director of the Aortic Center, Asan Medical Center Heart Institute (2021 to date)

Clinical specialty:
Adult cardiovascular surgery
Aorta surgery
Minimally invasive cardiac surgery
Surgical ablation of atrial fibrillation
Valve sparing aortic root surgery
Thoracoabdominal aorta surgery

Membership
Korean Society of Thoracic & Cardiovascular Surgery (since 2003)
European Association for Cardio-Thoracic Surgery (since 2011)
American Heart Association (since 2012)
Asian Society for Cardiovascular and Thoracic Surgery (since 2015)
American Association for Thoracic Surgery (since 2017)

Editorial Board
Journal of Korean Medical Science (since 2015)
Journal of Thoracic and Cardiovascular Surgery (since 2018)
Journal of Thoracic Disease (since 2019)
Korean Journal of Thoracic and Cardiovascular Surgery (since 2019)
Asian Cardiovascular and Thoracic Annals (since 2020)
JACC Asia (since 2021)
Korean Circulation Journal (since 2022)

Awards Received
1. Young Investigator Award, the Korean Society for Thoracic and Cardiovascular Surgery, 2005
2. Institutional achievement award, Asan Medical Center, 2006
3. Excellent resident award, Asan Medical Center, 2006
4. Award for top seat pass of board examination, Korean Medical Association, 2006
5. LG Future Medical Researcher Award, LG Lifescience, 2011
6. 2012 AHA International Mentorship Travel Award, American Heart Association, 2012
7. Dr. C. Lillehei Merit Award for Excellence in Clinical Research, the Korean Society for Thoracic and Cardiovascular Surgery, 2012
8. Korean Coronary Symposium Best Paper Award, 2012 and 2013 (two consecutive years)
9. Doosan Yon-Kang Medical Research Award, Doosan Foundation, 2013
10. Institutional achievement award (Academic), Asan Medical Center, 2011, 2012 and 2013 (3 consecutive years)
11. Evart Graham Traveling Fellowship Award, American Association for Thoracic Surgery, 2014
12. Professor of the Year (Research), University of Ulsan College of Medicine, 2014
13. Asan Medical Award, 2016 (Young Medical Scientist)
14. 100 Next Generation Leaders in Korea, 2020 (Sisa Journal)

PS08-4

BiVACOR - A Rotary Flow Total Artificial Heart

Daniel Timms

BiVACOR, Inc., USA

Education: PhD Biomedical Engineering; BEng Mechanical Engineering
Career: Dr Timms has devoted his research and development career to the advancement of cardiovascular devices, with particular focus placed on the application of rotary blood pump technology to treat congestive heart failure. He has led the development of multiple devices and research programs in Australia, Germany and the USA. Until October 2010, he managed artificial heart projects with the Helmholtz Institute, Aachen (HIA) Germany, where my work attracted 2.4Mil Euro from an institutional donor. In December 2010, Dr Timms founded the innovative cardiovascular engineering and technology laboratory (ICET Lab www.icetlab.com), attracting AUD$400K from donors. From March 2013 to March 2015, he held the position of Associate Director for Cardiac Support at the Texas Heart Institute (THI), managing the cardiovascular engineering projects within the Institute, where his work also attracted USD2.1Mil from an institutional donor. Of particular note has been his unrelenting pursuit of a practical mechanical replacement to the failing human heart, for which the BiVACOR rotary total artificial heart device (www.bivacor.com), which he has led development, shows remarkable promise. In an attempt to facilitate the commercialization of this device, Dr Timms founded BiVACOR Pty Ltd in Australia in 2008, followed by BiVACOR Incorporated in 2013 in the USA. During this period, he has occupied the roles of President, Chief Technology Officer and Chief Executive Officer.
Associations: He is currently appointed to the Board of Directors of the International Society of Mechanical Circulatory Support.
Awards: 2013 Young Outstanding Alumnus Award, Queensland University of Technology

The BiVACOR Total Artificial Heart, TAH, combines rotary pump and magnetic levitation technology to provide only one, contact-free, moving part which has design advantages over wear-prone components included in volume displacement pumps. It is small enough to be implanted in many women and children, BSA>1.4m2, yet capable of providing enough cardiac output to an adult male undergoing exercise. Large clearance gaps in the blood flow path and cyclic speed variations assist hemocompatibility. Physiological interaction is improved via autonomous left/right outflow balancing and the ability to inherently adapt total outflow based on physiological conditions. The BiVACOR program is preparing for first in human clinical studies. Clinical grade manufacture of the pump and controller has been established, whilst achieving a safe and durable design for long term use. Benchtop durability has been demonstrated with 5 units operating for more than 18 months and still on-going with a further eight clinical grade units passing the FDA required 6 months durability milestone. Haemocompatibility results demonstrate that no significant difference was detected in relevant markers between the TAH when conducted using continuous flow or pulsatile flow, nor in comparison to the Abbott CentriMag. Furthermore, over the past 3 years, in vivo testing has shown 12 animals regain physiological function with 6 animals supported by the TAH for 30 days or more, up to 3 months. The successful development of this device and demonstrated feasibility in upcoming first-in human clinical studies, may ultimately lead to a long-term alternative to heart transplants.

PS08-5

The Role of the Mechanical Circulatory Support (MCS) Coordinator in Promoting Self-care in Patients with a Ventricular Assist Device (VAD); The Australian Perspective

Janelle McLean

Heart and Lung Transplant Services, The Alfred Hospital, Australia

EDUCATION:
Bachelor of Nursing, Deakin University, Melbourne, 2007
Certificate in Intensive Care Nursing, La Trobe University, 2011
Diploma in Intensive Care Nursing, La Trobe University, 2013 (Diploma subjects of Clinical Education A and Clinical Education B)
EMPLOYMENT:
Registered Nurse, Intensive Care Unit, The Alfred Hospital, 2008-2013
Clinical Nurse Specialist, Intensive Care Unit (ICU), The Alfred Hospital, 2012-2014
Transplant Coordinator (on-call), Transplant Services, The Alfred Hospital, 2013-Current
MCS Coordinator, Clinical Nurse Consultant, The Alfred Hospital, December 2012-Current
RESEARCH:
Principal Researcher Quality of Life Initiative: Transplant Services Unit, ongoing evaluation of patient outcomes and clinical services. Participated in the ethics submission and ongoing data collection, 2016-ongoing.
Driveline Study: Role of biofilm formation in Ventricular Assist Device driveline infections. Participated in ethics submission, study recruitment, clinical swabs and data collection, 2016-2019.
Contributing Author Characterization of infected, explanted ventricular assist device drivelines: the role of biofilms and micro-gaps in the driveline tunnel (Prof. A. Peleg). Publication in Journal of Heart and Lung Transplantation, 2020.
Contributing Author A comprehensive in vitro evaluation of medihoney as an anti-biofilm agent in preventing ventricular assist device driveline infections (Y. Qu). Abstract in Journal of Heart and Lung Transplantation, 2019.
Contributing Author In vitro evaluation of medihoney antibacterial wound gel as an anti-biofilm agent against ventricular assist device driveline infections (Y. Que). Publication in Frontiers Microbiology, 2020.
Contributing Author The results of a single-center experience with HeartMate 3 in a biventricular configuration (Prof. D. McGiffin). Publication in Journal of Heart and Lung Transplantation, 2021.
ICCAC Best Practice Committee, active member and lead clinician on best practice guideline: Patients without caregivers, 2020-2021
PROFESSIONAL AFFILIATIONS:
The International Society for Heart and Lung Transplantation, 2014-2019
International Consortium of Circulatory Assist Clinicians (ICCAC), 2016-Current
HeartWare Clinical Consultant, Australia, 2016-2017
Abbott Clinical Consultant, Australia, 2019-2022
ICCAC Best Practice Committee, 2020-Current
ICCAC Board Member, 2021-Current
ICCAC Webinar Committee Member, Lead of Asia Pacific engagement, 2022

Background It is recognised by some VAD programs globally that carefully selected patients can manage independently without a designated caregiver. We outline our single centre experience to empower and educate our patients to self-manage their VAD care in the Australian culture. Methods The MCS Coordinator at our centre has the pivotal role of educating the patient with the clear aim of achieving self-management of their VAD. The MCS Coordinator assesses competency for independence to allow the patient to be safely discharged from hospital post VAD implantation. In addition, the MCS Coordinator case manages these patients in the community. This is achieved by organising remote patient monitoring, community services and working in collaboration with the multidisciplinary team to best support these patients in their home environment, particularly if there is no available caregiver. Results Over a 2.5-year period (1st January 2019 to 30th June 2022), 60 VAD patients have been implanted at our institution, with the implant strategy as bridge to transplant (BTT) or bridge to decision (BTD). 54 of these were implanted with the HeartMate 3 device (Abbott), the remaining 6 on HeartWare HVAD therapy (Medtronic). 44 patients were supported with a left VAD and 16 patients required HeartMate 3 biventricular support. 56 patients were discharged home, 4 patients deceased during implant admission.Of these 56 patients, 35 (62.5%) patients were completely independent with their VAD self-care at hospital discharge, while the remaining 21 (37.5%) patients were independent with all VAD self-care, except for performing the driveline dressing. In those 21 patients, a family caregiver was trained to perform the driveline dressing. Another 3 patients learnt at a later stage to perform their own driveline dressing, allowing them to no longer require caregiver support. 98.2% of patients had favourable outcomes to transplantation or remain on VAD therapy. 1 patient deceased and this was related to right heart failure. Conclusions Comprehensive education from the MCS Coordinator, multidisciplinary team involvement and implementation of community supports allows patients with a VAD to manage independently with favourable outcomes and this reduces caregiver burden. No available caregiver should not be an absolute contraindication to VAD implantation.

PS09-1

Current Status of the Heart Transplant and Proposal to its Development in Japan in the Future

Shinichi Nunoda

Department of Therapeutic Strategy for Severe Heart Failure, Tokyo Women's Medical University Graduate School of Medicine, Japan

EDUCATION:
1974 - 1980 Kanazawa University School of Medicine, MD
1980 - 1984 Kanazawa University Graduate School of Medicine, PhD
PROFESSIONAL EXPERIENCE/ Scholarship:
1984 Assistant professor, Department of Internal Medicine, Kanazawa University School of Medicine
1985 Research Fellow (Immunology in Myocarditis), University of Wuerzburg, West Germany, (Alexander von Humboldt-Stiftung)
1988 Clinical Fellow (Cardiac Transplantation), University of Utah, U.S.A.
1990 Chief, Division of Cardiology, Kofu National Hospital
1992 Chief, Department of Internal Medicine, Kofu National Hospital
1998 Lecturer, Department of Medicine, Tokyo Women's Medical University School of Medicine
2008 Associate Professor, Department of Medicine, Tokyo Women's Medical University School of Medicine
2011 Professor, Division of Cardiology, Tokyo Women's Medical University Medical Center East
2014 - Present Professor, Department of Therapeutic Strategy for Severe Heart Failure, Graduate School of Medicine, Tokyo Women's Medical University
MEMBERSHIP IN PROFESSIONAL SOCIETIES:
Director of Japan Organ Transplant Network
Member of the International Society for Heart and Lung Transplantation
Fellow of Japanese Circulation Society
Fellow of the Japanese College of Cardiology
Director, Councilor of the Japan Society for Transplantation
Board Certified Member of the Japanese Society of Internal Medicine
Board Certified Transplant Physician of the Japan Society for Transplantation
Board Certified Physician of the Japanese College of Angiology

Although the first heart transplantation in Japan by Dr. Wada had influenced the establishment of heart transplantation in Japan for many years, many efforts for re-starting and establishing heart transplantation in Japan have also occurred in the past 40 years. The Japanese Society for Heart Transplantation was established in 1983, which was 2 years after the establishment of the International Society for Heart Transplantation. Much effort had been made to pass the Act on Organ Transplantation in 1997 and revise it in 2010. However, very few heart transplantations are performed in our country because there have been very few deceased donors. Currently, more than 10 times the number of donors are awaiting heart transplantation in Japan. Compared to countries using an opt-in system for organ donation such as the United States and South Korea, earlier referral of possible donors to transplant coordination teams should be incorporated in Japan to increase the possibility of organ donation. The medical consultant system developed in Japan is a unique partnership between transplant consultant physicians and local physicians that should put more effort into increasing the number of organs for donation. The current number of transplant physicians is very low. This number should be increased for pre- and post-transplant management as well as medical consultation for donation in the emergency room. Another reason for the shortage of donors is that there are two judgement standards of death in Japan. One standard is brain death only at the time of donation for transplantation. This definition should be re-considered in various fields in Japan.

PS09-2

Present Status and Future Challenges in Heart Transplantation and VAD Treatment in Asia

In-Cheol Kim[1,2]

[1] *Keimyung University Dongsan Hospital, Republic of Korea*
[2] *Visiting Professor, Advanced Heart Disease Section, Heart Transplant Program, Smidt Heart Institute, Cedars-Sinai Medical Center, USA*

Academic Career
1999 ~ 2005 Bachelor degree from Keimyung University, School of Medicine, Daegu, Republic of Korea
2006 ~ 2008 Master of Science from Keimyung University, Graduate School, Daegu, Republic of Korea
2009 ~ 2014 Ph.D. degree from Keimyung University, Graduate School, Daegu, Republic of Korea
Work Experience
2005 ~ 2006 Internship from Keimyung University Dongsan Medical Center
2006 ~ 2010 Residency of Internal Medicine from Keimyung University Dongsan Medical Center
2010 ~ 2013.4 Chief Military physician as Army Captain, Department of Internal Medicine, Gaeryongdae Military Hospital, Republic of Korea Army
2013.5 ~ 2014.2 Clinical Instructor, Keimyung University School of Medicine Division of Cardiology, Department of Internal Medicine Keimyung University Dongsan Medical Center
2014.3 ~ 2015.2 Clinical Assistant Professor, Keimyung University School of Medicine Division of Cardiology, Department of Internal Medicine Keimyung University Dongsan Medical Center
2015.3 ~ 2016.2 Assistant Clinical Research Professor Division of Cardiology, Severance Cardiovascular Hospital Yonsei University Health System
2016.3 ~ 2017.2 Assistant Professor Division of Cardiology, Severance Cardiovascular Hospital Yonsei University Health System
2017.12 ~ 2018.1 Visiting Cardiologist Heart Transplant Program, Smidt Heart Institute Cedars-Sinai Medical Center, Los Angeles, California
2017.3 ~ 2021.2 Assistant Professor, Keimyung University School of Medicine Division of Cardiology, Department of Internal Medicine Keimyung University Dongsan Hospital
2021.3 ~ Present Associate Professor, Keimyung University School of Medicine Division of Cardiology, Department of Internal Medicine Keimyung University Dongsan Hospital
2022.7 ~ Present Visiting Professor, Advanced Heart Failure Section Heart Transplant Program, Smidt Heart Institute Cedars-Sinai Medical Center, Los Angeles, California
Grants and Awards
1.Kim IC. Young Contributor Award. The Korean Society of Heart Failure (2021)
2.Kim IC. Contribution Award for International Journal of Heart Failure (2021)
3.Kim IC. Real-World Treatment Patterns and Patient Reported Outcomes in Korean Heart Failure Patients with Reduced Ejection Fraction: A Nationwide Prospective Cohort Study. Best Abstract Award for Heart Failure Seoul 2020, Korean Society of Heart Failure (2020)
4. Kim IC. Best Judge Award for Korean Society of Cardiology (2019)
5. Kim IC. Predictors and clinical outcome of lymphoproliferative disorders in heart transplant recipients. Transplantation Research Early Career Award of the International Society for Heart and Lung Transplantation (2019)
6. Kim IC. International Scholarship Award of the International Society for Heart and Lung Transplantation (2018)
7. Kim IC, Oh J, Lee CJ, Park S, Lee SH, Hong GR, Kang SM. Differences in Cardiopulmonary Exercise Responses and Echocardiographic Left Ventricular Vortex Flow Pattern between Apical and Non-apical Hypertrophic Cardiomyopathy: Correlations with Clinical Parameters. The Young Investigator Finalist of the 2016 Frontiers In Cardiovascular Medicine
8. Kim IC, Hong GR, Lee SY, Cho I, Heo R, Cho IJ, Shim CY, Chang HJ, Ha JW, Chung N. Left Ventricular Flow Vortex Analysis is Incremental to Conventional Echo-Doppler to Predict Symptoms and Clinical Outcomes in Patients with Systolic Heart Failure: A Quantitative Vorticity Imaging Study Using Contrast Echocardiography. The Young Investigator Finalist of the 39th Annual Meeting of the Korean Society of Echocardiography (2015)
9. Kim IC, Kim H, Cho YK, Park HS, Yoon HJ, Nam CW, Hur SH, Kim YN, Kim KB. Ambulatory Blood Pressure Monitoring in Hypertension: Relation with Ambulatory Arterial Stiffness Index and Metabolic Syndrome. Best Abstract Presentation Award of the 21st Annual Congress of the Korean Society of Hypertension (2012)
10. Kim IC, Hur SH, Sohn JH, Cho YK, Park HS, Yoon HJ, Kim HS, Nam CW, Kim YN, Kim KB. The Impact of Moderate to Severe Renal Insufficiency on Patients With Acute Myocardial Infarction. Best Presentation Award of the 2008 Transcatheter Cardiovascular Therapeutics Asian Pacific (2008)

Professional Membership
- The Korean Medical Association
- The Korean Society of Internal Medicine
- The Korean Society of Cardiology
- The Korean Society of Heart Failure
- The Korean Society of Echocardiography
- The Korean Society of Hypertension
- The Korean Society for Transplantation
- The International Society for Heart and Lung Transplantation
Guideline Committee
- 2021 KSHF Heart Failure Guideline Writing Committee
- 2021~2022 KSE Valve Guideline Writing Committee
- 2020 ISHLT Heart Transplantation Guideline Writing Committee

Despite the introduction of effective heart failure medical therapies that reduce mortality and morbidity, there remain many patients who do not respond to these therapies or even deteriorate after the treatment. For these patients, heart transplantation (HTx) can provide a definitive treatment option but is limited by donor availability, especially in Asian countries. For these patients, a left ventricular assist device (LVAD) may offer an alternative that improves survival as well as exercise tolerance and quality of life.

In Korea, more than 150 cases of HTx were performed annually since 2017 and plateaued because of the donor limitation. After the reimbursement of durable LVAD (Heartware Ventricular Assist System (HVAS) and HeartMate II (HM II) in October 2018, the numbers increased drastically and reached more than 100 cases in 2021.

In Japan, even though the cases have increased after the revision act in July 2010, it still sustained under 40 cases annually. However, with the devotional effort of transplantation doctors and staff in Japan, they show excellent survival compared to any other countries involved in heart transplantation. For LVAD, earlier initiation of the implantation resulted in an advanced system and accumulation of experiences in Japan. The Japanese registry for mechanical assisted circulatory support (J-MACS) reported two outstanding reports which help to understand the current status of LVAD in Japan.

Asian countries relatively have limited access to up-to-date treatment modalities. This may be due to the shortage of budget or conservative culture to adopt a new treatment. However, data show equal or even superior outcomes in the Asian population regarding the HTx or LVAD. Although the progress is humble, the 'masterity' we made can have tremendous developments in the field of advanced heart failure treatment in the world.

PS09-3

Heart Transplantation and Heart Failure Program in National Taiwan University Hospital

Nai Hsin Chi, Yah-Sharng Chen

National Taiwan University Hospital, Taiwan

National Taiwan university hospital
Cardiovascular surgeryAttending Physician
National Taiwan University
College of MedicineClinical Associate Professor
Taiwan Association of Thoracic & Cardiovascular SurgeryVice Chief Executive Officer
Taiwanese Society of PhlebologySecretary General
24th ASCVTSSecretary General
Taiwanese Society of PhlebologyMember of Council
Taiwan Association of Thoracic & Cardiovascular SurgerySecretary General
Taiwanese Society of PhlebologyPresident
Association of Thoracic and Cardiovascular Surgeons of AsiaSecretary General
Training:
1998-2000 National Taiwan University Hospital　Resident, general surgery training
2000-2003 National Taiwan University HospitalResident, Chief Resident in Thoracic & Cardiovascular Surgery
2004 National Taiwan University HospitalFellow in Thoracic & Cardiovascular Surgery
Employment:
2004-2005 Department of Surgery,
National Taiwan University Hospital
Yun-Lin BranchAttending Staff
2005 -Department of Surgery
National Taiwan University Hospital.Attending Staff
Honors & Awards:
2004 Taiwan Walton Lillehei young investigator award
2006 Asia Walton Lillehei young investigator award (Japan Osaka)
2012 Taiwan Association of Thoracic & Cardiovascular Surgery Distinguished paper award
2012 Taiwanese Society for Phlebology Distinguished paper award
2016 ASCVTS 2016 Furuse Award (Best Cardiac Paper)
2018 Taiwanese Society for Phlebology (BEST PAPER AWARD)
2020 National Taiwan university hospital (Recipient of the Outstanding Research Award for Excellence in Innovation of Medical Technology)

We started our first orthotopic heart transplantation on July 17th 1987, which is the third heart transplantation case in Asia, and we performed the first heterotopic heart transplantation in 1989. Heart and lung transplant was initiated in 1993. Heart transplantation rate is still low in Asia, because of culture, socioeconomic differences and low donation rate compared with Europe and united states. In Taiwan, we had around 50-90 heart transplantation cases a year, which is probably the leading number in Asia. In my institute we did about 1/3 to 1/2 heart transplantations in Taiwan. Till now we have more than 600 heart transplantation patients with median survival 10.9 years. Because of the shortage of donor, we established heart failure program, especially with different kinds of mechanical support in the different era. In recent years, we had around 30 temporary and durable ventricular assisted devices each year to support the heart failure patients.

PS09-4

Current Status of Heart Transplants and LVADS in India and Future Directions

K.R. Balakrishnan

MGM Healthcare, India

K. R Balakrishnan did his medical graduation from JIPMER, Pondicherry, General Surgery training from the All India Institue of Medical Sciences, New Delhi and cardiothoracic surgery from KEM hospital Mumbai. He further trained in cardiac surgery from Oregeon Health sciences University in Portland ,Oregon under Professor Albert Starr and in Auckland , New Zealand under Professor Brian Barrett- Boyes.
He established the first heart transplant program in India and has completed over 500 heart and lung transplants, the largest in the country.
He implanted Indias first Left Ventricular Assist Device, Heartmate II and also the HVAD pump as destination therapy in 2012
Indias first use of venoarterial ECMO as a bridge to heart transplant in 2012
He did Indias first Pediatric heart transplant in a two year old child.
He did Indias first pediatric bilateral lung transplant in a 4 year old child
He did the first successful bilateral lung transplant on a covid destroyed lung. This is amongst the earliest successful lung transplants for this condition in the world
He did the first paediatric impellar pump implant bridged successfully to heart transplant in a child with cardiac arrest resuscitated with VA ECMO for restrictive cardiomyopathy
He did Indias first biventricular Berlin heart implant on a 2 year old child
He heads the largest and busiest ECMO programme in the country
He is currently developing a fully implantable LVAD , artificial heart pump with an Australian company and has several US, Australian and European patents including for a new biomaterial, polyurethane embedded with magnetic nano particles, developed jointly with the department of physics, Bhaba Atomic Research Center, Mumbai
He is currently working as Director of Cardiac Sciences and Chief Cardiothoracic & Transplant Surgeon at MGM Healthcare, Nelson Manickam Road in Chennai.

Heart transplants in India started in 1994 after an act of parliament allowed the the retrieval and transplantation of human organs following brain death.The progress was quite slow till the year 2010 due to a lack of coordinated organ distribution programme. Tamil Nadu was the first state in the country to streamline the process and this was soon followed by other states leading to steady increase in the number of organ donations in the country. Currently about 750 organ donations happen annually and close to 250 heart and 200 lung transplants are being done at several centers across the country. Mechanical circulatory support programme started in 2012 with the first Heart mate II implant and the establishment of an ECMO programme.

Several challenges had to be overcome to establish a succesful programme including waitlist mortality especially in a situation where expensive long term LVADS are not funded by the state, distribution of organs within acceptable ischemic times across a vast country, tailoring immunosuppression to very sick,nutritionally compromised and small built patients, preventing infections, immune monitoring of transplanted hearts with frequent biopsies in patients from far flung areas and managing the cost implications in uninsured patients. Despite these challenges,there has been a steady rise in the number of transplants with acceptable medium term survival at 5 years of over 74 % which is comparable to published international results.There has been a steady growth in paediatric transplants as well .

Future directions include initiatives for organ sharing with neighbouring countries for optimising organ utilisation and developing affordable implantable VADs for our population.

PS09-5

Lessons Learnt in Developing a Mechanical Cardiac Support Program (MCS) to Support Heart Transplantation in Singapore

Cumaraswamy Sivathasan

National Heart Center, Singapore

1. Advisor/ Director,
   Mechanical Heart Devices and Heart Transplantation Programme
   National Heart Centre, Singapore

2. Consultant Cardiovascular & Thoracic Surgery
   The Heart Lung & Vascular Centre
   Mount Elizabeth Hospital
   3 Mount Elizabeth
   #17-13, Mount Elizabeth Medical Centre
   Singapore 228510

3. Chairman, Examination Committee, Joint Committee on Specialist Training,
   Academy of Medicine, Singapore.
   Member, Residency Training Advisory Committee, Ministry of Health, Singapore.
   Examiner, Conjoint Exit Examination in Cardiothoracic Surgery.

Qualification : MBBS
FRCS England
FRCS Edinburgh
FAMS Singapore

AWARDS:
1- The Healthcare Humanity Award 2010 awarded by President, Singapore
2- National Outstanding Clinician Award 2011—Ministry of Health, Singapore

Dr. C Sivathasan's career in cardiac, thoracic, and vascular surgery spans a clinical and research experience of close to two decades, with over 90 publications and presentations.
He is presently a Consultant of Cardiovascular and Thoracic Surgery at the Heart, Lung & Vascular Centre of Mount Elizabeth Medical Centre, Singapore. DR Sivathasan also holds several portfolios at the National Heart Centre, Singapore, namely Director of the Mechanical Heart Devices and Heart/Lung Transplantation program. He is also member of several advisory committees appointed under the Minister of Health.
He is instrumental in establishing several major programmes in Singapore, including the Mechanical Heart Assist and the heart-lung transplant programme at the National Heart Centre. He is also a member of various professional societies such as the International Society for Heart & Lung Transplant as the member of the leadership advisory committee and the Past - President (2017/2018) of the International Society for Mechanical Cardiac support. He is also a reviewer for Artificial Organs, The International Journal of Artificial Organs, Annals of Academy of Medicine, Singapore, and The Asian Cardiovascular and Thoracic Annals.
For his contributions towards the development of cardiothoracic surgery, Dr Sivathasan was awarded the prestigious National Outstanding Clinician Award as part of the National Medical Excellence Awards 2011 by the Ministry of Health, Singapore. The award recognises individuals in healthcare establishments who have made exceptional contributions to clinical work that advances the safety and quality of patient care and who have supported and facilitated research.

Singapore is an island city and country with a 5.8 million population, of which about four million are residents. Although legislation for presumed consent is practiced, the number of suitable cardiac donors remains limited due to the small population, where road traffic accidents and violence are uncommon. Most donors have been victims of strokes, allowing us to perform an average of 3 to 6 heart transplants a year. The mortality in the heart transplant waiting list had been in the region of 30%. The approval of Bridge To Transplant (BTT) by FDA, prompted us to initiate the MCS program in 2021.

In our experience, we learnt that five vital elements are required for a successful MCS program. They are 1. Dedicated team 2. Funding 3. Expertise in areas of support services 4. Comprehensive complementary devices to support the MCS program. 5. Active referral base to maintain competency. With success in establishing a BTT, all our transplant patients are BTT patients with an average waiting period of 3.2 years. The 5-year survival is 77% for patients on continued LVAD support.

PS10-1

Use of MRI as a Tool for Non-Invasively Evaluating Kidney Grafts Before and after Transplantation

Jun-Ya Kaimori[1,2], Koki Hattori[2], Yuta Asahina[2], Sachio Kajimoto[2], Yohei Doi[2], Tatsufumi Oka[2], Yusuke Sakaguchi[1,2], Shiro Takahara[3], Yoshitaka Isaka[1]

[1] *Department of Inter-Organ Communication Research in Kidney Diseases, Osaka University Graduate School of Medicine, Japan*
[2] *Department of Nephrology,Osaka University Graduate School of Medicine, Japan*
[3] *Department of Kidney Transplantation, Kansai Medical Hospital, Japan*

Academic degrees: M.D. Osaka University School of Medicine, and passed the Examination of National Board in 1997, Ph.D. Osaka University School of Medicine,2003.
Professional Experiences:
-Medical resident in Osaka University Hospital, 1997-1998.
-Medical resident in Osaka Koseinenkin Hospital, 1998-1999.
-Graduate School student in the Department of Geriatric Medicine and Nephrology, Osaka University Graduate School of Medicine, 1999-2003
-Post Doctoral Fellow in Department of Medicine, Division of Nephrology, Johns Hopkins University, 2003-2008
-Assistant Professor of Medicine in the Department of Geriatric Medicine and Nephrology, Osaka University Graduate School of Medicine, 2008-2009
-Associate Professor of Medicine in the Department of Geriatric Medicine and Nephrology, Osaka University Graduate School of Medicine, 2009,October-November
-Associate Professor of Medicine in the Department of Advanced Technology of Transplantation/the Department of Nephrology, Osaka University Graduate School of Medicine, 2009,November-2019,September
-Associate Professor of Medicine in the Department of Inter-Organ Communication Research in Kidney Diseases /the Department of Nephrology, Osaka University Graduate School of Medicine, 2019, April-Present
Awards: The president award of the 62th convention of Japanese Society of Nephrology

The worldwide shortage of organs for transplantation has highlighted expanded criteria donors (ECDs) and donation after cardiac death (DCD) as new organ sources. Because kidney grafts from ECDs and DCD are more susceptible to additional ischemia reperfusion injuries than are those from living or brain-dead donors, these grafts are more likely to develop primary dysfunction and delayed graft loss. In spite of considerable efforts to protect such marginal donor kidneys, conventional static cold storage combined with intra-cellular type solution has remained the primary option, even for damaged kidneys. One of the common features of ischemic kidney damage, congestion of blood in the capillaries of the inner stripe of the outer medulla, is thought to possibly impair both circulation and tubular flow. The blood congestion phenomena are relevant to tissue edema formation. To improve graft function, non-invasive tools for assessing tissue damage in grafts are required. In this talk, I want to focus on blood oxygen level dependent (BOLD) and diffusion-weighted MRI for the evaluation of trapped erythrocyte called "red blood cell congestion" and interstitial or cellular edema in kidney graft before transplantation, respectively. Furthermore, we will also talk about diffusion tensor imaging (DTI) MRI to evaluate renal fibrosis in a rat model of diabetic kidney nephropathy.

PS10-2

Pre Immnological Evaluation in Cadaveric and Living Transplant Including Donor Exchange Program

Sangho Lee

Department of Nephrology, Kyung Hee University, Republic of Korea

EDUCATION and CAREER

1988.3 - 1994.2. M.D. College of Medicine, Kyung Hee University, Seoul, Korea
1996.3 - 1998.2. M.Sc. Post-graduate school of Medicine, Kyung Hee University, Seoul, Korea
1999.3 - 2004.2 Ph.D. Post-graduate school of Medicine, Kyung Hee University, Seoul, Korea
2005.3 - 2009.2. Assistant professor, Department of nephrology, College of Medicine, Kyung Hee University, Seoul, Korea
2009.2 - 2012.2. Associate professor, Department of nephrology, College of Medicine, Kyung Hee University, Seoul, Korea
2009.6 - 2010.12. Visiting Scholar, Transplantation Research Center, Stanford University, CA, USA
2012.3 - Present. Professor, Department of nephrology, College of Medicine, Kyung Hee University, Seoul, Korea

RESEARCH TOPICS

Role of inflammation in diabetic nephropathy
Role of aging in kidney injury
Omics research in kidney disease and transplantation

Editorial Board Member

Kidney Res Clin Pract (2013-)
Biomedicnes (2021-)

Alloantigens are unavoidably recognized by the kidney transplant recipient's adaptive immune system. However, over time, donor and recipient profiles have changed substantially. The proportion of sensitized patients on kidney transplant waiting lists has gradually increased worldwide and the number of expanded criteria donors (ECD) or donors after circulatory death (DCD) are becoming increasingly common in many transplant programs.

Thus, defining distinct alloimmune and non-alloimmune factors driving allograft rejection is greatly needed. Two main strategies are used for immune-risk stratification before kidney transplantation. First, evaluation of HLA disparity between recipient and donor. Secondly, identification of preformed circulating IgG antibodies against HLA in the recipient's serum.

Technologies to assess alloimmune risk in transplant recipients have been developed and implemented in clinical practice, but further improvements to alloimmune risk stratification in kidney transplantation are essential.

At the same time, transplant centers should establish consistent policies and principles for pre-transplant immunological evaluation. Special programs should be implemented for high-risk patients. Cen¬ters should identify sensitized patients on the waiting lists and standardize DSA scans-typing and XM applications across the country to develop these special programs.

Biological approaches, as well as desensitization protocols, can be applied in transplantation in sensitized patients. However, considering the disadvantages of the desensitization practices, donor exchange programs or acceptable mismatch applications can be applied according to the circumstances of each country. Finally, criteria and scoring system for kidney distribution needs to be considered for sensitized patients.

PS10-3

Pre Operative Evaluation in Living Donors and Recipients in Taiwan

Ming Ju Wu

Taichung Veterans General Hospital, Taiwan

Professor Wu received his MD from the Taipei Medical University Medical School in 1990. Following a residency in internal medicine, he became a Clinical Fellow in the Division of Nephrology at the Taichung Veterans General Hospital. Between 1999 and 2000, he was a Research Fellow in the Division of Nephrology at the Arizona University Health Sciences Centre, USA. He then continued his studies completing the PhD program at the National Yang-Ming University in Taipei. Professor Wu is the director of department of internal medicine at the Taichung Veterans General Hospital. He is appointed Professor of Internal Medicine at Chung-Shan Medical University and National Defense Medical University. He is both the executive director of the Taiwan Society of Nephrology and the executive director of the Taiwan Society of Transplantation. Professor Wu was the chief of division of nephrology at Taichung Veterans General hospital during 2015~2018. In early 2018, he leaded his team to accomplish the first Renal Disease Care Quality Certification in Taiwan. His team also received the Model Award of CKD care in Taiwan in November 2018. In addition, he is an expert of medical education. He was the division head of general internal medicine at Taichung Veterans General Hospital between 2006 and 2013. His area of interest and study field includes kidney transplantation, clinical nephrology, renal fibrosis, medical education, and artificial intelligence. His research has been published in numerous journals including Kidney International, Journal Clinical Medicine, Journal of Cell Physiology, American Journal of Kidney Disease, American Journal of Physiology, Nephrology Dialysis Transplantation, Transplantation, Urologic Oncology, PLOS ONE, and etc...

The pre-operative evaluation processes of living kidney transplantation are essential to making the transplant process successful for both kidney donors and transplant recipients. The success of kidney transplantation depends on the close collaboration of interdisciplinary transplant team members.

In Taiwan, we have organ transplant coordinators to facilitate the multi-faced affairs related to living kidney transplantation. The transplant team members will provide pre-and post-operative physical assessment, consultation and education for the living kidney donors, recipients and their family members. It is very important to obtain consent from the donor candidate and recipient before the evaluation.

In Taiwan, we encourage all nephrologists to introduce living kidney transplantation to stable patients with advanced chronic kidney disease or regular dialysis through the process of shared decision making .

During kidney donor evaluation, the kidney transplant team will help kidney donor and recipient learn about the transplant process and assess the individual risks and reduce the potential risks as low as possible, with respect to predetermined program acceptance thresholds. Importantly, the principle of the evaluation process is to provide the donor candidate with individualized estimates of both short- and long-term risks.

PS10-4

Pre and Post Evaluation of Kidney Transplant for Long Term Graft Survival in Korea

Chul Woo Yang

Seoul St.Mary's Hospital, Catholic University Medical College, Republic of Korea

Professor Yang received his MD from the Catholic University Medical in 1985, completed a PhD in 1996 and a post-doctoral fellowship at the Oregon Health Sciences University, USA. Dr. Yang is the head of Internal Medicine, The Catholic University of Korea.
He worked as the President of Korean Society of Nephrology, Currently, he is the treasurer of Asian society of Nephrology and president of Korean Society of Transplant Nephrology.
He received the Distinguished Doctor Award from the Seoul Medical Association in 2006 and prime minister award for Health and Medical Technology Promotion in 2017.
Professor Yang's research work focuses particularly on ischemia-reperfusion injury, the nephrotoxicity of immunosuppressant and the renin-angiotensin system.
He has written many articles and abstracts, which have been published in journals such as American Journal of Transplantation, Transplantation, Journal of American Society of Nephrology, Kidney International and FASEB Journal.

Patients who wish to undergo a kidney transplant want to maintain the transplant kidney for a long-time, but they have to overcome various immunological and non-immunological risk factors. Among them, it is well known that acute rejection, chronic rejection, cardiovascular complication, infection and malignancy are five major risk factors for determining long-term graft survival. I'd like to present our experience of evaluation process and discuss the impact of these factors on long-term graft survival. In addition, I'd like to discuss contributory roles of each component in determining long-term graft survival. Early detection, regular follow-up and management of modifiable targets with multidisciplinary strategies are key points to improve long-term graft survival.

PS11-1

Therapeutic Strategy of Preformed and De Novo DSA for LDLT: Clinical and Translational Research

Hiroto Egawa

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Education
Medical School; Faculty of Medicine, Kyoto University (1982)

Surgical residency and fellowship
1982-1983 Kyoto University Hospital, Kyoto, Japan
1983-1985 Sakaide Kaisei Hospital, Kagawa, Japan
1985-1987 Shinkoori Hospital, Osaka, Japan

Research
1988-1991 Postgraduate school, Faculty of Medicine, Kyoto University(PhD)
1991-1994 California Pacific Medical Center, CA, USA (clinical & research)

Professional carrier
1994-1996 Surgeon, the Second Department of Surgery, Kyoto University
1996-1997 Surgeon, the Department of Transplant Surgery, Kyoto University
1997-1999 Junior Associate, the Department of Transplant Surgery, Kyoto University
1999-2002 Associate Professor, the Department of Transplant Surgery, Kyoto University
2002-2009 Assistant Professor, Organ Transplant Unit, Kyoto University Hospital
2009 April Director and Chairman, Department of Surgery, Murakami Memorial Hospital, Asahi University
2011 April Clinical Professor, Department of Surgery, Institute of Gastroenterology, Tokyo Women's Medical University (v)
2014 April Professor, Department of Surgery, Institute of Gastroenterology, TWMU
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Japanese Surgical Society of Gastroenterology
The Japan Society of Hepatology
American Society of Transplantation
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ILTS (Educational committee)
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Asian Society of Transplantation (Councilor)
International Living Donor Liver Transplantation (iLDLT) Group (Councilor, President)

ABO blood type barrier and HLA related donor specific antibody (DSA) are major challenges in liver transplantation. Although a powerful desensitization protocol was established for ABO incompatible (ABO-I) transplantation using rituximab, still intrahepatic biliary stricture occurs in 5 %. High incidence of CMV infection but low incidence of bacterial infection are accompanied with rituximab desensitization. Significance of HLA-DSA is still controversial in liver transplantation. Recent reports mentioned that worse outcomes of deceased donor liver transplantation for patients with preformed DSA. Banff group published a statement about antibody mediated rejection (ABMR) in liver transplantation in 2016. The strategy for DSA-ABMR is under development in a circumstance in which several promising medicines are on clinical trial in kidney transplantation. The protocol including rituximab for ABO-I LDLT has been applied for patients highly sensitized against donor HLA. A Japanese nationwide survey was performed to investigate the clinical practice among preformed DSA-positive patients (47 patients including 2 children) with special reference to rituximab desensitization. The overall 1-, 3-, and 5-year graft and patient survival rates among adult patients were 85%, 83%, 83%, and 81%, 77%, 74%, respectively. The 1-, 3-, and 12-mo cumulative incidence of ABMR was 11%, 13%, and 13%, respectively, , while neither graft loss nor death was observed in the 2 children. The incidence of ABMR was significantly higher in the lower rituximab dose group than in the higher rituximab dose group (cutoff 300 mg/m2, 4% versus 24%, P = 0.041). The rituximab induction was well tolerated among DSA-positive liver transplant recipients with a satisfactory outcome.

PS11-2

Therapeutic Strategy of De Novo DSA for LDLT Through HLA Epitope Compatibility

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-JSPS research fellow
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Clinical Residencies:
-2013-2015 Resident, Hyogo Prefectural General Medical Center, Hyogo, Japan
-2015-2018 Resident of General Surgery, Department of Gastroenterological Surgery, Hyogo Prefectural General Medical Center, Hyogo, Japan
-2018-2019 Clinical Fellow of General Surgery, Department of Gastroenterological Surgery, Hyogo Prefectural General Medical Center, Hyogo, Japan
Awards:
-Conference Presidents Award of the 29th Annual Meeting of the Japanese Society for Histocompatibility and Immunogenetics, 2021
-Best Abstract Award of the 15th Congress International Society for Experimental Microsurgery, 2021
-Best presentation Award of the 38th Annual Meeting of the Japanese Liver transplantation Society, 2020
-Junior Resident of the Year of Hyogo Prefectural General Medical Center, 2014
Research Fundings: (principal investigator):
-A grant from Japan Society for the Promotion of Science (JSPS) KAKENHI (grant number 21J13724), 2021-2023
-JST basic research grants from the Japan society for Transplantation, 2022-2023
-A grant from Fujiwara Memorial Foundation, 2021-2022
-Fellowship of the Japan Society for the promotion of Science (JSPS, DC2), 2021-2023

Paul Terasaki (1929-2016), the greatest contributor who revealed the importance of HLA polymorphism in organ transplantation, stated,"humoral immunity is the mainstay of transplant immunology". Suppression of humoral immunity including development of anti-HLA antibody is required for long-term graft survival. Recently, HLA epitopes of specific amino acid sequences have been identified as antigenic determinants targeting by anti-HLA antibodies. Deduction of amino acid residues of the individual HLA alleles shared by CREGs, combined with structural topology on amino acid sequences of HLA alleles, determined potentially immunogenic numerous epitopes on HLA molecules.The positive association between HLA epitope mismatch number and the development of de novo DSA, particularly against HLA-Class II, has been repeadedly reported in various organ transplantations. Once the risks of de novo DSA development can be accurately evaluated, post-transplant personalized immunosuppression strategies can be developed to reduce the risks of antibody-mediated rejection. However, it has not yet been applied to clinical practice due to the lack of basic and clinical verification. Furthermore, functional analysis of de novo DSA is also required because de novo DSA development does not necessarily lead to antibody-mediated rejection or graft failure.We report the impact of HLA compatibility at epitope level on de novo DSA development, in addition to the long-term impact of de novo DSA on grafts, with a focus on LDLT.

PS11-3

The Impact of Donor-Specific Anti-HLA Antibodies on Living-Donor Liver Transplantation

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Japanese Society of Hepato-Biliary-Pancreatic Surgery
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Japanese Society of Endoscopic Surgery
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BS1-1

Short-Term Therapy with Anti-ICAM-1 Monoclonal Antibody Induced Long-Term Liver Allograft Survival

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2001 Mar - 2003 Feb Premedical course, Seoul National University
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2015 Mar 2017 Feb Graduate School of Seoul National University, M.S. Course
2017 Mar 2021 Aug Graduate School of Seoul National University, Ph.D. Course
Postgraduate Training
2007 Mar - 2008 Feb Internship, Seoul National University Hospital
2008 Mar - 2012 Feb Residency in Department of Surgery, Seoul National University Hospital
2012 Mar 2015 May Military service
2015 May 2017 Feb Fellow in Department of Surgery, Seoul National University Hospital
Professional Experience
2017 March 2018 Feb Professor for clinical department of Hepatobiliary Section in Department of Surgery, Seoul National University Hospital
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Tolerance induction remains challenging following liver transplantation and the long-term use of immunosuppressants, especially calcineurin inhibitors, leads to serious complications. We aimed to test an alternative immunosuppressant, a chimeric anti-ICAM-1 monoclonal antibody, MD-3, for improving outcomes of liver transplantation. We used a rhesus macaques liver transplantation model and monkeys were divided into three groups: no immunosuppression (n=2), conventional immunosuppression (n=4), and MD-3 (n=5). Without immunosuppression, liver allografts failed within a week by acute rejection. Sixteen-week-long conventional immunosuppression that consisted of prednisolone, tacrolimus, and an mTOR inhibitor, prolonged liver allograft survival; however, recipients died of acute T cell-mediated rejection (day 52), chronic rejection (day 62, 66) or adverse effects of mTOR inhibitor (day 32). In contrast, 12 weeks-long MD-3 therapy with transient conventional immunosuppression in the MD-3 group significantly prolonged the survival of liver allograft recipients (5, 96, 216, 412, 730 days; P = 0.0483). MD-3 effectively suppressed intragraft inflammatory cell infiltration, anti-donor T cell responses and donor-specific antibody with intact anti-cytomegalovirus antibody responses. However, this regimen ended in chronic rejection. In conclusion, short-term therapy with MD-3 markedly improved liver allograft survival to 2 years without maintenance of immunosuppressant. MD-3 is therefore a promising immune modulating agent for liver transplantation.

BS1-2

Antigen Specific Regulatory T cell-based Approach for Induction of Transplant Tolerance

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2004 Graduate Juntendo University School of Medicine / Rotating Resident Juntendo University hospital
2006 Surgical Residency Hokkaido University Hospital Dept. Surgery
2010 Clinical fellowship American Society of Transplant Surgeon
Miami Transplant Institute/ Jackson Memorial Hospital, FL, USA
2012 Asahikawa Medical University Hospital Hepatobiliary pancreatic transplant surgery
2014 Assistant Professor Juntendo University Atopic Research Center
2018 Associate Professor Juntendo University Advanced Research Institute for Health Science
Dept. of Hepatobiliary pancreatic surgery
2021 Deputy Director Juntendo University Center for immunotherapy and diagnosis
Primary Investigators for multicenter phase 1/2 clinical trial of induced T cells with suppressing functions for induction of transplant tolerance in living donor liver transplantation
https://clinicaltrials.gov/ct2/show/NCT04950842
Associations: The Japan Surgical Association, The Japan society for transplantation
ECFMG certification, The American Society of Transplant Surgeons

Selective immunosuppression to the recipient T cells activated to the donor graft antigen and maintain other immune system for homeostasis would be ideal strategy for the transplant patients. And sustain tolerogenic status to the graft despite cessation of immunosuppressant would minimize the risk of adverse life-threatening events related with the medication such as de novo cancer and cardio-and cerebrovascular disease. Since the discovery of CD86 molecule, we have been investigating donor allograft tolerance induced by blocking the T cell costimulatory signals and found donor alloantigen specific regulatory T cells were expanded and induce the condition. The donor alloantigen specific regulatory T cell-based therapy, which is generated from recipient mononuclear cells either from spleen or whole blood by cocultured with irradiated donor mononuclear cells in the presence of CD80 and CD86 monoclonal blocking antibodies, successfully prove the therapeutic concept to achieve long term graft survival without any immunosuppressant in the rhesus monkey kidney transplant model. The first in human clinical research was conducted in living donor kidney transplant to prove the safety of the cell product. And then immunosuppression withdrawal was challenged in living donor liver transplant in single center, in which seven patients out of 10 have been achieved stable clinical graft function without any signs of pathological rejection over 10 years. Based on this result, the Treg cell product was investigated as a new regenerative medicine in multicenter phase 1 and 2 clinical trial to achieve operational tolerance over a year for the liver transplant patients in Japan. In this session, we will share our experience for this challenge and discuss future perspectives.

BS1-3

Characteristics of Treg and Tolerance Induced by Treg Following Liver Transplantation

Ling Lu

Hepatobiliary Center, The First Affiliated Hospital of Nanjing Medical University, China

Dr. Ling was mainly engaged in clinical and translational research on liver transplantation. He was the first to put forward the damage control theory in liver transplantation and apply that to clinical practice, thus greatly improving the recovery efficiency of patients after liver transplantation. He also applied cell therapy using regulatory T cells to treat liver transplant patients for the first time in the world to induce postoperative immune tolerance.
Education:
PhD Nanjing Medical University, Nanjing, China
Career:
Associate Director of Surgery, The First Affiliated Hospital of Nanjing Medical University
Professor of Surgery
Dean of the Fourth Clinical Medical College of Nanjing Medical University
Associations:
Chairman of the Immunotherapy Engineering Branch of the Chinese Society of Biomedical Engineering
Associate Chairman of Jiangsu Youth Federation, chairman of Jiangsu Research Hospital Association,
Deputy secretary-general of the Jiangsu Youth Worker Association, deputy director of Transplantation Immunology Group from Microbiology and Immunology Branch, Chinese Medical Association
Deputy chairman of the Youth Researcher Committee of the Chinese Society of Immunology
Awards:
Grant of Excellent Youth Fund from the National Natural Science Foundation
National ten million talents
Second prize in the Chinese medical science and technology award
First prize of the annual award for outstanding achievement in scientific research from the Ministry of Education (scientific and technological)

Regulatory T cells (Tregs) play a vital role in maintaining the immunosuppressive tumor microenvironment. Lactate is a crucial metabolite in cancer and is related to tumor prognosis, metastasis, and overall survival of patients. In this study, we focus on the impacts of lactate on Tregs. In vitro, lactate improves Treg stability and function, whereas lactate degradation reduces Treg induction, increases antitumor immunity, and decreases the tumor growth in mice. Mechanistically, lactate modulates Treg generation through lactylation of Lys72 in MOESIN, which improves MOESIN interaction with TGF-β receptor I and downstream SMAD3 signaling. Additionally, cotreatment with anti-PD-1 and a lactate dehydrogenase inhibitor has a stronger antitumor effect than anti-PD-1 alone. Finally, patients with hepatocellular carcinoma who responded to anti-PD-1 treatment have lower levels of MOESIN lactylation in Tregs than nonresponding patients. Thus, we identify lactate as an essential small molecule that reinforces Tregs in the tumor microenvironment through lactylation.

BS1-4

Donor pDCs Modulate Effector and Regulatory T cell Responses in Mouse Spontaneous Liver Transplant Tolerance

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Career:
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2015-2019 Graduate School of Hiroshima University, Department of Gastroenterological and Transplant Surgery, Applied Life Sciences,Institute of Biomedical & Health Sciences(PhD), Japan
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The Japan Society of Hepatology
The Japan Society for Transplantation
The Japanese Society of Gastroenterology

pDThe precise mechanisms of liver transplant tolerance are yet to be elucidated. Non-conventional plasmacytoid dendritic cells (pDCs), important mediators of innate immunity, are also thought to promote immune regulation, including oral tolerance, and tolerance to heart and renal allografts in animal models. pDCs are comparatively numerous in mouse liver compared with secondary lymphoid tissue. However, their role in liver transplantation remains unclear. Our Aim was to assess the role of donor liver pDCs in spontaneous liver transplant tolerance and underlying mechanisms in a fully MHC-mismatched mouse model. We determined the phenotype and function of pDCs and T cells by qRT-PCR, flow cytometric analysis and CFSE-MLR, and performed orthotopic liver transplantation from B6 (H2b) donors to C3H (H2k) recipients (Nature Protocols 2016; 11:1163) without immunosuppressive therapy. Liver pDCs expressed higher levels of the transmembrane adaptor DNAX-activating protein of 12kDa, its co-receptor triggering receptor expressed on myeloid cells 2, IL-10, and a higher programed death ligand 1 (PD-L1)/CD86 ratio, both in the steady-state and following TLR9 stimulation compared with spleen pDCs. Moreover, liver pDCs were inferior stimulators of allogeneic T cell proliferation compared with spleen pDCs. Additionally, liver pDCs markedly suppressed alloantigen- and to a lesser extent, α CD3/CD28-induced T cell proliferation. Mice given pDC-depleted (with anti-PDCA1) allogeneic livers showed significantly poorer graft survival (median survival time ; MST: 25 days) compared to those given untreated allogeneic or pDC-depleted syngeneic livers (MST >100 days ($p<0.05$). Serum ALT levels were elevated markedly in recipients of pDC-depleted liver allografts compared with those given untreated. Consistent with elevated liver enzyme levels, there was evidence of enhanced lymphocytic cholangitis and venulitis and elevated rejection indices in pDC-depleted allografts compared with untreated grafts In addition, the number of CD4+CD25+FoxP3+ Treg in grafts and mesenteric lymph nodes of mice given pDC-depleted allogeneic livers was reduced significantly compared with controls. Furthermore, CD8+T cells infiltrating the grafts and in spleen and lymph nodes of the untreated donor group exhibited an exhausted phenotype (PD-1+, TIM-3+), compared with the pDC-depleted donor group. Finally, to investigate the role of PD-L1 in regulation of graft-infiltrating T cell exhaustion and numbers of Treg, we neutralized PD-L1 in recipients of WT B6 liver allografts. Four days after injection, significantly lower levels of exhausted CD8+T cells were observed in the graft and lymphoid tissues of anti-PD-L1-treated recipients. Blocking the PD1-PD-L1 pathway also significantly reduced the incidence of CD4+CD25+FoxP3+ Treg in the graft. These novel observations link for the first time, the immunoregulatory function of donor liver interstitial pDCs, PD-L1 expression, host alloreactive T cell exhaustion and the induction of mouse liver transplant tolerance.

BS2-1

Tissue-Resident Memory T Cells and Primed Macrophages Mediated Acute Allo-Graft Rejection

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Yong ZHAO, Received his PhD in Norman Bethune University of Medical Sciences in 1993. Postdoc at Mitsubishi Kasei Institute of Life Sciences, Tokyo, Japan during 1993-1995. Postdoc at Transplantation Biology Research Center, Massachusetts General Hospital/Harvard Medical School, Boston, USA during 1995-2000. Assistant Professor, Department of Surgery, University of Nebraska Medical Center, Omaha, USA during 2000-2003. Since 2003, professor, Institute of Zoology, Chinese Academy of Sciences. Currently, Deputy Director of the Institute of Zoology, Chinese Academy of Sciences, Director of the National Key Laboratory of Membrane Biology, Director of the Department of Immunology, University of Chinese Academy of Sciences CunJi Medical College. Vice Chairman of Transplant Immunization Branch of Chinese Society for Immunology (CSI), Member of a council of Chinese Society for Immunology, Editor of Exp Rev of Clin Immunol and Cell Mol Immunol.
Mainly engaged in transplant immunology research, including the induction of transplantation tolerance and its mechanisms, the induction and application of suppressive immune cells, the molecular regulation of thymus development, and macrophage biology. Published more than 230 SCI articles in international journals, including Nature Medicine, Nature Communications, Science Advances, JEM, Blood, Journal of Immunology, American Journal of Transplantation and Transplantation. Citation reached more than 11500. Editor-in-chief of "Xenotransplantation Immunology" and "Transplant Immune Tolerance" 2 books, and co-edited other 5 books.

Whether the induced tissue-resident memory T (TRM) cells in non-lymphoid organs alone could mediate allo-graft rejection is unknown. Here, by grafting allo-skin or heart into T/B-deficient severe combined immunodeficient (SCID) mice in which a piece of induced CD4+ and/or CD8+ TRM cells-containing syngeneic skin was transplanted in advance, we addressed this issue. The induced CD4+ TRM cells in the skin alone acutely rejected allo-skin or heart grafts. RNA-seq analysis showed that the induced CD4+ TRM cells in skin favorably differentiated into Th17-like polarization during the secondary immune response. Inhibition of the key Th17 signaling molecule RORγt attenuated TRM cells-mediated graft rejection. Thus, we offer a unique mouse model to specifically study TRM cells-mediated allograft rejection without the involvement of lymphocytes in lymphoid organs and tissues. Our study provides strong evidence supporting that long-lived alloreactive TRM cells resident in other organs/tissues significantly contribute to organ allograft rejection. On the other hand, our experimental studies showed that adoptive transfer of the primed macrophages into SCID recipients could acutely reject allo-skin grafts with specificity and memory properties. It seems that macrophages gained adaptive property in CD4+ T cells-assistant priming phase, which is distinctive from the well-recognized innate immunity of macrophages.

BS2-2

Post-Transplant Immune Regulation on Cancer Recurrence after Liver Transplantation

Nancy Kwan MAN

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Professor Nancy K Man is currently the Director of Liver Transplantation and Liver Cancer Research in Department of Surgery, The University of Hong Kong. She is well-recognized for the advancements of liver transplantation research. Her innovative development and successful application of integrated clinical, translational and basic research for liver graft injury and cancer recurrence after transplantation, has resulted in major advances and impact on transplant oncology and immunology.
She has published more than 195 original articles in international journals including Transplantation, Liver Transplantation, Annals of Surgery, Clinical Cancer Research, Cancer Research, Journal of Hepatology, Hepatology, Gastroenterology, Nature Medicine & New England Journal of Medicine etc with H index 56 (total citation 13588). She is one of the Top 1% Scholars at University of Hong Kong according to ISIs Essential Science Indicators since 2013.
Nancy has made great efforts in the serviced to international, national and local academic societies, particular for ILTS and TTS as her good standing membership since 2002. She was the President of ILTS (2018-19) and Program Chair of ILTS2018. She was the member of Basic Science Committee/Transplant Science Committee of ILTS and TTS, Chair of Scholarship Committee, member of Education Committee, Publication Committee of ILTS She is also the Founder member of Women Leaders in Transplantation (WLIL), International Mentor of WLIL and a Key Opinion Leader of TTS. Being the President of Hong Kong Scientist Association (HKSA), Professor Man plays critical role for the promotion of collaborations among the scientists in HK, Macau, Taiwan and Mainland of China.
Nancy has made a valued contribution to the journal of Transplantation as the Regional Associate Editor and Deputy Editor for her extensive experience for the translational and basic research in liver transplantation. She is also the editorial board member of Annals of Surgery, especially for the liver related research.
She and her research team have obtained more than 60 international awards including, numbers of Rising Star Awards, Young Investigator Awards in annual congress of ILTS, and Mentee-Mentor Basic Science Awards, Young Investigator Awards In TTS/TSS meetings over the past 15 years. Recently, she was awarded with 2022 Basic Science Established Investigator Award of International Liver Transplantation Society for her achievement is liver transplantation research, particular for the mechanisms and therapeutics of cancer recurrence after liver transplantation for liver cancer patients.

Liver transplantation for hepatocellular carcinoma (HCC) has been proved as the best treatment option for patients with early-stage tumors. However, post-transplantation tumor recurrence remains the major challenge for long-term outcome. Our research team has dedicated to investigating the mechanism of HCC recurrence after liver transplantation for more than 15 years. We first reported that graft injury induced inflammation cascade then promoted tumor metastasis and invasiveness in animal models. Our recent data demonstrated that the recruitment of endothelial progenitor cells (EPCs) and regulatory T cells (Tregs) via CXCR3/CXCL10 signaling as well as the polarization of M2 macrophage via TGF-β signaling facilitated cancer recurrence after curative liver surgery. We also identified the immunosuppressive effects of regulatory B cells (Bregs) and myeloid-derived suppressor cells (MDSCs) in HCC tumor microenvironment. Plasmacytoid dendritic cells (pDCs), a unique subset of dendritic cells, which play important role in both innate and adaptive immunity. pDCs are relatively abundant in hepatic microenvironment and mediate immune tolerance after liver transplantation. The role and mechanism of pDCs on cancer recurrence after liver transplantation has been also explored. These data suggested that the reprogramming of intragraft regional immune microenvironment by early-phase graft injury could act a critical role in the late-phase tumor recurrence after transplantation.

BS2-3

Game Changer for Organ Transplantation Using Regenerative Medicine

Eiji Kobayashi

Department of Kidney Regenerative Medicine, Industry-Academia Collaborative Department, The Jikei University School of Medicine, Japan

Professional Experience
2020-present Specially Appointed Professor, The Jikei University School of Medicine
2019-present Visiting Professor, RWTH Aachen University
2014-present Project Professor, Department of Organ Fabrication, Keio University School of Medicine
2009-2014 Chief Scientific Advisor, Otsuka Pharmaceutical Factory, Inc., Japan
2003-2009 Director, Center for Experimental Medicine. Jichi Medical University, Japan
2001-2009 Professor, Department of Surgery and Pharmacology,
Director, Division of Organ Replacement Research and Animal Resource Project Center for Molecular Medicine, Jichi Medical University, Japan
1995-2001 Associate Professor, Department of Surgery and Clinical Pharmacology, Jichi Medical University, Japan
1992-1994 Senior Research Fellow at QIMR, University of Queensland, Australia
1991-1992 Teaching Fellow, Department of Surgery, Omiya Medical Center, Jichi Medical School, Japan
1989-1991 Research Fellow, Department of Medical Zoology and Immunology, Niigata University, Japan
1982-1989 Research Fellow, Department of Surgery, Faculty of Medicine, Niigata University, Japan
Education
1982-1989 Ph.D., Niigata University
1977-1982 M.D., Jichi Medical School

The latest outcome of our research aiming for the human clinical use will be introduced, along with the information regarding our on-going approaches for organ regenerating/replacing technology for small bowel and liver, which has a great potency to change organ transplantation therapy.The small bowel requires the lympho-vascular system for absorbing dietary lipids, and moreover, it cannot be used for treatment unless it maintains its lumen structure and peristalsis. To overcome this challenge, we have developed the novel surgical technique which enabled us to generate a functional small-intestinalized colon (Sugimoto 2021). By using a rat model with short-bowel syndrome and embedding the large bowel graft containing the small bowel organoid to the rat's orthotopic terminal ileum, we succeeded to verify that such organ would function as a hybrid intestine with peristalsis.A breakthrough technique which aimed for the regeneration of a damaged liver by performing the ex vivo machine perfusion culturing. We have also been using rat models to promote the tissue formation of liver organoid aggregation with cardiac cell sheets, bio 3D printers and the ex vivo culturing. However, we still have to confront the significant challenges when treating the large organs. Therefore, by using recovered porcine livers, we are currently developing a device which can perform the machine perfusion culturing system (Yoshimoto 2021).

WT-1

Gender Differences and Prognosis of Renal Transplantation in Hong Kong

Maggie Kam Man Ma

Queen Mary Hospital, University of Hong Kong, Hong Kong

Dr Maggie Ma graduated from the Medical School, the University of Hong Kong and completed her specialist training in nephrology in 2011. She received further training in the field of kidney transplantation at Westmead Hospital, Sydney, Australia under the supervision of Professor Jeremy Chapman in 2013 and had training in blood group incompatible kidney transplant in Tokyo Women University Hospital, Tokyo, Japan, under the supervision of Professor Kazunari Tanabe in 2016. Dr Ma has played a crucial role in pioneering ABO-incompatible and HLA-incompatible kidney transplantation in Hong Kong, with the first case performed at Queen Mary Hospital in 2017 and 2020 respectively.
She is now the Director of Combined Renal Replacement Therapy Services in Queen Mary Hospital and Members of the Paired Kidney Donation Programme Working Group of Hong Kong Hospital Authority. She is also the President of Hong Kong Society of Transplantation and Vice President of Asian Society of Transplantation.

Objective of this lecture:1. Gender specific statistics of kidney transplant in Hong Kong2. Strategies to improve gender disparity

WT-2

Gender Imbalance in Kidney Transplantation in Japan

Yuki Nakagawa[1,2,3], Makiko Mieno[2,4], Taiji Nozaki[3], taiki Ogasa[3], Haruno Kawano[3], Satoshi Muto[3], Harumi Nakamura[2], Fumino Noguchi[2], Hitomi Sasaki[1], Yasutsugu Takada[1], Taihei Ito[1], Yuka Tanaka[1], Takashi Kenmochi[2], Hiroshi Date[1], Shigeo Horie[3]

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[4] *Jichi Medical University, Japan*

a. Background
I am an Associate Professor at Division of Urology, Juntendo University. I am also the Vice Chairman of the Women in Japan Urological Association and the Gender equality Committee in Japan Society for Transplantation. I serve on the Editorial Board for Japan Clinical Transplantation and the Japan Society for transplantation.
b. Career
1991 Tokyo Womens Medical University graduated
1991-1995 Tokyo Womens Medical University, Transplant surgery
1996-2001 I was surgeon at Division of Kidney Transplantation and Urology, Niigata University
2001 I received my PhD degree from the Graduate School of Medical Science, Niigata University.
2001-2016 I have been an Assistant Professor at Division of Urology, Niigata University
2016-2019 I have been an Associate Professor at Division of Urology, Uonuma Institute of Community Medicine Niigata University
2019 - I have been an Associate Professor at Division of Urology, Juntendo University
c. Awards
I received the Commendation for Science and Technology by the Minister of Education award in Japan (2014/4/15)
I received a renal failure clinical condition research award from the Japanese renal foundation (2011/7/21)
I received Poster of Distinction in AMERICAN TRANSPLANT CONGRESS (BOSTON June 2-62012)
I received Best Abstract Award (Gold) in Asian transplantation Week 2017
(ATW2017) (Incheon,Korea October 19-21 2017)
I received the Grants-in-Aid for Scientific Research by base research (A) allotment researcher April 1, 2012 - March 31, 2015
I received the Grants-in-Aid for Scientific Research by base research (C) allotment researcher April 1, 2014 - March 31, 2017

Background: Japan has a chronic shortage of donors. Therefore, ABO incompatible kidney transplantation and kidney transplants between elderly couples are on the rise. We examined how differences in gender and donor age are related to the prognosis of transplanted kidney using the registered data in Japan. Patients and methods: We retrospectively examined 14,604 cases enrolled in JARTRE-W (JApan Renal Transplantation REgistry): from January 2010 to December 2019. Results: Female account for more than 60% of living-donor kidney transplants. However, in cadaveric kidney transplantation, the rate of brain death is higher in male, and more than 60% are male. The following is the survival rate of sexism between donors and recipients. Kidney transplantation from a female donor to a female recipient had the best prognosis, with a 5-year survival rate of 99.2%. On the other hand, kidney transplantation from female donors to male recipients had the worst prognosis, with a 5-year survival rate of 95.4%. Female recipients had a better prognosis for kidney transplant results, but the kidneys donated had a better prognosis for kidney transplants from male donors. We investigated CKD risk factors with an eGFR of 30 mi / min or less one year after 7577 cases in which Cr was confirmed after I year in Japanese living-donor kidney transplantation. Donor age, recipient age, donor body surface area, donor history of diabetes, donor history of hypertension, and Baseline eGFR were significant risk factors. Gender differences were not a significant risk factor. Male donors had significantly higher Body mass index and Body Surface Area than female donors, but had more smokers, hypertension and diabetes rate were high. Serum Cr and eGFR were better for female donors. Conclusion: Female recipients had a better prognosis for kidney transplant results, but the kidneys donated had a better prognosis for kidney transplants from male donors. Male donors are more smokers and have a higher rate of hypertension and diabetes, but the Body mass index and Body Surface Area are significantly larger. Physical disparity is likely to be involved in the prognosis of the transplanted kidney. Further analysis will be conducted in the future to consider coefficient calculation.Key words: Japanese date, Gender, donor body surface area

WT-3

Gender Disparity in Access to and Outcomes after Kidney Transplantation in Asia

Germaine Wong

Department of Transplantation Medicine, Westmead Hospital, Australia

Germaine Wong is a transplant nephrologist, Director of Western Renal Service at Westmead Hospital, Professor of Clinical Epidemiology, NHMRC Leadership Fellow at the University of Sydney, and Co-Director of Clinical Research at Centre for Kidney Research, Childrens Hospital at Westmead. She is the current Chair of the Pillar 2 Women in Transplantation and Associate Editor of Kidney International (KI) (ranked no. 1 in Nephrology), and Transplantation. She has an internationally recognised track record in transplant epidemiology, cancer and transplantation, social ethics in organ allocation, decision analytical modelling, health economics, and quality of life studies in transplant recipients.

Gender disparity in access to transplantation is an important public health issue in Asia. It is well-known that women are less likely to be listed for deceased donor kidney transplantation. Once on the transplant waiting list, they are also less likely to be transplanted. While women make up of over 60% of all living kidney donors, they are 1.5 times less likely to receive a living donor kidney transplant compared to men. More importantly, such disparities in access to transplantation care are exacerbated by the socioeconomic consequences of having chronic illnesses and poor health literacy. The purpose of this talk is to provide an overview of the current issues relating to the gender disparity in access to transplantation across the Asia/Pacific region and to provide strategies to address the gender disparity gap within the transplantation and donation sector in the Asia Pacific region.

WT-4

Gender Differences and Prognosis of Kidney Transplantation Throughout Asia

Miyeun Han

National Medical Center, Republic of Korea

Educational Background and Degrees
Mar 2000 – Feb 2004: Seoul National University College of Natural sciences, Bachelor
Mar 2004 – Feb 2008: Seoul National University College of Medicine, Bachelor
Mar 2012 – Feb 2014: Seoul National University College of Medicine, Master Degree
Sep 2015 – April 2020: Seoul National University College of Medicine, Doctor Degree

Training background

Mar 2010 – Feb 2014	Seoul National University Hospital, Department of Internal Medicine Residency
Mar 2015 – Feb 2017	Seoul National University Hospital, Department of Internal Medicine, Division of Nephrology Fellowship
Mar 2017 – Dec 2020	Pusan National University Hospital, Department of Internal Medicine, Division of Nephrology Clinical Assistant Professor
Jan 2021 – April 2022	Hallym University Hangang Sacred Heart Hospital Department of Internal Medicine, Division of Nephrology Clinical Assistant Professor
May 2022 – current	National Medical Center Department of Internal Medicine, Division of Nephrology

Chronic kidney disease (CKD) shows gender differences in prevalence and rate of progression. As for kidney transplantation (KT), women are less likely to be kidney recipients but are more likely to become living kidney donors in general. Recently, the Asian Society of Transplantation in partnership with the Women in Transplantation highlighted the disparity between male and female KT donors and recipients in the Asia Pacific region. Overall, there was a female predominance of living donors across most countries, however, there showed large differences in the female proportion of donors and recipients. Social factors such as attitude, financial considerations, patriarchy, and coercion were known to attribute as the key contributors to the disparity.

Asian countries are much more dependent on living donor KT than Western countries. Family dynamics or economic factors may affect the selection of donors. In Asia, the proportion of female living donors or recipients varies greatly from region to region. For instance, the Chinese national registry reported on a 66.3% proportion of female living donors. In contrast, the proportion of living donor KT recipients was 22.7% in 2010-2016. An Indian study showed the predominance of females as living donors, contributing over 70% in a single center study with 557 living donors. Studies from Iraq, Iran, and Saudi-Arabia showed that the majority of living donors and recipients were males. Clearly, gender disparity in transplantation and donation in the context of living donation is multifactorial with biological, psychological, and economic factors affecting the gender gap. Through this lecture, we will learn about gender differences in KT throughout Asia.

ABSTRACT

Mini Oral

Day 1 November 25 (Fri), 2022 Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

MO01-1 A Case of Cadaveric Lung Transplantation from a Donor after COVID-19 Infection

Ryoichiro Doi[1], Keitaro Matsumoto[1], Takeshi Tanaka[2], Koichi Tomoshige[1], Ryusuke Machino[1], Tomohiro Obata[1], Satoshi Mizoguchi[1], Takaaki Nakatsukasa[1], Takamune Matsumoto[1], Hiromi Ichikawa[1], Ayumi Tsuji[3], Koichi Izumikawa[2], Takeshi Nagayasu[1]

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[2] *Infection Control and Education Center, Nagasaki University Hospital, Japan*
[3] *Transplant Coordinator, Nagasaki University Hospital, Japan*

Introduction: In Japan, the number of organ donation is significantly decreased during an infectious epidemic because of the possibility of SARS-CoV2 transmission from donors only for lung transplantation. However, even during an epidemic, efforts must be made to save the lives of patients with organ failure while ensuring the safety of medical personnel and transplant recipients. In this study, we experienced a cadaveric lung transplant from a donor after COVID-19 infection during the sixth wave of COVID-19.

Case: The recipient had idiopathic interstitial pneumonia and was on the waiting list for less than one year after registration for cadaveric lung transplantation. The donor had COVID-19 due to a workplace cluster outbreak, and after returning to work after asymptomatic home care, developed subarachnoid hemorrhage and became an organ donor. The donor had a PCR-positive nasopharyngeal swab specimen at 5 weeks after COVID-19 diagnosis (Ct value of 34 and 36 cycles), so the donor was referred to the patient, who was low on the transplant waiting list, after the top institution declined. The patient was consulted by an infectious disease specialist and accepted for transplantation based on very low viral infectivity (from high Ct values), negative retests (bronchial aspirate sputum and nasopharyngeal swab), and the recipient's expectation of antibody retention (previously infected with COVID-19, after 2 vaccinations). Although the donor had a marginal lung with lower lobe atelectasis, a left single lung transplant was performed. Postoperatively, the patient had complications of tacrolimus encephalopathy and acute rejection, but the subsequent clinical course was favorable. Routine PCR testing was performed postoperatively, but there was no evidence of COVID-19 transmission to the recipient.

Conclusion: When performing cadaveric lung transplantation from a donor after COVID-19 infection, it is important to be very careful about SARS-CoV-2 transmission from the donor and to confirm PCR negativity not only with nasopharyngeal swabs but also with lower respiratory tract specimens.

MO01-2 A Case of Successful Single Lung Transplantation After Open Window Thoracotomy for Empyema

Kazunori Ueda[1], Tatsuaki Watanabe[1], Masahiro Ui[1], Ken Onodera[1], Yui Watanabe[1], Takashi Hirama[1], Takaya Suzuki[1], Hirotsugu Notsuda[1], Hisashi Oishi[1], Hiromichi Niikawa[1], Yasushi Matsuda[2], Masafumi Noda[1], Yasushi Hoshikawa[2], Yoshinori Okada[1]

[1] *Department of Thoracic Surgery, Institute of Development, Aging and Cancer, Tohoku University, Japan*
[2] *Department of Thoracic Surgery, Fujita Health University, Japan*

We report a successful right single lung transplantation after open window thoracotomy on the same side for the management empyema caused by bronchopleural fistula after volume reduction surgery.

A 40-year-old woman with lymphangioleiomyomatosis underwent left lung transplantation. Two months later, she developed stenosis at the bronchial anastomosis, which required bronchoscopic intervention. She had dyspnea again and CT showed hyperinflation of the right native lung, which compressed the left lung. A right lung volume reduction surgery was performed 4 months after lung transplantation. Unfortunately, she developed empyema with bronchopleural fistula. An open window thoracotomy with the resection of the right sixth and seventh ribs was performed 7 months after lung transplantation. Moreover, the left superior bronchus and lingula bronchus was severely narrowed.

Although her pulmonary function was poor, she tolerated rehabilitation. The patient was registered for lung transplantation again 11 months after the first transplantation. About 2 years after the registration, right lung transplantation was performed. Although there were firm adhesions around the cavity and on the diaphragm, the right pulmonary hilum was relatively easy to dissect, and then right lung transplantation was performed regularly. Her right chest was primarily closed. She was discharged 64 days after the second transplantation. Two years later, right empyema recurred on the pleura just below the fifth rib. A curettage with 6 cm resection of the fifth rib was performed. Thereafter, she is doing well for 9 years since the second lung transplantation.

This patient experienced severe complications including empyema with bronchopleural fistula. However, our experience showed that lung transplantation can be performed in an open window thoracic cavity.

MO01-3 Inverted (Rotated) Single Lung Transplantation from Cadaveric Donor

Masayuki Chida, Sumiko Maeda, Takahiro Nakajima, Osamu Araki, Takashi Inoue, Shota Umeda, Takehito Aruga

Dept. General Thoracic Surgery, Dokkyo Medical University, Japan

Donor shortage is a critical issue in some areas, thus single lung transplantation remains the procedure of choice for certain patients. In some patients with uneven disease laterality, transplantation for the worst side is usually suitable, though waiting for a specific side may lose the opportunity for lung transplantation. On the other hand, those may benefit by undergoing any side lung donation in order to increase the opportunity for rapid transplantation, even though the available organ is from an unsuitable side. We review our 3 cases of inverted (rotated) single lung transplantation (Chida M , et al. JTCVS Technique 2020; EJCTS 2022). **Cases:** Two men and 1 woman underwent 2 left-to-right and 1 right-to-left single lung transplantation from cadaveric donors. Recipient disease were idiopathic lung fibrosis in one, GVHD lung disease following HSCT for ALL in one, and unknown disease in one. All cases needed ECMO support during operation.Post-operative courses were uneventful. One case died 23 months after the transplantation due to aplastic anemia followed by leukemia without any troubles of inverted lung transplantation. The other case had a bronchial stricture at the anastomosis site 3 months after the transplantation and bronchial intervention was performed periodically until now. **Conclusion:** Inverted (rotated) single lung transplantation is a feasible technique for lung transplantation for patients with uneven disease laterality.

MO01-4 The Effect of anti-CD20 Antibody on Antibody-Mediated Rejection in Murine Orthotopic Lung Transplantation

Hiroki Matsumoto[1], Hidemi Suzuki[1], Takahiro Yamanaka[1], Kai Nishii[1], Hodaka Oeda[1], Yuki Ito[1], Taisuke Kaiho[1], Atsushi Hata[1], Terunaga Inage[1], Takamasa Ito[1], Kazuhisa Tanaka[1], Yuichi Sakairi[1], Shinichiro Motohashi[2], Ichiro Yoshino[1]

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[2] *Departments of Medical Immunology, Chiba University Graduate School of Medicine, Japan*

Background: Antibody-mediated rejection (AMR) is one of the risk factors in chronic lung allograft dysfunction, which impedes long-term survival in lung transplantation. This study aimed to evaluate the efficacy of anti-CD20 antibodies (aCD20) using a murine orthotopic lung transplantation model.

Methods: Murine left lung transplantation was performed using a major alloantigen strain mismatch model (BALBc (H-2d)) > C57BL/6(B6, H-2b)). There were four groups; the isograft group (B6 > B6)(Iso control), the no medication group (Allo control), the Cyclosporine A (CyA) group, and the CyA and anti-mouse CD20 antibody group (CyA+aCD20).

Recipient mice were sacrificed 14 days after lung transplantation. Histopathology, immunostaining, percentage of B cells, serum donor-specific antibody, and cytokines in serum were measured.

Results: Neutrophil capillaritis, arteritis, and positive lung C4d staining were found among the allograft model groups. A-grade and C4d-score were significantly lower in the CyA+aCD20 group compared to the Allo control group (A-grade: 1.6 ± 0.50 vs. 2.5 ± 0.50 p=0.0042, C4d-score: 0.29 ± 0.33 vs. 2.7 ± 0.47 p=0.00089), and to the CyA group (A-grade: 1.6 ± 0.50 vs. 2.4 ± 0.49 p=0.0067, C4d-score: 0.29 ± 0.33 vs. 2.88 ± 0.33 p=0.00063).

In the CyA+ aCD20 group, the percentages of B-cells in the spleen, lymph node, and graft lung (p=0.026, p=0.0087, p=0.0087) and serum levels of donor-specific IgM (p=0.0079) were significantly lower than those of the CyA group. Serum interferonγ (IFNγ) was significantly lower in the CyA+ aCD20 group in comparison with the CyA group (IFNγ: 168.75±11.53 vs. 198.84± 28.16, p= 0.00066).

Conclusions: Anti-CD20 antibody effectively reduced AMR in lung transplantation by reducing donor-specific antibody and complement activation. Further investigation in the basic and clinical study was warranted.

MO01-5 Therapeutic Efficacy of Adipose-Derived Stem Cells in Ischemia-Reperfusion Lung Injury

Yudai Miyashita, Takashi Kanou, Eriko Fukui, Toru Kimura, Naoko Ose, Souichiro Funaki, Yasushi Shintani

Department of General Thoracic Surgery, Osaka University Graduate School of Medicine, Japan

[Background and purpose] Lung transplantation was a well-established surgical treatment for end-stage lung disease. Primary graft dysfunction (PGD) was known to relate to ischemia-reperfusion lung injury (IRLI). To overcome IRLI, we had been studying cell therapy using adipose-derived mesenchymal stem cells (ADSCs), which have been reported to repair not only damaged tissues but also modulate immune responses and suppress rejection in solid organ transplantation. In this study, we aimed to elucidate the molecular pathogenesis of IRLI using RNA sequencing analysis, explain the therapeutic effect and mechanism of ADSCs, and explore the feasibility of ADSCs as a preventive measure against IRLI. [Method] Hilar occlusion ischemia-reperfusion model of mice was used in this experiment. Under general anesthesia, the left pulmonary hilum was clamped for 1 hr. ADSCs were administered via the transvenous route. After 3 hrs, the efficacy of treatment was determined by established analytical methods. After physical disruption or enzymatic dissociation of tissue samples, RNA sequencing analysis was performed. [Result] The treatment group treated with ADSC had improved blood arterial gas and degree of pulmonary edema compared to the control group(median PF ratio 414.3 vs. 261.9($p<0.05$), median wet-dry ratio 4.2 vs. 5.1($p<0.05$)). RNA sequencing revealed that PPARg pathway played a significant role in improving the IRLI. [Conclusion] We found that the improvement of IRLI by ADSC involved the PPARg pathway. Further studies were scheduled.

MO02-1 Acquisition of Antibody Against Cytomegalovirus in Seronegative Kidney Transplant Recipients

Shoko Ishikawa, Masayuki Tasaki, Kazuhide Saito, Masahiro Ikeda, Yoshihiko Tomita
Department of Urology, Niigata University Graduate School of Medical and Dental Sciences, Japan

Backgrounds: Previous studies showed that the risk of Cytomegalovirus (CMV) infections after kidney transplantation (KTx) depended on serostatus of donor and recipient. The timing of seroconversion in relation to CMV infection in seronegative recipients remain obscure. We evaluated the CMV infections in seronegative recipients and how long it took to acquire immunity against CMV.
Materials and Methods: This is a retrospective study of 228 recipients who underwent KTx between 1988 and 2018 and were followed up in Niigata University Hospital. The status of anti-CMV IgG antibody (Ab) before and after the KTx were analyzed. Oral Acyclovir (ACV) or Valganciclovir (VGCV) were used as prophylactic therapy for six months after KTx. We defined CMV infection as CMV viremia detected by CMV pp65 antigenemia assay.
Results: Fifty recipients (21.9%) were CMV seronegative in this study. In 75.8 months of median follow-up periods, 60% of the CMV seronegative recipients experienced CMV viremia or overt disease. The median duration from KTx to first CMV infection was 62.5 (range 22-414) days. All the recipients who experienced CMV infections acquired anti-CMV IgG Ab in median 9.86 (95%CI; 7.1-20.2) months, and all the positive conversion of anti-CMV IgG Ab were observed within 2.5 years after KTx. In this study, late-onset CMV disease did not occur thereafter even if the patients could not acquire anti-CMV IgG Ab.
Conclusions: In clinical practice of CMV seronegative recipients, we should note CMV infections until 2.5 years after KTx if the donors are CMV seropositive.

MO02-2 Long-Term Outcomes of Kidney Transplantation after Cryptococcal Infection

Yu Nong Kao[1], Tung-Min Yu[2], Shang-Feng Tsai[2,3], Ming-Ju Wu[2,3,5], Cheng-Hsu Chen[2,3,4,5]
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[3] *Department of Post-Baccalaureate Medicine, College of Medicine, National Chung Hsing University, Taiwan*
[4] *Department of Life Science, Tunghai University, Taiwan*
[5] *School of Medicine, China Medical University, Taiwan*

Background: Kidney transplantation (KTx) is the most favorable management of renal replacement therapy; however, they are facing rejections, malignancies and infections attributed to immunosuppressive therapy lifelong. The solution with opportunistic infections is tough and data regarding cryptococcal infection post-transplantation remains limited. This study aims to evaluate the outcomes of recipients who developed cryptococcal infection after KTx.
Materials and Methods: KTx recipients who acquired cryptococcal infection at a medical center in Taiwan were reviewed from 1991 to 2022. The primary outcome of patient and renal allograft survival was analyzed by Kaplan-Meier analysis.
Results: The study comprised 12 recipients. Of them, patients with rejection episodes before the event of cryptococcal infection accounted for 10 (83.3%) cases. Cryptococcal infection developed at a median time of 47 months post-transplantation. Comparison of infection sites disclosed that 7 (58%) had pulmonary, 5 (42%) had CNS, and 1 (8%) had skin infection. 1 (8%) of the patients had uveitis, 3 (25%) had cryptococcal fungemia, and 6 (50%) had disseminated cryptococcosis. The patient survival and renal graft survival analyzed by Kaplan-Meier analysis demonstrated 82.5% and 81.5% at 5-year, 72.2% and 71.3% at 10-year, 48.1% and 59.3% at 15-year, respectively.
Conclusions: This study revealed that most KTx recipients develop cryptococcal infection after precedent management of rejection. Thus, transplant clinicians need to be aware of infectious situations, particularly after over-immunosuppression.

MO02-3 Incidence and Outcome of Herpes Zoster in Kidney Transplant Recipients

Mariko Toyoda[1], Chiaki Kawabata[1], Toshinori Ishizuka[1], Satoshi Hamanoue[1], Yuji Hidaka[2], Shigeyoshi Yamanaga[2], Yasuhiro Yamamoto[3], Akito Inadome[3]

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[2] *General Surgery, Japanese Red Cross Kumamoto Hospital, Japan*
[3] *Urology, Japanese Red Cross Kumamoto Hospital, Japan*

Background: Herpes zoster (HZ) results from reactivation of varicella-zoster virus (VZV) after primary infection. Solid organ transplant (SOT) recipients are at increased risk of VZV reactivation because of reduced T cell-mediated immunity. The purpose of this study was to evaluate the incidence and outcomes of HZ after adult kidney transplantation.
Methods: In our institution, 243 patients underwent adult kidney transplantation from January 2011 to December 2021. We retrospectively analyzed incidence, severity, and outcomes among them.
Results: HZ was diagnosed 28 cases in 25 of 243 (10.3%) patients. Two patients experienced recurrent infections. Median age at diagnosis was 54.5 years, median time to the onset of HZ after KTx was 105 months(6-112) . Ten of Twenty-five(40%) patients were immunologically high-risk patients (i.e., ABO incompatible, DSA positive). Seventeen of twenty-five (68%) patients are over 50. No patients had CMV prophylaxis at the time of onset. All of them were treated with valganciclovir, nine of twenty-eight (32.1%) cases added nerve block. There were no patients of disseminated disease and cranial nerve involvement. One had herpes zoster keratitis. Post-herpetic neuralgia (PHN) occurred in 2 of 28 (7.1%). Occurrence of HZ did not affect renal function.
Conclusions: Although HZ did not affect renal function, it had significant adverse effects on quality of life. Non-live adjuvanted subunit HZ vaccination would be recommended for KT recipients over 50.

MO02-4 Strategy Against Latent Tuberculosis Infection in Recipients of Living Donor Kidney Transplantation

Akira Kondo[1], Kazuki Haruguchi[1], Takeshi Hachisuka[1], Kazuhiro Iwado[2], Tomonori Kawase[1], Akihito Sannomiya[1], Ichiro Koyama[1], Ichiro Nakajima[1]

[1] *Department of Kidney Surgery, Organ transplant Center, Itabashi Central General Hospital, Japan*
[2] *Department of Blood Purification, Tokyo Womens Medical University, Japan*

Objective Japan is a country with an intermediate prevalence of tuberculosis(TB). The screening and prophylactic measure of latent tuberculosis infection(LTBI) before transplantation are recommended for organ transplant recipients. Since there are few data on the prevalence of LTBI in living donor kidney transplant candidates in Japan. We investigated the prevalence of LTBI and the effectiveness of prophylactic measure for LTBI.
Methods 43 living donor kidney transplant candidates who were screened for LTBI using T-SPOT were investigated. LTBI was diagnosed by T-SPOT positive along with no symptoms, no active TB lesion on Computed Tomograph(CT), and no apparent history of TB. Patients diagnosed with LTBI received Isoniazid 5mg/kg/day 6 months before transplantation.
Results Five out of 43 patients were diagnosed with LTBI. Four patients were from high risk countries for TB and another lived in Japan. They received Isoniazid and no one developed active TB after transplantation.
Conclusion Screening and prophylactic measure for LTBI before transplantation were empirically effective not only to prevent active TB but also to ensure the favorable outcome of kidney transplantation.

MO02-5 Kidney Transplantation Associated with HTLV1 Carriers: A Single-Center Clinical Experience from Japan

Yasutoshi Yamada[1], Akihiko Mitsuke[1], Takashi Sakaguchi[1], Jyunya Arima[1], Masato Minami[2], Hiroshi Yoshino[1], Hiroaki Nishimura[1], Shuichi Tatarano[1], Hideki Enokida[1]

[1] *Department of Urology, Graduate School of Medical and Dental Sciences, Kagoshima University, Japan*
[2] *Department of Digestive and Lifestyle Diseases, Graduate School of Medical and Dental Sciences, Kagoshima University, Japan*

Objectives: The human retrovirus, HTLV-1 is known as a cause of adult T-cell leukemia (ATL) and HTLV-1-associated myelopathy (HAM). HTLV-1 infection often occurs in HTLV-1 endemic areas such as Japan, the Caribbean, Central and South America and tropical Africa. We report HTLV-1 associated kidney transplantation and complication in Kagoshima prefecture, where is the most prevalent area in Japan.
Materials and methods: From 1986 until 2022, we performed a total of 250 kidney transplantation. Of the 250 cases, 11 were HTLV1-related renal transplants. We investigated HTLV1-related complication.
Results: 8 were from seronegative donors to seropositive recipients, 2 were from seropositive donors to seropositive recipients, and one case was from unknown donor to seropositive recipient. In recipients. There was only one case of ATL, and this was in the donor-negative, recipient-positive group. The patients developed ATL 8 years after transplantation. Chemotherapy was administered, but the patient died 9 months after diagnosis. There was no incidence of HAM. Graft loss was only one case. In donors, there was no incidence of ATL and HAM.
Conclusion: In most case, transplantation was performed without HTLV-1releatd complication. But, once ATL develops in recipients, there is no curative treatment. Under r the circumstance, kidney transplantation should be performed with adequate Informed consent for HTLV-1 carrier recipients.

MO02-6 *RBBP7* as A Novel Biomarker for the Molecular Diagnosis of BK Virus-Associated Nephropathy

Yicun Wang, Yuxuan Wang, Xiaopeng Hu, Xiaodong Zhang

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BK virus-associated nephropathy (BKVN) remains a major infectious complication of kidney transplantation, and its histologic appearance can mimic rejection, leading to a diagnostic dilemma with significant implications in patient management. The current study aims to apply machine learning methods to identify molecular biomarkers in renal biopsy to distinguish BKVN from rejection. We collected gene expression profiles of 169 kidney biopsies taken from BKVN, rejection and stable functioning allografts included in two independent transplantation cohorts from Gene Expression Omnibus database. Based on single sample gene set enrichment analysis, the performance of 50 hallmark biological states or processes was estimated and random forest algorithm identified 3 hallmarks associated with DNA damage and proliferation activities as BKVN-specific hallmarks. Subsequently, weighted gene co-expression network analysis and support vector machines algorithm detected *RBBP7* as a promising and robust diagnostic biomarker in distinguishing BKVN from rejection states in both training and validation cohorts (AUC = 0.938, 0.977, respectively). Moreover, *RBBP7* showed better diagnostic ability in comparison with other biomarkers proposed by previous studies. The current study provided a molecular biomarker contributing to BKVN diagnosis thus benefiting patient management in clinical practice.

Day 1 November 25 (Fri), 2022 Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

MO03-1 Impact of Carbon Monoxide on Ischemia Reperfusion Injury in an *Ex Vivo Porcine Model of Donation After Circulatory Death*

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INTRODUCTION: Chronic kidney disease is a devastating condition that affects millions of people around the world. When end-stage kidney failure occurs, kidney transplantation is the best treatment option. Due to a shortage of living donors, donation after cardiac death (DCD) kidneys are often used for transplants. DCD kidneys are particularly susceptible to ischemia reperfusion injury (IRI). IRI is mediated by toll-like receptors (TLRs) which are activated due to tissue injury, leading to the transcription of pro-inflammatory cytokines. The inflammation and cellular damage associated with IRI can cause delayed graft function and graft failure in renal transplants. Previous studies have shown that carbon monoxide (CO) has anti-inflammatory properties. We hypothesize that CO will reduce inflammation in *ex vivo* renal porcine models under DCD transplant conditions.
METHODS: To test our hypothesis, large, male, Landrace pigs were subject to in situ cross-clamping of the renal pedicle to simulate DCD conditions. We then removed the kidneys and treated them with gaseous CO before putting them on a pulsatile perfusion pump for 12 hours. We then reperfused the kidneys with stressed porcine blood for 4 hours. Tissue, urine, and blood samples were taken. Levels of pro-inflammatory cytokines and kidney damage will be measured using enzyme-linked immunosorbent assay (ELISA) specific for porcine HMGB1, NGAL and IL-6. To assess levels of acute tubular necrosis and apoptosis, pathological staining and grading with hematoxylin-eosin and TUNEL stains have been performed. Expression of TLRs in porcine renal transplant models will be explored using immunohistochemistry.
RESULTS: Preliminary results indicate that CO reduces levels of acute tubular necrosis and apoptosis in CO-treated kidneys compared to control kidneys. We expect that CO-treated kidneys will express higher levels of pro-inflammatory cytokines and kidney injury markers than their control counterparts. We expect to see many different TLRs expressed on renal porcine tissue.
CONCLUSION: This study concludes that the application of CO may reduce IRI-mediated damage in transplanted kidneys, and lead to the long-term graft survival of more DCD kidneys. The pulsatile pump model is designed in such a way that we will be able to use drug therapy for further improvement as drugs metabolize better near body temperature. Our goal is to repurpose drugs already on the market in addition to the pulsatile perfusion system.

MO03-2 The Influence of Prolonged Cold Ischemic Time on Acute Cellular Rejection After Heart Transplantation

Yong Yang, Takayuki Gyoten, Eisuke Amiya, Masaki Tsuji, Mitsutoshi Kimura, Masaru Hatano, Minoru Ono
The University of Tokyo, Japan

Background: The aim of this study was to evaluate the impact of cold ischemic time (CIT) on acute cellular rejection (ACR) after heart transplantation (HTx).
Methods: We retrospectively evaluated medical records of 125 adult patients who underwent HTx between May 2006 and December 2019 at our Hospital. Two groups: ACR- and non-ACR group were created, based on scheduled myocardial biopsy results. ACR was defined as biopsy-proven ACR of grade ≥2R (the ISHLT grade). The patients with ACR were intensively treated by steroid pulse and optimization of immunosuppression (IS).
Results: We evaluated 1375 myocardial biopsy results of 125 patients [43 years (IQR, 33-52) at HTx, and 92 (74%) male]. Finally, a total of 1320 biopsies were analyzed except indeterminate biopsy results (n=55). During the study, 67 recipients (53.6%) had a diagnosis of ACR. Most of ACR (n=59, 88%) was diagnosed within 1 year after HTx. Multivariable logistic regression model for ACR within 1 year identified CIT≥4h as an independent risk factor (OR 10.7, 95%CI, 1.23-93.9, p=0.032). Median CIT was 176 minutes, and there were 9 (7.2%) recipients with CIT≥4h. In all cohort, 5-and 10-year survival rate was 92.2% and 86.0%, respectively. 5-year survival rate was 76.2% in patients with CIT≥4h and 93.5% in patients with CIT<4h (Log-rank test, p=0.018), respectively.
Conclusion: Prolonged cold ischemic time may lead to acute cellular rejection within first year after HTx and reduce the long-term survival. The selection of donor heart of an expected cold ischemic time≥4h should be considered carefully.

MO03-3 Current Religious Beliefs Do Not Explain the Low Rates of Organ Transplantation in Thailand

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Background: Compared to 37,580 transplants per million patients (pmp) in the U.S. in 2020, Thailand reported only 862 transplants pmp(1). 95% of the Thai population is Buddhist, which teaches followers to avoid any action after clinical death that may cause trauma in their journey to rebirth. We sought to determine the effects of Thai culture and Buddhist religion on attitudes toward transplantation and willingness to donate organs.
Methods: 138 participants at King Chulalongkorn Memorial Hospital completed a survey of 50 close-ended questions.
Results: Overall, 82.91% of participants believed organ donation is religiously and culturally appropriate. Support of organ donation among participants was 91.67% but only 20.83% were registered as organ donors. 73.68% of unregistered organ donation supporters stated the desire to have their organs donated after death. Only 16.95% of participants agreed it is important for a body to have all of its parts when buried. Willingness to donate and receive an organ was 87.29% and 81.90%, respectively.
Conclusion: Survey responses indicated a high rate of acceptance for organ donation. Only a minority of respondents were registered organ donors but majority of unregistered participants stated that they are willing to donate their organs. Low rates of transplantation in Thailand seem to be unrelated to Buddhist and cultural beliefs. Further investigation is necessary to determine the reasons for these results as well defining future pathways for increasing organ donor registration in Thailand and other Southeast Asian countries.

MO03-4 AI Model of Kidney Cortex Volume for Incorporation into Routine Donor Evaluation

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Background
Computer tomography images can accurately map vasculatures, identify abnormalities and potentially measure split renal function through length or volume of each kidney. The purpose of this study was to develop and validate an automated method to segment and measure kidney cortex volume on contrast-enhanced abdominal CT images of kidney donors.
Methods
The predonation arterial phase CT DICOM images of living kidney donors were downloaded and uploaded to 'OncoStudio' (OncoSoft Inc., Seoul, South Korea), which was used as the AI-based auto-segmentation tool. The AI model within the OncoStudio has a U-Net structure based on a 3D Dense block and automatically proceeds to CT site detection and segmentation without clicking by humans. For this study, a total of 42 datasets were used, 35 for training, 2 for validation, and 5 for independent testing.
Results
The consistency between manually segmented volumes and automatically segmented volumes based on AI was evaluated. The statistics for a total of 10 organs were calculated by combining the left and right cortex of five testing datasets. The Dice similarity coefficient (DSC) representing the degree of agreement between 3D volumes was 0.74, and the Hausdorff distance 95% (HD95) representing the lower 95% distance between 3D surface points was 4.29 mm.
Conclusion An automated method for measuring kidney cortex volume was successfully developed. The auto segmentation program can be a time saving and promising evaluation tool for donor suitability and split renal function.

MO03-5 Pure Laparoscopic Donor Hepatectomy Reduces Postoperative Analgesic Use and Pain Scale

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Background: In recent years, the efficacy and safety of pure laparoscopic donor hepatectomy (PLDH) have been widely reported, and we investigated the extent to which this technique could reduce the patient's own pain.
Material and Methods: Of the donor left hepatectomy performed between July 2011 and July 2022, 20 open donor hepatectomy (ODH), 20 laparoscopy-assisted donor hepatectomy (LADH), and 4 PLDH were retrospectively analyzed in terms of the total amount of postoperative analgesic use (narcotics, non -narcotics) and the first date when the donor was completely pain-free on a pain scale evaluated by the patients themselves. The comparison was made among 3 procedures.
Results: For the total postoperative fentanyl use (median [range] (mg)), there was no significant difference among 3 procedures (ODH vs. LADH vs. PLDH, 0.5 [0-2] vs. 1.2 [0-7] vs, 0.5 [0.5-3.5] , p = 0.259). However, there was a trend toward the higher percentage of patients completely off analgesics on POD5 in PLDH (75%) compared with ODH (35%) and LADH (20 %) (p = 0.095). Among ODH, LADH, and PLDH, the date when 50% of donors were completely pain-free on a pain scale was POD9, POD11, and POD4, respectively, which was significantly shorter in the laparoscopic group (p = 0.006).
Conclusion: Although PLDH is still in its developmental stage and needs further investigation, the results suggest that it is effective in terms of postoperative analgesia.

MO03-6 Clinical Significance of the Living Kidney Donor Profile Index in Living Kidney Donors for Predicting of Post-Transplant Long Term Outcome: Korean Organ Transplantation Registry

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Background: The usefulness of the living kidney donor profile index (LKDPI) has not been widely demonstrated; it therefore requires verification before clinical application. We analyzed the LKDPI using data from the Korean Organ Transplantation Registry (KOTRY) to confirm whether the LKDPI could be used to predict the survival of allografts in living donor kidney transplantation (LDKT) patients in Korea.
Methods: The study population was obtained from the KOTRY database. 2,598 kidney recipients registered in the KOTRY database were enrolled between May 2014 and December 2020. Donor and recipient information was observed and LKDPI was measured.
Results: The median LKDPI was 15.5 with follow-up duration of 33.7±16.1 months. According to LKDPI quartile group (quartiles 1: -80.7~-4.9, quartiles 2: -4.8~17.9, quartiles 3: 18.0~37.6, quartiles 4: 37.7~118.6), the LKDPI quartiles 4 had significantly higher death-censored graft loss than the LKDPI quartiles 1 (hazard ratio [HR] , 1.846; 95% confidence interval [CI] , 1.003-3.395; p=0.049). In multivariable analysis, graft loss increased as LKDPI increased by 1.01-fold (CI, 1.00-1.02; p =0.0445). When divided based on the cutoff value, the high LKDPI group had higher graft loss than the low LKDPI group. When follow-up was repeated after transplantation, it was confirmed that the higher the LKDPI value, the lower the average estimated glomerular filtration rate (eGFR).
Conclusions: This study confirmed that the LKDPI could be an independent predictor for assessing the risk of allograft failure and outcome in Korean LDKT patients. This could be useful for patients who are awaiting deceased donor kidney transplantation (DDKT) and undergoing LDKT.

MO03-7 Longitudinal Mortality Risks and Renal Functional Outcomes in Japanese Living Kidney Donors

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Purpose: Living-kidney donor risk of death or end-stage kidney disease (ESKD) after donation for long-term period remains controversial. We aimed to evaluate the long-term outcomes, including mortality and renal function, in Japanese living kidney donors.

Methods: We collected the data of 299 living kidneys donor (76 male, 153 female) who underwent nephrectomy between 1965 and 2015 at our hospital. The median age was 54 years (range, 26-75 years). We evaluated mortality, cause of death, ESKD incidence, and changes in renal function.

Results: The median follow-up duration was 11.0 (range, 1-41) years. Two hundred fourteen donors were still alive, and 15 died, whose median interval between donation and death was 9.9 (2.0–32.8) years. The following causes of death were observed: malignancies, 9; cardiovascular disease, 2; pneumonia, 1; suicide, 1; gastrointestinal bleeding, 1; and renal failure 1. Donor survival rates at 10, 20, and 30 years were 95.3%, 90.7%, and 80.9%, respectively; these values were comparable to age- and gender-matched expected survival of general population in Japan. Two donors developed ESKD out of 186 whose renal function after donation was available; 24 and 26 years after donation due to contrast-induced nephropathy. 38 showed new-onset estimated glomerular filtration rates (eGFR) < 45ml/min (Low-GFR) after donation. However, the survival rates of Low-GFR donors were comparable to those of donors with eGFR 45 or higher ml/min.

Conclusion: Our data suggested that kidney donors did not have increased long-term risk of death compared to the general population. Although some donors showed decreased kidney function after donation, renal function had no impact on their survival.

Day 1 November 25 (Fri), 2022 Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

MO04-1 Donor's Long-Term Quality of Life in Living-Donor Lobar Lung Transplantation

Kento Fujii[1], Shin Tanaka[1], Megumi Ishihara[1], Kei Matsubara[1], Kohei Hashimoto[1], Kazuhiko Shien[1], Ken Suzawa[1], Kentaro Miyoshi[1], Shinji Otani[2], Hiromasa Yamamoto[1], Mikio Okazaki[1], Seiichiro Sugimoto[1], Masaomi Yamane[3], Shinichi Toyooka[1]

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Background: Living-donor lobar lung transplantation (LDLLT) is a life-saving therapy for end-stage and emergent respiratory disease, but few reports have discussed the long-term effects of health-related quality of life (HRQOL) in living lung donors.
Methods: We conducted a cross-sectional survey of living lung donors at Okayama University Hospital from October 1998 to December 2019, assessing HRQOL with the 36-Item Short Form Health Survey (SF-36), which includes a physical, mental, and role-social component summary (respectively abbreviated as PCS, MCS, RCS).
Results: Of 174 donors, 117 (58 female and 59 male) agreed to participate in this study. Mean donor age at LDLLT was 38.7 (10.1) years. Donor-recipient relationships included 33 siblings, 13 spouses, 51parents 17children, and 3others. Mean recipient age was 29.0 (15.9) years and mean lung allocation score (LAS) was 51.3 (16.2). Twenty (28%) recipients died following LDLLT. Average overall SF-36 scores exceeded the national average, but some donors had PCS, MCS, or RCS scores lower than the national average. Low MCS predictors included donor age (< 40 years) (odds ratio [OR] = 10.2, $p < 0.001$) and recipient age (< 18 years) (OR = 2.73, $p < 0.032$). Low RCS predictors included high LAS (50) (OR = 3.94, $p < 0.002$) and recipient death (OR = 3.63, $p = 0.005$). No predictors were associated with PCS.
Conclusions: Donors had high long-term HRQOL following donations. It is important to inform potential donors of relevant risk factors and support those at risk of reduced HRQOL.

MO04-2 Outcomes of Lung Re-Transplantation

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Background: Though the posttransplant survival curve has improved, chronic lung allograft dysfunction (CLAD) remains a hindrance to survival. Lung re-transplantation (Re-LT) has been performed as a treatment option for CLAD. We investigated the outcomes of Re-LT cases in our institution.
Method: A total of 304 lung transplantations (LTs) occurred in our institution. There were 186 cases with deceased donors, 117 cases with living donors, and one hybrid case. Among these, eight Re-LT cases (2.6%) were retrospectively analyzed.
Results: During the initial LT, the ages of the Re-LT patients ranged from eight to 51 years old. The combinations of the donor sources (initial LT/Re-LT) were living/living in 2 cases, living/deceased in 3 cases, deceased/living in 2 cases, and deceased/deceased in 1 case. One case involved a pediatric patient who underwent unilateral LT from a living donor and contralateral LT from another living donor for progressive severe primary graft dysfunction 17 days after the initial LT. For the remaining cases, Re-LT was performed to treat CLAD after the initial LT. Six adult cases received bilateral living donor LT or unilateral deceased donor LT. However, one pediatric patient underwent bilateral LT from a deceased donor for CLAD after unilateral LT from a living donor. The interval from the initial LT to Re-LT ranged from 17 to 3724 days. The one-, three-, and five-year survival rates after Re-LT were all 72.9%. Those of the initial LT were all 87.5%.
Conclusion: Re-LT is a viable treatment option for lung transplant recipients with CLAD.

MO04-3 Prognostic Factors in Patients with Pulmonary Arterial Hypertension Referred for Lung Transplantation

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Background: Lung transplantation (LT) is the only option for patients with advanced pulmonary arterial hypertension (PAH) refractory to maximal medical therapy. Because of the extended waiting period as long as three years in Japan, PAH patients are referred anticipating this period. However, some patients referred for LT could survive without LT, and its determinants remain unknown. This study aimed to reveal the prognostic factors of severe PAH at the time of referral and identify patients who could survive without LT.
Methods: We retrospectively analyzed 34 patients with severe PAH referred to our transplant center for LT evaluation. Patients with contraindications to LT or right-to-left intracardiac shunts were excluded. The primary outcome was a composite of death or LT.
Results: Over a median follow-up period of 2.56 years, eight patients received LT and eight died. Compared with LT-free survival group, pulmonary arterial systolic pressure (PASP) estimated by echocardiography was significantly higher, and the ratio of tricuspid annular plane systolic excursion (TAPSE) to PASP (TAPSE/PASP) was significantly lower in LT or death group. In receiver operating characteristic analysis, the area under the curve was 0.759 for TAPSE/PASP to predict death or need for LT, and the optimal cut-off value was 0.30 mm/mmHg. In a multivariate analysis, TAPSE/PASP was independently associated with death or LT.
Conclusions: Evaluating the TAPSE/PASP ratio could contribute to risk stratification in severe PAH patients referred for LT evaluation.

MO04-4 Psoas Muscle Index Associated with the Survival of Patients on a Waiting List for Lung Transplantation

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Background: Recently, undernutrition has been considered a prognostic predictor of various diseases. Sarcopenia can be assessed by cross-sectional area of the psoas muscle using CT, and sarcopenia of the psoas muscle is associated with poor outcome after lung transplantation (LT). In addition, a low psoas muscle index (PMI) in liver transplant candidates is associated with high risk of waitlist mortality, but the association with this in patients on the lung transplant waiting list is unknown. In this study, we investigated the impact of PMI on the survival in patients awaiting for LT.
Methods: 101 adult patients were newly listed for LT from 1 Jan 2011 through 31 Dec 2020 at Osaka University hospital, of which 81 cases were enrolled. In the evaluation of PMI, the cross-sectional areas of the right and left psoas muscles were measured by preoperative CT scan imaging at 3rd lumbar vertebrae level and PMI was calculated by normalizing the cross-sectional areas for height (cm2/m2). The cut-off value for each factor was the median, and the Wilcoxon test was used for univariate analysis and the Cox proportional hazards model for multivariate analysis.
Results: 43 patients (53%) were male, median age at enrollment was 46 years, and the most common disease was idiopathic interstitial pneumonia (IP) in 33 patients (41%). The median follow-up period was 1243 days. 23 patients (28.4%) died during the follow-up period and 20 patients (24.7%) underwent LT. These patients were removed from the waiting list during the follow-up period. In terms of prognosis, univariate analysis showed significant differences in patients with IP, steroid usage, oxygen at exertion, and low PMI, while in multivariate analysis, with IP and low PMI were independent poor prognostic factors ($p < 0.05$).
Conclusion: LT candidates with low PMI may be associated with high risk of waitlist mortality.

MO04-5 The Significance of Non-HLA Autoantibodies in Lung Transplantation

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Background: Lung transplantation (LuT) generally shows poor outcomes compared to other solid organ transplantations. Chronic lung allograft dysfunction (CLAD) is the most crucial factor related to such dismal outcomes. While the role of non-HLA antibodies in kidney or liver transplantation is well established, little is known regarding LuT. This study aims to evaluate non-HLA autoantibodies in LuT recipients.
Methods: Forty-eight patients who received LuT at Samsung Medical Center were investigated. Thirty-nine pre- and 25 post- transplant sera were subjected to Luminex bead array tests for detecting 39 non-HLA autoantibodies and HLA-specific antibodies as well as anti-angiotensin type 1 receptor (AT1R) antibody by ELISA.
Results: A total of 28 patients, excluding 17 patients who died within a year after LuT and 3 re-transplanted patients, were dichotomized by the latest ISHLT CLAD definition: non-CLAD (N=20) and CLAD group (N=8). Fisher's exact tests showed the effectiveness of three autoantibody predictors for CLAD; PLA2R of pre-transplant sera (P=0.013), PECR of post-transplant sera (P=0.017), PPIA of post-transplant sera (P=0.028,). Of 4 patients with HLA donor-specific antibodies (DSA), three patients died from empyema, graft failure, and intracranial hemorrhage within a year and one survived for more than one year without manifestation to CLAD. The presence of autoantibodies did not correlate with primary graft failure and presence of DSA in our patients.
Conclusions: The presence of pre-transplant PLA2R autoantibodies might be a predictor of CLAD and post-transplant PECR and PPIA could be a marker of CLAD, however, further evaluation with a larger population of LT recipients would be warranted.

MO05-1 Evaluation of Cases of Cytomegalovirus Infection After Renal Transplantation at Our Department

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Recent advances in immunosuppressive agents and preoperative desensitization therapy have made it possible to perform renal transplantation for immunologically high-risk cases, though the management of infections after transplantation remains a major challenge. Cytomegalovirus (CMV) infection is one of the most important infectious diseases that can be a problem after renal transplantation. We report here a review of CMV infection in patients undergone renal transplantation at our department.

We studied 395 patients who underwent renal transplantation between 2019 and 2021. No patients received CMV prophylaxis. 51 patients (12.9%) developed CMV infection after transplantation. There were no significant differences between the groups with and without CMV infection in terms of patient background such as age, gender, ABO-blood-type compatibility, and HLA compatibility. The CMV-infected group received preoperative intravenous immunoglobulin (IVIg) desensitization more frequently compared to the CMV-uninfected group (15.7% vs 7.0%, p=0.038). No clear significant differences were observed in the other desensitization therapies.

The data collectively suggests that the use of IVIg in preoperative desensitization therapy may increase the risk of CMV infection. The risk factors indication of prophylaxis for CMV infection should be assessed in future studies.

MO05-2 Tuberculosis After Solid Organ Transplantation: A Nationwide Population-Based Study in Taiwan

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Background: Tuberculosis (TB) is a serious opportunistic infection in patients who underwent solid organ transplantation due to long-term immunocompromised status. Use of immunosuppressive agents that prevent organ rejection are also the risk factors leading to unwanted infectious complications. The diagnosis of TB in transplant recipients may be challenging and delayed. Furthermore, the drug-drug interaction between anti-TB treatment and immunosuppressive may be problematic that associated with graft rejection. TB is one of leading infectious diseases worldwide. The annual incidence rate of TB in the general population in Taiwan was 33/100000 in 2020, which showed a continuous lowering trend since 2005. The association of solid organ transplantation and subsequent TB infections requires a more updated epidemiological study.

Methods: The claims data for solid organ transplantation recipients during 2009-2017 were retrieved using Taiwan's National Health Insurance Research Database. We identified patients who underwent solid organ transplantation using the NHI reimbursement database in 2009-2017. Diagnosis and procedure code are listed as follows: heart transplant (68035A, 68035B), lung transplant (68037A, 68037B, 68047B), liver transplant (75020A, 75020B), kidney transplant (76020A, 76020B), pancreas transplant (75418B). Subsequent TB infections cases were identified for those who have TB-related ICD-9 code (010-018) or ICD-10 code (A15-A19), who were not diagnosed with TB in previous year, and who have been prescribed with 2 or more types of anti-TB drugs for at least 30 days. The TB cases and non-cases were further sorted by type of transplanted organs and year of transplantation.

Results: A total of 8026 patients who underwent solid organ transplantation were identified during 2009-2017: 685 heart, 59 lung, 4495 liver, 2711 kidney, and 76 pancreas. Among the solid organ transplant recipients over the periods, 191 patients (2.38% of 8026 patients) were subsequently diagnosed with TB. The cumulative and annual incidence of TB in solid organ transplant recipients is higher compared with the general population in Taiwan (41/100000 in 2017). In addition, the risk of TB varied by different types of transplanted organs. There were 21 (3.07%) heart transplant, 3 (5.08%) lung transplant, 107 (2.38%) liver transplant, and 60 (2.21%) kidney transplant recipients developed TB. Our results also revealed a trend toward lower incidence rate of TB by year of transplantation. In 2009 to 2017, there were 27 (3.56%), 26 (3.29%), 43 (4.66%), 19 (2.24%), 18 (1.94%), 17 (1.70%), 20 (2.06%), 13 (1.41%), 8 (0.90%) recipients who developed TB, respectively.

Conclusions: Solid organ transplant recipients in Taiwan are at high risk of subsequent TB infection, which varied by type of transplanted organ. Routine screening in high risk patients may help to facilitate early diagnosis and optimal intervention.

MO05-3 A Case of EBV-Associated Malignant Lymphoma with Acute Exacerbation After Living Donor Liver Transplantation Without Preoperative Diagnosis

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(Introduction)
Post-Transplant-Lymphoproliferative-Disease, which occurs after organ transplantation, is often caused by the proliferation of Epstein-Barr virus (EBV) under immunosuppressive conditions. In this study, we report our experience with EBV-associated malignant lymphoma that may have developed preoperatively in a recipient previously infected with EBV.
(Case presentation)
The patient was a man in his 60s. He underwent living donor partial liver transplantation for multiple liver cysts. His blood type was compatible (O to A) and EBV was IgG-positive, IgM-negative, and previously infected. Preoperative EBV DNA quantification was not performed. Post-liver transplant immunosuppressive agents used were tacrolimus, mycophenolate mofetil, and prednisolone. On postoperative day 34, the patient developed metabolic acidosis, impaired consciousness, and worsening respiratory status. The patient was managed in intensive care unit with a diagnosis of pneumonia and intra-abdominal abscess, and follow-up computed tomography revealed an intra-abdominal mass and enlarged lymph nodes. Postoperative pathology showed monoclonal proliferation of CD20-positive atypical lymphocytes in the perigallbladder tissue attached to the explanted liver, which was positive for EBV-encoded RNA in-situ hybridization, and postoperative EBV DNA level was high, leading to a diagnosis of EBV-associated malignant lymphoma. Despite reducing immunosuppression and treatment with rituximab, the patient's general condition did not improve, and he died 66 days after transplantation.
(Conclusion)
EBV DNA monitoring should be performed before transplantation in patients suspected to be immunocompromised before surgery.

MO05-4 Whole Blood Polymerase Chain Reaction Is the Most Sensitive Method for Cytomegalovirus Monitoring After Pediatric Liver Transplantation in Japan

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Background: Cytomegalovirus (CMV) accounts for morbidity and mortality after liver transplantation (LT). In surveillance for pre-emptive therapies, DNA quantification with real-time PCR (qPCR) is common worldwide. However, antigenemia assay (AG) has been used more commonly in Japan since national health insurance did not approve qPCR until recently. Now, commercially available qPCR measures plasma (PL) CMV quantity for which a larger sample volume is required, even for pediatric patients. Thus, this study aimed to evaluate the efficacy of several monitoring methods to optimize the care for pediatric LT recipients.
Methods: We conducted a retrospective study enrolling 127 children who underwent isolated LT at our center between July 2014 and June 2019. We compared the sensitivity between whole blood (WB) and PL qPCR using longitudinally collected 989 samples and then compared the sensitivity between WB qPCR and AG using 341 matched samples. We defined results as positive when any of the test results showed positive CMV using the threshold as follows: ≥10 copies/reaction in WB; ≥10 copies/ml in PL; and ≥2 antigen-positive cells/50,000 WBC in AG. We also evaluated the distribution of CMV quantities in WB over the first year post-LT.
Results: WB qPCR was more sensitive than PL qPCR (97.1% vs. 14.6%), and WB qPCR was also more sensitive than AG (80.5% vs. 74.4%). When analyzing the data distribution of time and CMV quantity, CMV was more frequently detected within the first 180 days post-LT than in the following 181-364 days (Odds ratio, 2.3; 95%C.I., 1.4-3.8; P=0.0003).
Conclusion: WB qPCR was the most sensitive compared to PL qPCR and AG, indicating that WB qPCR is the most suitable method for CMV monitoring. Also, a high CMV-positive rate within 180 days suggested the need for intensive CMV monitoring for the first six months after LT.

MO05-5 Donor-Derived Infection's Prevention and Control in Kidney Transplantation

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Background: To summarize the experience of donor selection and recipient therapy in the face of potential donor-derived infections to improve the quality of donor organ utilization, reduce the risk of infection after recipient operation, and decrease the risk of loss or even death of recipient kidney transplantation.
Methods: In this study, 132 kidneys from 70 donors and their recipients who underwent surgery between July 2017 and January 2021 were studied to perform a retrospective analysis of their etiological examination results and treatment process.
Results: In the 70 donors, only 25 had negative etiological examination results, accounting for 35%. Among the 132 recipients, 31.8% had positive culture results, while three (2.3%) experienced donor-derived infections, and one died.
Conclusions: Although infection in the donor before the donation is quite common, the incidence of the donor-derived infections is relatively low. Through the targeted and preventive application of adequate sensitive antibiotics in a complete course of treatment to the corresponding donor, the changes in infection indicators in the patients are closely monitored, and the use of medication is adjusted promptly. This can, to a great degree, ensure the prognosis of the recipient, in turn reducing the adverse events caused by donor-derived infections.

MO05-6 Analysis of the Alleviation of BK Polyomavirus Infection by Everolimus *in Vitro*

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BK polyomavirus (BKPyV) infection is one of the most serious complications in solid organ transplant recipients. Everolimus, a mammalian target of rapamycin inhibitor, has been reported to reduce the risk of BKPyV infection in transplantation recipients. To elucidate how and what extent everolimus suppresses BKPyV infection, we investigated the effect of everolimus on BKPyV replication and spread of infection. Fundamental characterization of the BKPyV revealed it replicated in cells derived from kidney and lung contrary to hepatocytes, and this is consistent with the clinical presentation that BKPyV causes nephropathy and pneumonia but no hepatitis. A particle per infectivity ratio was 5,000, and the replication cycle was approximately 34 hours. Everolimus significantly reduced viral load by up to 20% in cells treated with a concentration of 1-10 ng/mL and reduced the amount of viral capsid protein 1 (VP1) at 5 ng/mL without reducing the ratio of VP1 versus β-actin. The number of infected cells was suppressed to 32.8% after 14 days of treatment, which indicates a reduction of BKPyV-infected cell mass to one-fifth of untreated cultures. This reduction in the size of BK polyomavirus-infected lesions may lead to the alleviation of BK polyomavirus infection in transplant recipients.

Day 1 November 25 (Fri), 2022 Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

MO06-1 Results of a Survey on the Delivery of Organ Transplantation Lessons in Moral Education for all Junior High Schools

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Background and purpose: From April 2019, moral education in junior high schools has been made a compulsory subject, and organ transplantation has been included as a subject of 'Respect for Life' in textbooks from seven different companies. However, the actual implementation of the lessons has not been clarified. The aim of this research was to ascertain the current status of class implementation in all junior high schools, and to contribute to the development of measures to increase the implementation rate to 100%.
Methods: The survey covered 10,189 junior high schools. A direct mail was sent to the moral promotion teachers in each school, and they were asked to respond to a web-based survey via a link in the document. The survey items included the name of the publisher of the textbook used, the state of implementation of the class, preparations for the class, materials used, innovations in the class, requests regarding the website, satisfaction with the implementation, and intentions for future implementation. SPSS was used for statistical analysis.
Results and discussion: The rate of class implementation increased to 48.8% in 2019, 52.3% in 2020 and 60.1% in 2021. In FY2021, 66.7% of textbooks containing transplantation medicine were adopted, and 90.1% of these teachers conducted the classes. The satisfaction of those who conducted the classes was 91.3% and the intention to conduct classes in the following year was as high as 90.1%. Thus, the importance of being included in the textbook was suggested. When a two-tailed t-test was conducted with two groups, those who had implemented the class and those who had not implemented the class, the rate of expression of intention was statistically significantly higher for those who had implemented the class. Therefore, it was suggested that the implementation of the class was also a trigger for facing decision-making.

MO06-2 A Heterozygous *LAMA5* Variant May Contribute to Slowly Progressive, Vinculin-Enhanced Familial Nephropathy with FSGS and Pulmonary Defects

Jun-Ya Kaimori[1,2], Koki Hattori[2], Yuta Asahina[2], Sachio Kajimoto[2], Yohei Doi[2], Tatsufumi Oka[2], Yusuke Sakaguchi[2], Yoshitaka Isaka[2]
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The *LAMA5* gene encodes laminin α5, an indispensable component of glomerular basement membrane and other types of basement membrane. A homozygous pathologic variant in *LAMA5* is known to cause systemic developmental syndrome, including glomerulopathy. However, the roles of heterozygous *LAMA5* gene variants in human and systemic disease have been unclear. We performed whole-exome sequence analyses of a family with slowly progressive nephropathy associated with hereditary focal segmental glomerulosclerosis; we identified a probable pathogenic novel variant of *LAMA5*, NP_005551.3:p.Val3687Met. In vitro analyses revealed cell-dependent changes in secretion of variant laminin α5 LG4-5 domain. Heterozygous and homozygous knock-in mice with a corresponding variant of human *LAMA5*, p.Val3687Met, developed focal segmental glomerulosclerosis-like pathology with reduced laminin α5 and increased glomerular vinculin levels; cell adhesion impairment may underlie this glomerulopathy. We also identified pulmonary defects such as bronchial deformity and alveolar dilation. Re-examinations of the family revealed phenotypes with reduced laminin α5 and increased vinculin levels in affected tissues. Thus, the heterozygous p.Val3687Met variant may cause a new syndromic nephropathy with focal segmental glomerulosclerosis through possibly defective secretion of laminin α5. Enhanced vinculin may be a useful disease marker.

MO06-3 Cyclosporine A treatment of Proteinuria in a New Case of MAFB-Associated Glomerulopathy Without Extra-Renal Involvement

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The *MAFB* gene encodes an important basic leucine zipper transcription factor that functions in glomerular podocytes, macrophages, and osteoclasts. Recently, *MAFB* was identified as the gene that was responsible for causing nephropathy with focal segmental glomerulosclerosis (FSGS) with multicentric carpotarsal osteolysis or Duane retraction syndrome. Here, we describe a patient with nephropathy associated with FSGS who exhibited a novel stop-gain variant in the *MAFB* gene (NM_005461:c.590C>A (p.Ser197Ter)). The patient's father exhibited proteinuria with FSGS with possible Duane retraction syndrome, whereas the patient exhibited nephropathy with FSGS and nearly normal eye movement and hearing function, as well as intact bone structure in the extremities. Conventional oral steroids or immunosuppressive drugs have not demonstrated effectiveness for patients with nephropathy who exhibit pathogenic variants in *MAFB,* except for a patient with nephropathy with FSGS and multicentric osteolysis who experienced attenuated proteinuria within the subnephrotic range in response to cyclosporine A treatment for at least 4 years. Thus, we attempted administration of cyclosporine A in our patient. Unexpectedly, the patient demonstrated good and rapid response to cyclosporine A, including a partial reduction in proteinuria from approximately 2.0g/g Cr to proteinuria within the subnephrotic range (0.27 g/g Cr) after 13 months of observation. Our findings suggest that cyclosporine A may be a suitable treatment option for patients with nephropathy with FSGS who exhibit pathogenic *MAFB* variants.

MO06-4 Malignancy After Solid Organ Transplantation: A Nationwide Population-based Study in Taiwan

Mei-Yi Wu[1,2,3], Ying Chun Chen[1], Chia-Hung Lai[4], Shao-Yuan Chuang[4], Mai-Szu Wu[1,2,3,5]

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Background: Patients with terminal organ failure could benefit from receiving solid organ transplantation with lives extension and improvement of quality of life. Chronic requirement of immunosuppressive medications after transplantation and improved post-transplant survival may increase the risk of malignancy. Since certain malignancies may recur after transplantation, routine pre- and post-transplant cancer screening were recommended on candidates and recipients. A cohort study on US solid organ transplant recipients (1987-2008) found a 2 to 4 times higher risk for cancer compared to the general population. The average age of cancer diagnosis is 40 years, and the interval between the date of newly diagnosis of cancer and the date of transplantation is about 3 to 5 years. Non-melanoma skin cancer, lymphoma and Kaposi's sarcoma are the most common post-transplantation malignancies. In Taiwan, a similar result of de novo malignancy incidence was also found by the ratio of 1.65 to 3.37 depends on different organ transplantation (1996-2011). Kaposi's sarcoma, urinary tract cancer, lymphoid and hematopoietic malignancies, and bone/connective tissue/skin cancer were the predominant types of cancer of solid organ transplant recipients in Taiwan. Trends in maintenance immunosuppressive drugs used in kidney transplantation recipients in Taiwan were changed from 2002 to 2009 with increased usage of tacrolimus and Mammalian target of rapamycin (mTOR) inhibitors. Different combination of immunosuppressive drugs may alter malignancy type. Updated incidence rate of new-onset cancer after solid organ transplantation is investigated in this study.
Methods: We identified patients who underwent solid organ transplantation using Taiwan's National Health Insurance Research Database during 2009-2017. Diagnosis and procedure code are listed as follows: heart transplant (68035A, 68035B), lung transplant (68037A, 68037B, 68047B), liver transplant (75020A, 75020B), kidney transplant (76020A, 76020B), pancreas transplant (75418B). The cases of malignancy were subsequently identified for those who have ICD-9 codes ranged between 140 and 209. Subjects who had code of cancer before the date of transplantation were excluded.
Results: A total of 8205 patients who underwent solid organ transplantation were identified during 2009-2017. We filtered out subjects who had cancer before organ transplantation, resulting in 6418 recipients for the final analyses: 686 heart, 64 lung, 2941 liver, 2650 kidney, and 77 pancreas. After 4436.70, 368.41, 17339.27, 16411.70, 483.96 person-years of follow-up for heart, lung, liver, kidney, and pancreas transplant, respectively; there were 14 heart transplant, 4 lung transplant, 229 liver transplant, and 189 kidney transplant recipients who were subsequently diagnosed with any malignancy. The risk of cancer varied by different types of transplanted organs. The incidence rate of cancer was highest in patients receiving liver transplantation (13.21 cases per 1000 person-years) followed by those receiving kidney (11.52 per 1000 person-years), lung (incidence, 10.86 cases per 1000 person-years), and heart transplantation (3.16 cases per 1000 person-years).
Conclusions: Solid organ transplant recipients in Taiwan are at high risk of new-onset cancer, which varied by type of transplanted organ. The incidence rate of cancer was highest in patients receiving liver transplantation. Further studies are needed to elucidate the risks of specific type of cancer and certain type of immunosuppressants in recipients with post-transplant malignancy. Routine cancer screening and optimal immunosuppressants use in solid organ transplant recipients may decrease cancer risk.

Day 1 November 25 (Fri), 2022 Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

MO07-1 Preoperative Management Strategy for Massive Hydrothorax in Living Donor Liver Transplantation

Tomohiko Taniai, Koichiro Haruki, Kenei Furukawa, Mitsuru Yanagaki, Ryoga Hamura, Munetoshi Akaoka, Rui Marukuchi, Shinji Onda, Yoshihiro Shirai, Tadashi Uwagawa, Toru Ikegami
Division of Hepatobiliary and Pancreatic Surgery, Department of Surgery, The Jikei University School of Medicine, Tokyo, Japan

Background: Hepatic hydrothorax has been associated with postoperative infectious complications and mortality in patients who undergo living-donor liver transplantation (LDLT). Thus, preoperative management of massive hepatic hydrothorax is essential to improve outcomes in LDLT.
Method: Our strategy for hepatic hydrothorax includes: I) chest tube placement by small thoracotomy under general anesthesia, II) fluid control and respiratory monitoring with intubation if necessary, III) preoperative hepatic inflow modulation by splenic arterial embolization, IV) antibiotics for re-expansion pulmonary edema and pneumonia during drainage, V) nutritional and physical intervention to improve general condition.
Results: Two cases with massive hepatic hydrothorax were treated with our strategy. Both cases were end-stage liver disease due to primary biliary cholangitis. Their performance status worsened to 4 and 2 because of massive hydrothorax. After aforementioned intervention, their performance status was significantly improved to 0. Thereafter, LDLTs with right lobe graft were performed. Operation time were 440 and 343 min and blood loss were 1,700 and 1,600 g, respectively. Their postoperative courses were uneventful and they were discharged on postoperative day 16 and 14, respectively.
Conclusion: Our preoperative management strategy, including preoperative drainage of hydrothorax and portal inflow modulation, can improve the preoperative condition of patients with massive hepatic hydrothorax before LDLT, contributing to good postoperative course and outcomes.

MO07-2 The Effect of Pretreatment with Rifaximin on Outcomes After Liver Transplantation

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Background: Rifaximin, a nonabsorbable antibiotic to treat encephalopathy, was reported to have a protective effect against hepatic ischemia repercussion injury and inflammatory cell infiltration after deceased donor liver transplantation. This protective effect of refaximin related to microbiome change from animal experiments.
Objective: The aim of this study was to investigate the effect of pretreatment with rifaximin on outcomes in living-donor liver transplantation(LDLT).
Method: This single-center retrospective analysis included adult primary LDLT recipients from January 2016 through December 2021. Outcomes after LDLT were compared by propensity score-matching.
Results: 20 patients out of 115 LDLT recipient were treated with rifaximin before admission. After propensity score-matching (n=20/group), the incidence rate of early allograft dysfunction had no difference. Rifaximin treated patient had a trend of better graft survival, rejection free survival rate, and septic free survival rate though no significant difference. Interestingly, prealbumin before LDLT and POD3 and branched-chain amino acids and tyrosine molar ratio (BTR) on POD14 were higher in Rifaximin pretreated patient group than control group.
Conclusion: This retrospective study suggest the therapeutic possibility of rifaximin not only for encephalopathy before the transplant but also for perioperative complications.

MO07-3 Withdrawn

MO07-4 Outcome of Living Donor Liver Transplantation for High MELD Score Recipients

Daijiro Matoba, Takehiro Noda, Shogo Kobayashi, Kazuki Sasaki, Yoshifumi Iwagami, Daisaku Yamada, Yoshito Tomimaru, Hidenori Takahashi, Yuichiro Doki, Hidetoshi Eguchi
Gastroenterological Surgery, Osaka University, Japan

(Background)The clinical practice guideline for liver cirrhosis of the Japanese Society of Gastroenterology stated that liver transplantation for uncompensated cirrhosis improves the patients' prognosis. Especially, the patients with the MELD score of 15 points or higher showed significantly better survival after liver transplantation. However, the prognosis of the patients with high preoperative MELD scores is controversial. In this study, we examine treatment outcomes, especially in patients with high MELD score(≥30).
(Patients and Methods)In this study, 102 patients who underwent living donor liver transplantation were included. The patients were divided into two groups; high and low MELD groups (≥30 and <30).
(Result)The median of age was 54 years (19–69). HCV cirrhosis was the most popular primary disease (n=39), followed by HBV (n=11). The high MELD group consisted of 12 patients (median score:35, 30–51) and the low MELD group consisted of 90 patients (median score:17, 10–29). The mean operative time (1247min vs. 1191 min) and mean blood loss (9493 ml vs. 8369 ml) were not significant between the two groups. The vascular and biliary complication rates were not significant in two groups. The 1-year postoperative survival (92 percent vs. 88 percent , p=0.56) and the 5-year survival rate(75 percent vs. 82 percent , p=0.85) were also not significant in the two groups.
(Conclution)
Perioperative complications and survival rate in living donor liver transplantation were not significantly different between the high and low MELD patient groups.

MO07-5 Case Report of a Patient Who Received a LDLT After Achieving Remission from DLBCL

Koichi Tomita, Itsuki Koganezawa, Masashi Nakagawa, Kei Yokozuka, Shigeto Ochiai, Toshimichi Kobayashi, Toru Sano, Satoshi Tabuchi, Naokazu Chiba, Eiji Hidaka, Shigeyuki Kawachi
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Background
The indication for transplantation in patients with a history of malignant lymphoma should be carefully examined, though there are no defined guidelines. Also, the optimal timeframe between the remission of lymphoma and transplantation is unclear. We report the case of a patient who underwent a living donor liver transplantation (LDLT) after remission from diffuse large B-cell lymphoma (DLBCL) with a literature review.
Case presentation
The patient was a 56-year-old male with alcoholic liver cirrhosis who developed DLBCL three years before the transplantation and achieved remission after completing eight cycles of the R-CHOP regimen. After three years, the liver function declined, and a LDLT was performed under the approval of the in-hospital organ transplantation committee. A year after the transplantation, a tumor mass was recognized in the left retroperitoneum and was diagnosed as a recurrence of DLBCL. The CHASER regimen and consolidation radiotherapy were administered as the 2nd line treatment, and remission was again attained. Since then, there has been no recurrence of DLBCL, and the patient is living uneventfully.

MO07-6 A Case of Liver Transplantation for Liver Cirrhosis with Pulmonary Mycobacterium Avium Complex Disease

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[**Background**] In patients awaiting liver transplantation, its functional reserve gradually deteriorates, which may lead to immune-compromised status and even infectious complications. We report a case of liver transplantation for uncompensated cirrhosis with hepatocellular carcinoma (HCC) due to Wilson's disease in whom pulmonary Mycobacterium avium complex (MAC) disease was complicated.
[**Case**] A 41-year-old lady was diagnosed with liver cirrhosis due to Wilson's disease and listed for a liver transplantation. Two years later, HCC (S7, 13 mm) occurred. A more one year later (in May), she experienced pneumothorax due to a pulmonary MAC disease. Treatment with AZM, STFX and EB was commenced, and continued thereafter. As of September of the year, the HCC has enlarged up to 38 mm. At the time of donor call in October, CT findings showed no progression of pulmonary MAC lesions considered not to be active status, and liver transplantation was performed deliberating the limited waiting time in a context of HCC growth (operation time: 11 hours 55 minutes, blood loss: 1610 ml). The patient received conventional immunosuppressive therapy of tacrolimus, mycophenolate mofetil, and mPSL, and discharged the hospital 58 days after transplantation. In postoperative course, STFX was discontinued due to long QT syndrome, and the treatment with other two antibiotics have been continued which induces no exacerbation of pulmonary MAC disease.
[**Conclusion**] Liver transplantation can be performed even with pulmonary MAC disease. However, a careful assessment of the disease as well as the attention for antibiotic and immunosuppressive therapies is required.

MO08-1 The Resistive Index by Doppler Ultrasonography as a Predictor of the Long-Term Outcomes After Kidney Transplantation

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Background: Doppler ultrasonography (US) is non-invasive examination for assessing the graft function after kidney transplantation. Although doppler US is routinely performed, there are only a few report available to investigate whether the high resistive index (RI) detected by doppler US has an impact on graft function and survival. We hypothesized that there is a relationship between high RI and inferior outcomes after kidney transplantation.
Methods: We included 165 living-kidney transplant patients from April 2011 to July 2019. We divided them into two groups according to RI (cut-off 0.7) at day 1, at 2 weeks and at 1 year after transplantation.
Results: Recipient age was significantly older in high RI (>0.7) group. Moreover, there was significant differences in pre-transplant diabetes mellitus. Regarding the long-term outcomes, there were no significant differences in overall graft survival (5years; 92.2% vs 92.9%, 10years; 84.9% vs 74.7%, p=0.61, 5years; 94.0% vs 89.2%, 10years; 84.9% vs 73.2%, p=0.39, 5years; 92.6% vs 91.8%, 10years; 85.0% vs 67.9%, p=0.64, respectively). On the other hands, the mortality was significantly worse in high RI group (5years; 98.6% vs 96.2%, 10years; 97.0% vs 78.1%, p=0.020, 5years; 98.8% vs 95.2%, 10years; 94.7% vs 79.9%, p=0.13, 5years; 99.1% vs 93.9%, 10years; 96.4% vs 70.0%, p=0.013, respectively).
Conclusions: High RI might predict the mortality after kidney transplantation.

MO08-2 Comparing the Different Definition of Delayed Graft Function After Renal Transplantation

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Purpose: Delayed graft function (DGF) is difficult to define precisely, and several classifications are used currently. We analyze our outcomes to assess whether any of 6 different currently used definitions of DGF predict kidney graft survival and function for living and deceased donor kidneys.
Materials and Methods: A total of 117 patients underwent kidney transplantation from January 2017 to February 2022 at Linkou Chang Gung Memorial Hospital were reviewed. The definitions of DGF were based on dialysis requirements, creatinine changes, or both. The relationship of DGF to graft function and graft survival was determined.
Results: Ninety-nine patients were into analysis. The median age was 44 years and 48(48.5%) patients were female. Among the 99 recipients, 68 received kidneys from living related donors and 31 from deceased donors. The mean HLA mismatch number is 2 and mean graft arterial and venous blood flow were 486.9, 522.6 ml/min, respectively. The incidence of DGF varied widely depending on the definition used (living donor: 4.4%-30.9%; deceased donor: 16.1%-58.1%). For kidney from living donors, as defined in 3 of 6 different ways, was associated with poorer 1-year estimated glomerular filtration rate (eGFR) and 1 of them associated with inferior graft survival. However, for deceased kidneys, as defined in 2 of 6 different ways, was associated with poorer 1-year estimated glomerular filtration rate (eGFR)and no definition of DGF was associated with impaired graft survival.
Conclusion: DGF on living related and cadaveric donors is associated with poor 1-year eGFR and inferior graft survival. Current definition of DGF seems to be more suitable to measure living donor kidney transplantation.

MO08-3 Comprehensive Analysis of Donor Factors Which Impact on Graft Survival or Overall Survival in Living Kidney Transplantation: Single Study in Japan

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Background: Despite advancements in the management of kidney transplantation (KT), kidney transplant recipients (KTRs) have a higher risk of mortality than an age-matched general population. Improvement of long-term graft and patient survival is a big issue. Therefore, we investigated the effect of postoperative nutritional status on graft and patient survival and explored predictive factors involved in nutritional status.
Methods: Our retrospective study included 118 KTRs who underwent KT at our hospital. Clinical and laboratory data were obtained from medical charts. Prognostic nutritional index (PNI) was used to assess nutritional status. Changes in nutritional status after KT were monitored, and the effect of nutritional status on graft and patient survival was investigated. Variables involved in nutritional status were also explored.
Results: KTRs in this cohort comprised 66 men and 52 women with a median age of 47 years at KT. There were 16, 32, and 22 cases of cadaveric, preemptive, and ABO-incompatible KTs, respectively. Postoperative PNI gradually improved and was stable from 6 months after KT. Although graft survival was regulated by ABO-compatibility, independent predictors for patient survival were history of dialysis, PNI, and serum corrected calcium levels. Preemptive KT and inflammatory status contributed to PNI.
Conclusions: Nutritional status of KTRs improved over time after KT and could contribute to patient survival. Optimal nutritional educational programs and interventions can lead to better outcomes in KTRs. Further studies are needed to validate our results and develop appropriate nutritional educational programs, interventions, and exercise programs.

MO08-4 Effect of the Chinese New Year on Renal Function Among Patients with Kidney Transplant: A Retrospective Cohort Study

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Purpose: Creatinine level is a critical parameter for calculating estimated glomerular filtration rate (eGFR), which is used for evaluate kidney function. However, it would be affected by nutrition intake. It is common knowledge that people may have overeating during festivity. In this study, we compared the changes of eGFR level before and after the longest festivity, Chinese new year, in our country in population who had kidney transplantation.
Materials and Methods: We retrospective reviewed electric medical record from 367 patients recieved kidney transplantation at Chang Gung Memorial Hospital, Linkou before 2018. 301 patients were enrolled in this study after excluding miss data. Clinical characteristics were collected and we compared the eGFR before and after the festival with paired t test. Furthermore, we stratified with gender, age and comorbidities as subgroup analysis.
Results: In our study, the average eGFR of 301 patients before and after the Chinese new year had significant change (57.26±1.05ml/min vs 56.26±1.05ml/min, p< 0.001). In subgroups, our analyses showed significant changes in male, female, age above 50 years old, HTN (55.47±1.16 ml/min vs 54.17±1.16 ml/min, p< 0.001; 58.09±1.68 ml/min vs 55.99±1.28 ml/min, p=0.039; 58.65±1.65 ml/min vs 57.22±1.64 ml/min, p= 0.037; 53.98±0.99 ml/min vs 52.61±0.99 ml/min, p< 0.001) respectively.
Conclusion: The festivity would affect renal function in kidney transplantation patients. This effect is especially significant in population such as male, elder, and patients with HTN.

MO08-5 Usefulness of 3DCT Volumetry in Evaluation of Split Renal Function of Living Kidney Donors

Tomoaki Iwai[1], Kazuya Kabei[1], Yudai Matsuoka[1], Akihiro Kosoku[2], Keiko Maeda[1], Yuichi Machida[1], Toshihide Naganuma[1], Norihiko Kumada[3], Yoshiaki Takemoto[1], Junji Uchida[1]

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Background. In living kidney donors, we currently use a renogram (99m Tc-DTPA) to evaluate split renal function. Moreover, dynamic CT is used in the assessment of renal morphology and renal vessels, but a three-dimensional (3D) image analysis system (SYNAPSE VINCENT, FUJIFILM) has enabled the measurement of renal volume as well as renal cortical volume.
Purpose. We investigated the usefulness of 3DCT volumetry in the assessment of split renal function in living kidney donors.
Methods. Among 143 living kidney donors conducted at our hospital for the 6-year period from 2015, 117 patients who underwent inulin clearance test and 3D image analysis of the kidney were studied.
Results. There were 45 males and 72 females. There was a significant correlation between inulin clearance and renal volume, especially renal cortical volume (r: 0.50, $p<0.01$). There was also a significant correlation with split renal function (left right ratio) and left right ratio of renal cortical volume evaluated by renogram (r: 0.43, $p<0.01$), and there was an especially strong correlation in 43 patients who had a more than 15% difference between the two kidneys in either examination (r: 0.65, $p<0.01$). Furthermore, in 77 patients whose renal function was evaluated by inulin clearance at one-year post-transplant, there was a significant correlation in the remaining renal function predicted by renogram and renal cortical volume (r: 0.51, 0.50, $p<0.01$, respectively).
Discussion. Our results, large number of cases, suggest that 3DCT volumetry is effective in the evaluation of donor split renal function.

MO08-6 An Original Risk Index for Deceased Donor Kidney Transplantation in Japan: The Japanese Kidney Donor Risk Index

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Background
Although the Kidney Donor Risk Index is widely acknowledged for the evaluation of deceased donor kidney transplantation, the possibility of predictivity does not always match the donor characteristics of each country. Our objective is to propose an original graft risk index that captures the organ donor and transplant characteristics of Japan.
Methods
From the Japan Organ Transplant Network database, deceased donor kidney transplants occurring from 2000 to 2016 were analyzed (n=2665). A Cox regression model was fitted to estimate the relative rate of graft failure independently associated with each donor and transplant factor. An original risk index model was established with the coefficients of the confounding factors. Model discrimination was assessed using Kaplan-Meier graft survival curves by a categorized risk index compared using the log-rank test, and by Harrell's C statistic.
Results
The developed risk index model, the Japanese Kidney Donor Risk Index (J-KDRI), included eight confounding factors: donation after circulatory death, donor age, hepatitis C virus antibody positive, estimated glomerular filtration rate at hospitalization, anuria, warm ischemic time, total ischemic time, and human leukocyte antigen mismatches. There was a decreasing trend in graft survival with an increasing risk index with a P value < 0.001. The C statistic was 0.622 (95% confidence interval 0.601-0.644).
Conclusions
We have proposed the J-KDRI, which captures the characteristics of Japan, providing a useful tool to assist decision-making in cadaveric kidney transplantation.

MO09-1 Upside-Down Kidney Transplantation in a Recipient with Severe Arteriosclerosis

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It is difficult to perform kidney transplant surgery in patients with arteriosclerosis. Here, we report a case in which upside-down kidney transplantation was performed in a 59-year-old man with severe arteriosclerosis. The patient was diagnosed with diabetes at the age of 40 years and initiated on drug therapy at the age of 54 years. At the age of 58 years, his creatinine levels increased to 5.29 mg/dL. Owing to end-stage renal failure secondary to diabetic nephropathy, he was referred to our department for living-donor renal transplantation. His wife was the donor. No intermittent claudication was observed, but his ankle-brachial index was 0.86 on the right side, suggesting peripheral arterial disease. Preoperative computed tomography revealed mild calcification of the external iliac artery and that anastomosis with the right external iliac artery was feasible. Thus, living-donor kidney transplantation was planned in the right iliac fossa. However, during surgery, we observed that more than half the circumference of the right external iliac artery was calcified. Hence, occlusion of the blood flow at the normal anastomosis site was deemed difficult. Therefore, we switched the cephalic and caudal sides of the transplanted kidney, and the transplanted renal vein was end-to-side anastomosed to the external iliac vein. Subsequently, the transplanted renal artery was end-to-side anastomosed to the peripheral side of the external iliac artery, which had only mild calcification. The total occlusion time was 79 minutes. The ureter was anastomosed to the bladder using the Lich-Gregoir method. Postoperatively, the patient's creatinine levels decreased to 1.1 mg/dL, and no cardiovascular complications were noted. At the last follow-up, the patient's renal function was good. When necessary, an upside-down placement for the renal graft is a safe alternative in patients with severe arteriosclerosis.

MO09-2 Risk Factors of Recurrent Vesicoureteral Reflux in Post Renal Transplantation Vesicoureteral Reflux Deflux Treatment

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Purpose: Vesicoureteral reflux (VUR) is an important complication after renal transplant and it may cause recurrent urinary tract infection, acute pyelonephritis, even deteriorate renal function in long term effects. Minimal invasive endoscopic surgery is an efficient management choice. We are interested in the recurrent VUR after the endoscopic treatment for post renal transplant VUR.
Materials and Methods: Total 18 patient received post renal transplant VUR treatment via endoscopy Deflux injection therapy were enrolled during 2014 to 2019. All patients had normal function graft kidney when diagnosed. We analyze the patient age of renal transplant, voiding cystourethrogram (VCUG) VUR grading, pre-op and post-op creatinine level, urinary tract infection related admission times, endoscopic treatment time and Deflux injection amount, urine analysis data. The patient received the surgery under spinal anesthesia and peri-neocystostomy ureteral orifice injection were performed.
Results: Of all 18 collected patients, 14 patients received the surgery smoothly and the other 4 failed. All these 4 failed patients were female. In addition, we found that significant high white blood counts in urinary analysis at preoperative tests in those failed cases. But there was no significant trend or improvement between pre-op and post-op creatinine level. However, urinary analysis data disclosed grossly improved urinary tract infection after the surgical correction.
Conclusions: Open surgery is a standard surgery for VUR, but the risk and surgical morbidity may be a problem to patients who are immune compromised. Endoscopic surgery is a good alternative choice. In our data female gender and WBC in urinary analysis were two risk factors of recurrence.

MO09-3 Experience with Surgical Treatment of Allograft Lithiasis in Kidney Transplant Patients

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Allograft lithiasis is a rare urologic complication in kidney transplantation, with an incidence of 0.17 to 1.8 %. We report 3 cases of transplant ureteral stones treated with endourology in our hospital.
Case 1, 35-year-old female. Three years after living donor kidney transplantation, her renal function worsened, and computed tomography (CT) showed hydronephrosis and a 13 mm transplant ureteral stone in pyeloureteral junction. The transplant renal ureter was anastomosed to the native ureter, and rigid-transurethral lithotripsy (r-TUL) was performed.
Case 2, 65-year-old female. Eight years after kidney transplantation, she presented to our hospital with a chief complaint of fever and fatigue, and CT showed hydronephrosis and a 10 mm transplant ureteral stone in ureterovesical junction. After antibiotic treatment, flexible-TUL (f-TUL) was performed.
Case 3, 54-year-old female. One year after kidney transplantation, she came to our hospital with a chief complaint of fever, and CT showed hydronephrosis and multiple 5 mm transplant ureteral stones. After antibiotic treatment, lithotripsy was performed. An f-TUL was planned, but the retrograde approach was difficult. Therefore, percutaneous nephrolithotripsy (PNL) was performed.
All 3 patients became stone free without complications.
In summary, TUL is useful for allograft lithiasis in kidney transplant patients and is considered the first choice from the viewpoint of minimally invasive surgery. However, it is essential to switch to or combine PNL when the retrograde approach is difficult.

MO09-4 Choice of Renal Arterial Anastomotic Methods in Kidney Allografts with Multiple Renal Arteries Does not Affect the Recovery Rate of Renal Plasma Flow After Kidney Transplantation

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Purpose: The aim of this study is to evaluate whether inflow to the renal allografts is different in the choice of renal arterial anastomosis in cases with multiple renal arteries.
Methods: We included 49 cases who received kidney allografts with multiple renal arteries and 30 cases who received allografts with a single renal artery as the control. We compared two phases of effective renal plasma flow (ERPF) of kidney allografts, that were measured by renal scintigraphy (99mTc-MAG3) in each donor before transplantation (dERPF) and recipient on the day of transplantation (rERPF). Patients were divided into four groups according to the anastomosis methods: Group A, conjoined method, n = 15; Group B, end-to-side method, n = 5; Group C, in situ anastomosis, n = 29; and Group D, anastomosis of a single renal artery, n = 30. We also analyzed the changes in kidney function in each anastomosis.
Results: dERPF in each group was not statistically different (ANOVA) (Group A vs B vs C vs D, 262.6 ± 75.1 vs 267.6 ± 89.3 vs 255.8 ± 49.4 vs 251.9 ± 43.9 mL/min, respectively). rERPF in each group was not statistically different either (Group A vs B vs C vs D, 253.9 ± 178.1 vs 288.2 ± 57.5 vs 243.6 ± 114.0 mL/min, respectively). A comparison of the recovery rate of ERPF (rERPF/dERPF) in each group revealed that there were no statistical differences between the groups. A comparison of the difference between eGFR at 1 year and 1 month after the transplantation ([eGFR 1Y - eGFR 1m] /eGFR 1m) revealed no statistical differences between the groups.
Conclusion: Assessment of ERPF of kidney allografts in donors and recipients revealed that the recovery rate of renal plasma flow after transplantation was not different regardless of arterial anastomotic methods in kidney allografts with multiple renal arteries. The changes in kidney function were not affected by the choice of arterial anastomosis.

MO09-5 A Case of Bariatric Surgery for a Diabetic Kidney Transplant Recipient

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[Introduction]
Obesity is considered a risk for renal dysfunction in renal transplant recipients. Recently, bariatric surgery has been covered by insurance in Japan, but this treatment is rarely performed in renal transplant patients.
[Case presentation]
The patient was a 54-year-old female renal transplant recipient with diabetic nephropathy. She underwent kidney transplantation in 2014 at Osaka Metropolitan University Hospital. In 2020, she was referred to the bariatric department of Minami Osaka Hospital due to gradual worsening of her obesity. Her weight and BMI had risen to 102 kg and 36. After 6 months of outpatient treatment, the patient was admitted for bariatric surgery because her obesity had not markedly improved. On the day of admission, her weight was 99 kg, her BMI was 34, the creatinine level of 1.54 mg / dL, and the HbA1c level of 7.1%. Laparoscopic sleeve gastrectomy was performed and there were no perioperative complications. Her weight decreased gradually and she was discharged on postoperative day 28. Three months after surgery, she weighed 87 kg, her BMI was 30, the creatinine level of 1.34 mg/dL, and the HbA1c level of 6.7%. Blood and urine tests showed a gradual improvement in renal function. Additionally, her diabetes improved and her insulin dosage was drastically reduced.
[Conclusion]
Although bariatric surgery for renal transplant recipients is a relatively safe procedure that has been reported in many cases in Europe and the United States, there have been few reports of this surgery in Japan. We performed bariatric surgery on a diabetic kidney transplant recipient who had poorly controlled obesity on medical therapy and she had a favorable outcome.

MO09-6 Renal Transplantation After Thoracic Endovascular Repair of Type B

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Cardiovascular complications are frequent after kidney transplantation and represent the main cause of death. However, aortic dissection is a rare and infrequent reported event. We performed kidney transplantation in a 34-year-old man with end-stage renal failure due to Autosomal dominant polycystic kidney disease, who had undergone thoracic endovascular aortic aneurysm repair (EVAR) for a Stanford type B aortic dissection 12 months earlier. A contrast computed tomography scan before transplantation revealed an aortic dissection from the descending aorta to bilateral common iliac arteries. After simultaneous right native nephrectomy, he underwent living related donor kidney transplantation in the right iliac fossa with end-to-end anastomosis to the internal iliac artery. The surgery went on without any complications, except for moderate fibrosis of the external iliac vessels. The postoperative period was uneventful and the patient was discharged from the hospital at postoperative day 13 with a serum creatinine of 1.9 mg/dL. At 3 months after kidney transplantation, graft function was stable.
Because of its advantages over open surgery, including low mortality and morbidity,
EVAR is becoming more common among renal failure patients with aortic dissection. Our case shows that kidney transplantation might be performed in patients requiring prior aortoiliac reconstruction.

MO10-1 Long-Term Outcome of Pediatric Liver Transplants: The Immunosuppresion and Psycho-Social Development

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Aim: To review the long-term outcome of pediatric liver transplantation at NTUH, with attention to immunosuppresion regimen and psycho-social development.
Patients and Methods: 174 liver transplants were performed at age <18 y/o. All patients were followed till December 2021 or death. Their medical records were reviewed for biologic outcome and immunosuppresion regimen. Psycho-social developments were studied for 51 patients with final age ≧15 y/o by questionnaire.
Results: Of the 174 patients, 10 were excluded due to death within 6 months. The 5 and 10 year patient survival are 85% and 75%. Most of the transplants were performed between 1 to 2 y/o. 19 patients are on CsA-based therapy and the other 145 patients are under TAC-based immunosuppresion. Most of them are with two combined immunosuppressants. There is no significant change of TAC dose along with age, and then the standardized TAC daily dose decreased along with time. In contrast, though the standardized daily dose decreased gradually, but the TAC trough concentration did not decrease after the age of 5 years. For those patients with final age ≧15 years, 87% of them are with compatible academic degree in their learning process. 20% patients need special education program in their junior-high or high school stage. 23% patients had one to two years delay in their education process. Around 17 % of patients had the feeling to be discriminated by their peer group.
Conclusion: The long-term survival of pediatric liver transplantation are good. The age standardized TAC dose decreased with age, but there is no parallel decrease of TAC concentration. Though they survived with normal liver function and body built, but significant percentage of patients have obstacle/delay in their learning process, and they have the feeling of being discriminated psychologically.

MO10-2 Living Donor Liver Transplantation in Children Aged Less than 3 months: The Challenge of High Risk Pediatric Patients

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Background: Although living donor liver transplantation (LDLT) is well established as treatment for end stage liver disease in children, LDLT for small infants is technically challenging. We report our experience with patients who underwent LDLT in the first 3 months of life.
Patients and Methods: Until 2021, 326 patients under 18 years old underwent liver transplantation at our institution, including 10 patients (4 males and 6 females) in the first 3 months of life, retrospectively reviewed here.
Results: Indications for LDLT included acute liver failure (n=9), including neonatal hemochromatosis (n=5), Niemann-Pick disease type C (n=1), acute megakaryoblastic leukemia (AMKL) (n=1) and unknown (n=2) as well as methylmalonic acidemia (n=1). Median age and body weight at LDLT were 33 days and 3.2kg, respectively. Donors included the father in nine patients and the mother in one. Donor median age was 32 years, height 170cm, weight 69kg, and body mass index 23kg/m^2. Blood type was identical in 2, compatible in 2 and incompatible in 6. Mean operating time for LDLT was 13h41m with mean blood loss of 793mL. Surgical planning for graft size and shape was done with preoperative imaging to estimate graft thickness. All grafts were monosegment using segment 2 (n=9) or 3 (n=1), and median graft volume was 113g. The median graft recipient weight ratio (GRWR) was 3.6%. In 1 patient, GRWR was >4%. The median follow-up was 118 months. Vascular complications including portal vein stenosis (n=2), hepatic artery thrombosis (n=2) and hepatic vein stenosis (n=1) were observed postoperatively. Two deaths occurred. Adjuvant chemotherapy was needed for one patient with AMKL.
Conclusions: For LDLT with recipients in the first 3 months of life, ingenuity for graft selection leads to improved survival by avoidance of large-for-size syndrome and management of vascular complications.

MO10-3 What Is the Best Therapeutic Approach for Progressive Familial Intrahepatic Cholestasis Type I in Liver Transplantation? -Lessons Learned from Three Cases Receiving Different Approaches

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Background: Progressive familial intrahepatic cholestasis type 1 (PFIC-1) is an autosomal recessive cholestatic liver disorder caused by mutations in the ATP8B1 gene. Although liver transplantation (LT) is indicated in progressive liver disease, postoperative complications including severe diarrhea and graft steatohepatitis leading to graft loss have been reported.
Cases: The first patient had jaundice, pruritus, diarrhea, and growth retardation (weight z-score -2.5; and height z-score -3.7). She underwent LT with total internal biliary diversion (TIBD) at 2 years of age. Graft biopsy at 7 years follow-up revealed microvesicular steatosis (60%). Diarrhea improved and growth failure was recovering (weight z-score -1.0; and height z-score -1.7).
The second patient underwent sequential intestine-liver transplantation at 8 years of age due to end-stage liver disease (ESLD) and short bowel syndrome, which was caused by massive bowel resection for internal hernia after partial external biliary diversion (PEBD) at 21 months of age. She developed severe pancreatitis induced by steroids-bolus therapy for rejection after transplantation. She finally died 1.7 years after transplantation due to uncontrollable pancreatic abscess and acute respiratory distress syndrome.
The third patient underwent PEBD at 15 months of age and received LT with total external biliary diversion at 15 years of age due to ESLD with hepatic encephalopathy. Throughout the perioperative period, she demonstrated no abdominal symptoms including diarrhea and pancreatitis. Graft biopsy at 11 months follow-up revealed macrovesicular steatosis (60%) without any inflammation.
Conclusions: Those three patients showed different outcomes. The effective therapeutic option to mitigate post-LT complications must be explored in the patient with PFIC-1.

MO10-4 Spleen-Liver Volume Ratio as an Indication of Liver Transplantation for Patients with Biliary Atresia

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Purpose: Biliary atresia (BA) is the leading cause of pediatric liver transplantation (LT). Due to limited cerebral-death donor in Japan, most patients with BA who need LT receive living-donor liver transplantation (LDLT). Given the growth of recipient and the aging of donor, patients who are predicted to suffer from complications of BA in adolescence or adulthood should be considered LDLT during pediatric period. Liver–spleen volume ratio (LSR) has been reported to be efficacious in predicting the prognosis of chronic liver diseases. We studied whether low LSR could be an early indication of LDLT in patients with BA.
Methods: Patients with BA who survived with their native liver until age 15 years were included. These patients were classified into two groups. The liver transplantation group (LTx) included patients who underwent LT or developed complications which are indications of LT such as liver failure, refractory cholangitis, portal hypertension, or hepatopulmonary syndrome. The native liver survival group (NLS) included patients who survived with their native liver without such complications. The LSR calculated from CT volumetry in both groups performed before adulthood period was compared with pathological liver fibrosis and other serological findings such as total bilirubin, prothrombin time, serum albumin, AST/platelet ratio, and FIB-4.
Results: Of 19 patients, 8 were in LTx and 11 were in NLS. LSR was significantly lower in LTx than NLS (LTx: 1.57, NLS: 4.13, p=0.009). Receiver operating characteristics (ROC) analysis showed the optimal LSR cut-off value for LTx was 1.97 with a sensitivity of 75.0% and specificity of 87.5%, and area under the curve (AUC) was 0.89, which was higher than AUC of ROC analysis of other liver damage marker.
Conclusions: LSR might be an early indication of LDLT in long-term survivors of BA.

MO10-5 Mac-2 Binding Protein Glycosylated Isomers as a Marker for Liver Graft Fibrosis in Pediatric Liver Transplantation

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Background: In pediatric transplantation, transplanted liver fibrosis may occur during long-time follow-up and non-invasive marker for assessing the liver fibrosis is desired. Recently, Mac-2 binding protein glycosylated isomers (M2BPGi) has been widely reported to be useful as a biomarker for liver fibrosis. However, its usefulness as a fibrosis marker in pediatric liver transplanthas not been fully established. In this study, we investigated the clinical significance of M2BPGi as a surrogate marker of liver graft fibrosis in patients after pediatric liver transplantation (LT).
Methods: 74 patients who underwent pediatric LT at our institution between 1991 and 2015 were retrospectively identified. In 60 patients in whom fibrosis markers were measured, the association between M2BPGi and the other fibrosis markers was analyzed. In 42 patients who underwent liver graft biopsy between 2016 and 2022, the association between the fibrosis markers and liver graft fibrosis was assessed.
Results: In the analysis of 60 patients, M2BPGi showed a statistically significant correlation with hyaluronic acid, but not with type IV collagen. In the subgroup analysis of 42 patients, all markers were not significantly associated with liver graft fibrosis, although the levels of the markers were slightly higher in patients with severe liver fibrosis.
Conclusions: In this study, M2BPGi had limited ability to assess the liver graft fibrosis for pediatric liver transplantation like other fibrosis markers. Further studies with larger cohort are needed to validate the conclusion.

MO10-6 The Impact of Early Tacrolimus Exposure to Long-Term Renal Function and Growth in Pediatric Liver Transplant Recipients

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Background:
Life-long immunosuppression is required for liver transplant (LT) recipients to prevent graft rejection. This study aimed to analyze the effect of early calcineurin inhibitor exposure to the long-term outcomes of pediatric recipients.
Method:
This was a retrospective study from a university center. Pediatric patients (age <11 year-old at time of LT) and had regular follow-up, from 2001 to 2018 were included. All tacrolimus (TAC) trough level within the 1st year after LT were plotted against time and the area under curve was defined as total TAC exposure. Patients were divided into high and low TAC exposure according to the median TAC exposure.
Results:
Eighty-five patients were included (high TAC n=42, low TAC n=43). The TAC exposure of the 2 groups became similar from 3rd to 5th year after LT. The eGFR at 5-, 10- and 15-year after LT were 107.6 vs. 116.0, 111.9 vs. 117.8 and 98.7 vs. 118.3 in the high and low TAC group respectively although there was no difference in serum creatinine level. Long-term complication rates for ACR, OI and PTLD were similar in both groups (11.9% vs. 7.0% and 2.4% vs. 2.3% and 26.2% vs. 18.6%). Growth of LT recipients was comparable to the general population and there was no difference between the two groups for body weight, height and body mass index.
Conclusion
Early TAC exposure is detrimental to the long-term renal function of pediatric recipients while the risk of ACR, opportunistic infection and graft survival were similar. TAC exposure should be reduced early after LT as long as graft function allows, in order to preserve long-term renal function.

Day 1 November 25 (Fri), 2022 Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

MO11-1 Reproducibility of Computed Tomography Volumetry for Predicting Post-donation Remnant Renal Function: A Retrospective Analysis

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Background: Split renal function calculated by computed tomography volumetry (CTV) is equally or more useful than that calculated by nuclear renography for donated kidney side selection. However, it remains unclear whether CTV accurately reflects split renal function as measured by nuclear renography. Therefore, this study aimed to evaluate the reproducibility of CTV.

Methods: Data from 141 donors who underwent living donor nephrectomy at Nara Medical University from March 2007 to June 2021 were reviewed. The correlation and agreement between the predicted post-donation estimated glomerular filtration rate (eGFR) by ^{99m}Tc-diethylenetriamine penta-acetic acid (DTPA) scintigraphy and by CTV were evaluated by the Pearson correlation coefficient and Bland-Altman analysis, respectively. Moreover, a comparison in split renal function categorization between ^{99m}Tc-DTPA scan and CTV was performed.

Results: A total of 133 donors were included in the analysis. There was high correlation between the predicted post-donation eGFR by ^{99m}Tc-DTPA scintigraphy and by CTV. Moreover, there was agreement in the predicted post-donation eGFR between ^{99m}Tc-DTPA scintigraphy and CTV (Bland-Altman analysis [bias, 95% limits of agreement] ; 0.83%, -5.6%–7.3%). However, in one of 17 donors with absolute split renal function greater than 10% by ^{99m}Tc-DTPA scintigraphy, this clinically significant difference was missed by CTV.

Conclusions: There are donors for whom a clinically significant split renal function is not accurately reflected in CTV. Future studies need to amend this discrepancy.

MO11-2 Efficacy of Hemodynamic Features During Kidney Transplantation in Predicting Delayed Graft Function

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Background: Intraoperative hemodynamic instability was proven to be associated with delayed graft function (DGF) after kidney transplantation. This retrospective study aims to find the specific intraoperative hemodynamic parameters as an efficient predicting factor of DGF.

Methods: Patients undergone kidney transplantation between 2020 and 2022 with an intraoperative hemodynamic monitoring system (FloTrac^{TM}) use were enrolled. The cohort was further classified into DGF and non-DGF groups based on the definition of DGF. The length of operation was divided into three periods: induction to wound incision, wound incision to graft reperfusion, and graft reperfusion to operation complete. Hemodynamic parameters such as central venous pressure (CVP), mean arterial pressure (MAP), cardiac output (CO), and cardiac index (CI) in different periods were recorded, respectively. A comparison of parameters between these two groups was analyzed.

Results: We enrolled 49 recipients and classified them into the DGF group (n=29) and the non-DGF group (n=20). Compared to the DGF group, incision-to-reperfusion CI was significantly higher in the non-DGF group (4.05 vs. 6.20 L/min/m^2, p = 0.049). Other parameters revealed no statistical difference. Using incision-to-reperfusion CI as a predicting factor, the prediction of DGF achieved an area under the ROC curve (AUC) of 0.74 (95% CI: 0.6–0.89), with the optimal cut-point value at CI = 4.19 L/min/m^2.

Conclusions: Incision-to-reperfusion CI was statistically associated with the incidence of DGF and might be used as a valid predicting factor.

MO11-3 Arteriolar Hyalinization Predicts Outcome in Kidney Transplantation from Donors After Cardiac Death

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Backgrounds
The shortage of organ donation has led to increasing use of kidneys from marginal deceased donors. The number of kidney transplantation from donation after cardiac death (DCD) has increased in Europe and the United State. The objectives of this study are to elucidate the clinico-pathological factors that predict outcomes after kidney transplantation (KTx) from DCD.
Methods
We retrospectively analyzed 67 recipients who received KTx from DCD between 1996 and 2021 in Niigata University Hospital. Graft function was assessed using estimated glomerular filtration rate (eGFR). The recipients were divided into two groups, stable graft function (Group 1. N=43) and poor graft function that eGFR decreased ≥ 25% after transplantation (Group 2. N=24). We performed histologic analysis of preimplantation biopsies.
Results
Multivariate analysis revealed that arteriolar hyalinization (Banff ah score ≥ 2) and glomerulosclerosis ≥ 15% were significantly associated with poor graft function. When the recipients were divided into 4 groups according to graft function after KTx (Improved: eGFR increased ≥ 25% after KTx / Stable / decreased: eGFR decreased ≥ 25% after KTx / Primary non-function), degree of severity of arteriolar hyalinization were associated with renal function.
Conclusions
Arteriolar hyalinization grade predicts clinical outcome after KTx from DCD. This histologic factor may guide clinical decisions regarding use, allocation, delivery of information to recipients, and minimization of immunosuppression.

MO11-4 Measurement of Glomerular Filtration Rate Using D-serine Clearance in Kidney Transplant Donors and Recipients

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Background: Clearance of D-serine (C-DSer), a rare enantiomer of serine, is expected to provide an unbiased and precise evaluation of kidney function.
Methods: Altogether, 200 living kidney transplant donors and recipients were enrolled in a single Japanese center. D-serine levels in the blood and urine were measured by two-dimensional high-performance liquid chromatography. Analytical performance was assessed by calculating biases. We developed equations for the clearance of insulin (C-in) based on C-DSer and that of creatinine (C-cre) using data from 129 participants using a linear regression model. The performance was validated in 68 participants using these equations.
Results: The means of C-in and C-DSer were 66.7 and 55.7 mL/min/1.73 m^2 of body surface area, respectively, in the entire cohort. C-DSer underestimated C-in with a proportional bias of 22.0% (95% confidence interval, 14.2–29.8%) and a constant bias of -1.24 (-5.78–3.31), whereas the proportional bias was minor to that of C-cre (34.6% [31.1–38.2%]). The combination of C-DSer and C-cre measured C-in with an equation which reduced the proportional bias (6.5% [-0.2–13.1%]). In the validation dataset, this equation performed well with a high ratio of agreement (ratios of 30% and 15% different from C-in [P30 and P15] of 98.5 [91.4–100] and 89.7 [80.0–95.2], respectively).
Conclusion: The smaller proportional bias compared to that of C-cre is an advantage of C-DSer in measuring C-in. Combinational measurement of D-serine and creatinine has the potential to serve as a measure of glomerular filtration rate [A3] with precision and minor biases, which can support clinical decisions.

MO11-5 Dual Kidney Transplantation from a Donor with Renal Insufficiency

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The number of cadaver kidney transplantation is limited, because of shortage of donors in Japan.
Also, even if the donor indicates the intention to donate the organ, transplantation may be difficult due to the condition of the organs.
Then dual kidney transplant might enable greater use of marginal kidneys and reduced waiting time.
In this study, we performed dual kidney transplantation for a 52-year-old woman after donating 2 kidneys from a marginal donor with a Cre level of about 1.4.
dual kidney transplant has enabled greater use of marginal kidneys and reduced waiting time.
We herein report the case of dual kidney transplantation. The patient was 50-year-old female with unexplained proteinuria and gradual decline in renal function.
She became a donated kidney transplant recipient after 16 years of waiting.
The donor was a 61-year-old male with no medical history or hospital history. he was hospitalized due to cerebral hemorrhage and cerebral ventricular perforation.
After hospitalization, he was diagnosed with postresuscitation encephalopathy.
The Cre level at the time of admission was in the 2 mg/dl range, and the Cre level at the time of brain death was 1.4 to 1.6 mg/dl.
he was defined marginal donor due to Cre level and other facilities declined. So we performed Dual kidney translation
Although it takes about 6 weeks after operation until urine output stabilizes, Cre level has been stable at around 1.5 mg/dl of Cre.

MO11-6 Fluctuations of the Serum Creatinine Level in Kidney Transplant Patients with Arteriosclerosis

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Background. Patients with maintenance kidney transplants are subjected to blood tests in the outpatient clinic. After they have been examined by the transplant physician, the recipient transplant coordinator interviews the patients and their accompanying family members. In addition to providing general guidance for life after kidney transplantation, the blood test results are reviewed to confirm the understanding of the patient and the transplant physicians recommendation. The serum creatinine level of some kidney transplant patients fluctuates markedly from visit to visit, and such patients experience a high level of anxiety about rejection and deterioration of kidney graft function.
Purpose. To investigate retrospectively factors related to changes in the serum creatinine level in patients with maintenance kidney transplantation.
Subjects. Seventy-four stable maintenance kidney transplant patients attending our kidney center for outpatient visits. Patients with transplant rejection or infectious disease were excluded.
Methods. The coefficient of variation of the serum creatinine level was determined based on all serum creatinine test results in the past year, and related factors including recipient age, post-transplant years, body mass index, hypertension, diabetes, brachial-ankle pulse wave velocity, ankle-brachial index were subjected to multivariate analysis.
Results. The brachial-ankle pulse-wave velocity was significantly associated with the coefficient of variation of the serum creatinine level in a multivariate analysis ($p = 0.048$).
Conclusion. Fluctuations of the serum creatinine level of unknown cause in stable maintenance kidney transplant patients were suggested to be related to arteriosclerosis.

MO12-1 Kidney Transplantation After Open Surgery of Type A Aortic Dissection

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Cardiovascular complications are frequent after kidney transplantation and represent the main cause of death. However, aortic dissection is a rare and infrequent reported event. We performed kidney transplantation in a 67-year-old man with end-stage renal failure due to IgA nephropathy, who had undergone conventional surgery for a Stanford type A aortic dissection 3 years earlier. A contrast computed tomography scan before transplantation revealed an aortic dissection from the descending aorta to bilateral common iliac arteries. The dilatation of the descending aorta was also observed (the maximal aortic diameter was 4.3 cm.). We wondered a potential complications of graft flow using the anastomosis with a false lumen during kidney transplantation. The internal iliac artery was employed for end-to-end anastomosis. The postoperative period was uneventful and the patient was discharged from the hospital at postoperative day 13 with a serum creatinine of 1.6 mg/dL. At 3 years after kidney transplantation, graft function was stable. Although the occurrence of aortoiliac lesions with renal transplantation is an increasingly common combination that causes problems regarding operative strategy and indications for aortoiliac reconstruction and renal transplantation, our case shows that kidney transplantation might be performed in patients requiring prior aortoiliac reconstruction.

MO12-2 Robot Assisted Kidney Transplantation: A Case Series

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Introduction: Kidney transplantation is the treatment of choice for patients with end-stage renal disease (ESRD). Although the standard of care for kidney transplantation has been the open approach, morbidities associated with open surgery, including greater postoperative pain, prolonged hospital stay, and higher risk of surgical site infections, have been a subject of concern. The introduction of minimally invasive surgery and further incorporation of robotic techniques have allowed surgeons to perform precise surgical techniques while reducing operative morbidity in kidney transplantations.
Methods: Here we report on our single center experience with Robot Assisted Kidney Transplantation (RAKT). From August 2021 to June 2022, we reviewed a total of 13 cases of RAKT from living donors for its intraoperative and postoperative outcomes.
Results: The mean age was 32.2 years old, with a median BMI of 19.9 kg/m^2. In particular, a mean operative time of 323.5 minutes, median vascular anastomosis time of 50 minutes, and median estimated blood loss of 313mL were recorded. Patients were discharged at a median postoperative date of 11. Postoperative mean Cr at 1 month 1.27 mg/dL, and 100% patient and graft survival were confirmed. One patient was converted to open transplantation.
Conclusion: These findings suggest RAKT is a feasible and safe procedure with the possible advantages of lower morbidity associated with open surgery. More importantly, RAKT appears to be a minimally invasive surgery that does not compromise renal function, graft survival, and patient survival.

MO12-3 En Bloc Kidney Transplant from Pediatric Donors to Teenage Recipients: A Single-center Experience

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In Japan, 10–25 pediatric cadaveric kidney transplants have been performed annually since the revised Organ Transplant Law was implemented in 2011. Furthermore, since the publication of the new selection criteria (kidney donations from pediatric donors are given priority to pediatric recipients) in 2018, kidney donations from pediatric donors have increased accordingly. Kidney transplantation from underweight pediatric donors is recommended as en bloc transplantation to prevent graft thrombosis and over-filtration into the glomerulus. Herein, we present two cases of en bloc kidney transplantation performed at our institution. Case 1: A 19-year-old male patient with end-stage renal disease due to Alport syndrome had been on hemodialysis for 5 years. After brain death, the en bloc graft from a 5-year-old boy was transplanted into the right iliac fossa. The graft abdominal aorta was anastomosed end-to-end to the internal iliac artery, and the graft IVC was anastomosed end-to-side to the external iliac vein. Case 2: A-19-year-old male patient with a history of living-related kidney transplantation for hypoplastic kidney 8 years ago underwent a second cadaveric en bloc kidney transplantation in the left iliac fossa. The en bloc graft was obtained from a 1-year-old girl after cardiac death. The abdominal aorta was anastomosed end-to-side to the external iliac artery, and the IVC was anastomosed end-to-side to the external iliac vein. These cases of en bloc kidney transplantation have shown favorable outcomes to date.

MO12-4 A Case of Laparoscopic Donor Nephrectomy for Ectopic Kidney

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Ectopic kidney is a relatively rare congenital anomaly in which kidney doesn't ascend to its normal position during embryonic development. This incomplete location leads a variety of congenital anatomies such as a shorter ureter, and multiple renal arteries and veins. These anomalies are a problem in donation for kidney transplantation. We present here the case of laparoscopic donor nephrectomy for ectopic kidney.

The donor was a 54-year-old woman donating a kidney to her sister. Physical examination was normal with a BMI of 24.9kg/m^2. Her serum creatinine was 0.72mg/dl, inulin clearance was 83 ml/min/1.73m^2 and urine protein was no detectable. Pre-operative CT showed a right kidney located in the pelvis. The renal volumes of left and right kidneys were 205ml and 125ml, respectively and split renal functions of the left and right kidneys were 65.3% and 34.7%, respectively. The laparoscopic right donor nephrectomy was performed using a trans abdominal approach. Renal artery was located about 3cm above the common iliac vein bifurcation and crossed the ventral side of the inferior cava. Additionally, the right ureter was short and located ventral for kidney malrotation. The procedure was performed successfully without complications, though animalities of the renovascular system were observed. The right kidney was dragged out of the right lower abdominal para-rectal incision. Then, kidney transplant surgery was performed as usual. The postoperative course of the donor and the recipient were uneventful.

MO12-5 Arterial Anastomosis with Plication of Internal Iliac Artery for Kidney Transplantation

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Introduction: To demonstrate the novel technique of arterial anastomosis with plication of internal iliac artery for kidney transplantation.
Materials and Methods: From December 2017 to December 2021, 71 adult patients underwent living kidney transplantation. Due to its size, the internal iliac artery was plicated with 5-0 Proline to facilitate an end-to-end anastomosis with the donor renal artery. We compared the outcomes of these recipients to those of recipients without the plication of the internal iliac artery.
Results: There were 36 recipients who received kidney transplantation through end-to-end anastomosis to the internal iliac artery. Among them, 6 recipients used arterial anastomosis with plication of internal iliac artery for kidney transplantation. All surgeries were successfully completed without complication, with a mean operation time of 302 minutes and with a mean blood loss of 147 mL. In contrast, a mean operation time was 297 minutes, and a mean blood loss was 202 mL in the 30 recipients without plication of the internal iliac artery.
Conclusion: In this study, arterial anastomosis with plication of internal iliac artery demonstrated successful outcomes in management of kidney transplantation. This technique can provide adequate perfusion to the transplant kidney without the associated risks and complications in the patient whose internal iliac artery is of a good diameter and quality.

MO12-6 Orthotopic Ileal Neobladder Reconstruction for Post Renal Transplantation Urothelial Carcinoma

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A 64-year-old man with chronic renal failure of unknown origin commenced hemodialysis therapy in 19XX and underwent cadaveric renal transplantation in 19XX. The patient was treated using an induction chemotherapy regimen comprising basiliximab, corticosteroids, tacrolimus, and mizoribine and also received a maintenance regimen comprising corticosteroids, tacrolimus, and mizoribine. Laboratory investigations showed serum creatinine of 0.7 mg/dL at discharge. He visited our hospital in 20XX(19 years after transplantation) for evaluation of asymptomatic macroscopic hematuria. His urinary cytological examination was categorized as class 4. Cystoscopy revealed multiple bladder tumors, and we performed transurethral resection of bladder tumors. Histopathological findings showed urothelial carcinoma(G3>G2, pT2 concomitant carcinoma in situ). Computed tomography revealed no distant metastases. Post-transplantation retrograde pyelography revealed no obvious abnormalities, and post-transplantation urinary cytological examination was categorized as class 2. We recommended radical cystectomy and ileal conduit diversion for bladder cancer. However, the patient refused urostomy and underwent an open bilateral native nephroureterectomy and orthotopic ileal neobladder reconstruction after radical cystectomy. The patient is able to urinate independently and has recovered well without worsening renal function(serum creatinine level approximately 0.7 mg/dl), rejection, or urinary tract infection. Cancer recurrence is not observed 6 years postoperatively.

Day 1 November 25 (Fri), 2022 Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

MO13-1 Effectiveness of CT Volumetry in Evaluating Living-donor Renal Function

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[Introduction] In recent years, CT volumetry (CTV) using a 3D image analysis system, SYNAPSE VINCENT (Fujifilm, Tokyo, Japan), has been employed as another tool for evaluating kidney function. In this study, we compared MAG3 and CTV in terms of evaluation of living-donor kidney function.
[Materials and Methods] Between 2009 and 2017, 136 living kidney donors underwent nephrectomy at Akita University Hospital. All 136 subjects underwent both MAG3 and CTV image analyses. In addition, the relationship between effective renal plasma flow (ERPF, determined by MAG3) and renal cortical and parenchymal volume (determined by CTV) was analyzed using Spearmans rank correlation coefficients.Additionally, we analyzed the relationship between estimated glomerular filtration rate (eGFR) and ERPF or CTV.
[Results] For preoperative eGFR, bilateral ERPF, and bilateral renal cortical and parenchymal volume, the Spearmans rank correlation coefficient (r) was 0.415, 0.366, and 0.364, respectively. The relationship between postoperative living-donor kidney and living-donor residual kidney functions estimated from preoperative MAG3 and renal cortical and parenchymal volume indicated that the renal parenchymal volume had the strongest correlation with postoperative living-donor kidney function (r = 0.802).
[Conclusions] Evaluation of kidney function using CTV with SYNAPSE VINCENT may be more reliable than MAG3 as a predictive tool for postoperative living-donor kidney function.

MO13-2 The Impact of Intraoperative Graft Blood Flow Measurement on Early Graft Function

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Objectives
The aim of this study is to evaluate the impact of intraoperative allograft vascular flow on the early kidney graft function.
Methods
A total of 159 patients underwent kidney transplantation from January 2017 to March 2022 at Linkou Chang Gung Memorial Hospital. The majority anastomosis of graft vessels were done with end-to-side manner to the external iliac vessels. Real-time graft blood flow was measured with transit time flowmeter(Transonic HT353) after ureteroneocystostomy. Graft arterial and venous blood glow was measured separately. The early outcomes including postoperative creatinine level and daily urine output were analized accordingly.
Results
There were 83 males and 76 females with mean age of 44.5 years. The mean graft arterial flow measured was 480.6 ml/min and the mean venous flow was 506.2 ml/min. The incidence of DGF was 36.3% in our cohort and 46.4%, 53.4% in living donor and deceased donor group, respectively. Living donor and deceased donor kidney transplantation were analyzed separately. In DGF subgroup, threre were lower graft venous flow (411.7±222.5 ml/min vs. 597.5± 269.1 ml/min, p=0.005), higher BMI (26.6± 5.7 vs. 22.7± 4.0, p=0.001) and being male patients in living kidney transplant group. Similarly, the deceased donor kidney transplantation group with delayed graft function tend to have higher body height, higher body weight, higher BMI and more diabetes mellitus. The multivariate analysis showed lower graft venous blood flow (OR=0.995, p=0.008) and higher BMI (OR=1.144, p=0.042) were significant correlated with delayed graft function in living donor kidney transplantations. In deceased donor kidney transplantation patients, multivariate analysis of risk factors showed BMI had significant correlation with delayed graft function (OR=1.41, p=0.039).
Conclusion
Graft venous blood flow was significantly associated with delayed graft function in living donor kidney transplantation and high BMI was correlated with DGF in all patient received kidney transplantation.

MO13-3 The Characteristics of Renal Cell Carcinoma Patients Who Received Dialysis and/or Kidney Transplant

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Aim Increase of incidence of renal cell carcinoma (RCC) has been reported in long-term dialysis patients. We investigated the characteristic of RCC patients who received dialysis and/or kidney transplant (KT).

Methods We identified 29 patients who were diagnosed with RCC and received dialysis (N=28) and/or KT between 2004 and 2019. Of the 28 dialysis patients 5 received KT before or after diagnosis of RCC. One patient received KT without dialysis. We evaluated background of the patients and the clinical course of RCC.

Results The average age was 57.0 years, and the average time of dialysis before the diagnosis of RCC was 12.2 years. The average follow-up period was 5.3 years. Six cases received KT, and of them 3 and 3 was diagnosed incidentally as stage I RCC before and after KT, respectively. Initial tumor stage I, II, III, and IV disease was observed in 24, 1, 1 and 3, respectively. Twenty-four (82.8%) patients were incidentally discovered as renal tumor during health check and 3 (10.3%) had symptom such as gross hematuria (N=1), fever (N=1) and general fatigue (N=1). Tumor recurrence was observed in 6 patients including contralateral renal tumor in 2, lung metastasis in 2, liver metastasis in 1 and cerebella metastasis in 1. Four patients were dead due to RCC. No significant difference on age, smoking history, initial tumor stage, duration of dialysis, KT performed was observed between patients with and without tumor recurrence. Furthermore, no significant difference on background of the patients between patients who were incidentally discovered without symptom and those had symptom.

Conclusion Most of our patients were diagnosed early staged RCC during follow-up of dialysis or KT. Establishment of more appropriate follow-up protocol for checking renal mass regularly would be warranted.

MO13-4 Recovery Rate of Renal Plasma Flow After Kidney Transplantation did not Differ in the Choice of Renal Arterial Anastomotic Site

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Purpose: Acquiring better inflow and recovery of blood supply to the renal graft is very critical in clinical kidney transplantation. This study aims to evaluate whether inflow to the kidney allograft is different in the choice of arterial anastomotic site.

Methods: Among 304 living-related kidney transplant recipients from December 2012 to June 2019 at our institution, we included 100 recipients who received kidney allografts with a single renal artery. We compared two phases of effective renal plasma flow (ERPF) of kidney allografts that were measured by renal scintigraphy (^{99m}Tc-MAG3) in each donor before transplantation (dERPF) and recipient on the day of transplantation (rERPF). This cohort did not include the recipients with renal scintigraphy of acute tubular injury patterns. The patients were divided into three groups according to the site of the renal arterial anastomosis: Group C, the common iliac artery, n = 12; Group E, the external iliac artery, n = 44; and Group I, the internal iliac artery, n = 44.

Results: rERPF in each group was not statistically different (ANOVA): Group C vs E vs I, 229.1 ± 93.5 vs 230.5 ± 95.9 vs 241.6 ± 113.6 mL/min, respectively. Comparison of the recovery rate of ERPF (rERPF/dERPF) in each group was as follows: Group C vs E vs I, 0.79 ± 0.25 vs 0.94 ± 0.36 vs 0.99 ± 0.46, respectively (Fig. 1). This was not statistically different (analyzed by ANOVA). A comparison of the difference between eGFR at 1 year and 1 month after the transplantation ([eGFR 1Y - eGFR 1m] /eGFR 1m) revealed no statistical differences among each group.

Conclusions: The recovery rate of the renal plasma flow after kidney transplantation and kidney allograft function did not differ according to the difference in the arterial anastomotic site.

MO13-5 Does the Plurality of Donor´s Renal Artery Affect the Renal Function of Living Kidney Transplant?

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Introduction(Objective)
Living-donor kidney allografts with multiple vessels require surgeons to pursue more complex vascular reconstructions, which has previously been associated with longer ischemic time and higher risk of developing early post-transplant complications. Since it is still controversial issue whether living-donor renal allografts with multiple arteries affect the renal function after kidney transplantation, we investigated a retrospective single institutional experience of the outcome of using living-donor renal allografts with a single artery vs. multiple arteries at the time of transplant.
Methods
Sixty-five recipients who underwent living donor kidney transplant from July 2006 to December 2020 in our institution were enrolled in this study. Among them, 40, 21, and 4 grafts had single, double, and triple arteries, respectively. The recipients were divided into two groups: single artery (Group A; n=40) and multiple arteries (Group B; n=25) group. The warm ischemic time (WIT) and total ischemic time (TIT) at transplantation, and estimated-glomerular filtration rate (eGFR) after transplantation between the two groups were compared, using Mann-Whitney U test.
Results
The WIT and TIT of group A was shorter than Group B with median of 6 vs 7 minutes (P=0.018), 132 vs 155 minutes (P=0.017), respectively. On the other hand, the eGFR of Group A and B were similar with median of 46.92 vs 48.57 (P=0,763), 44.64 vs 46.98 (P=0.952), 49.03 vs 50.58 (p=0.238), and 50.29 vs 52.21 mL/min (p=0.686), four days, seven days, two weeks, and two months after transplantation, respectively.
Conclusions
While ischemic time was longer in the Group B, renal function after transplantation of both groups were not statistically different. Since this study shows that the plurality of renal artery of the graft did not influence their renal function until two months after transplantation, kidney transplantation can be conducted safely in terms of immediate renal function, even if the donor has multiple renal arteries.

MO13-6 Perfusate NGAL, KIM-1, L-FABP, and IL-18 May Act as Biomarkers to Predict Delayed Graft Function and Long-Term Prognosis in Kidney Transplant Recipients

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Background
Delayed graft function (DGF) caused by ischemia-reperfusion injury (IRI) is a common pathophysiological process that should be monitored by specific biomarkers in addition to the serum creatine. In perfusate, neutrophil gelatinase-associated lipocalin (NGAL), kidney injury molecular-1 (KIM-1), liver-type fatty acid binding protein (L-FABP) and interleukin-18 (IL-18) have great potential as biomarkers in acute kidney injury (AKI). Thus, this study aims to evaluate their predictive values for DGF and long-term prognosis in kidney transplant recipients (KTRs).
Method
In this retrospective study, 102 KTRs were enrolled from 2016 to 2018 and followed up for 3 years. Perfusate samples of DCD kidneys were collected from strictly controlled static perfusion solution for testing before transplantation. Four perfusate biomarkers, NGAL, L-FABP, IL-18 and KIM-1 were measured by ELISAs to evaluate their predictive power for DGF and long-term graft prognosis.
Result
The level of NGAL in the two groups was [DGF: 203.67±44.27 vs non-DGF: 147.03±40.34, P<0.001], and the level of KIM-1 in the two groups was [DGF: 190.86±42.94 vs non-DGF: 135.27±39.38, P<0.001]. Univariate logistic analyses indicated that higher NGAL (OR=1.033, CI=1.016-1.051, P<0.001) and KIM-1 (OR=1.035, CI=1.016-1.054, P<0.001) is associated with DGF in KTRs. Multiple logistic regression analyses showed that NGAL (OR=1.204, CI=1.057-1.372, P=0.005) and KIM-1 (OR=1.248, CI=1.065-1.463, P=0.006) could be regarded as independent risk factors. Nevertheless, there was no evidence to prove that perfusate L-FABP and IL-18 are relevant to DGF. ROC curves revealed that NGAL had a sensitivity of 85.7% and a specificity of 79.5%, while KIM-1 had a sensitivity of 85.7% and specificity of 68.2%. Spearman correlation analyses demonstrated that NGAL decreased the 3-year eGFR by 0.208 ml/min/1.73 m^2 for each 1 ng/ml of NGAL elevation (P=0.036) and that KIM-1 decreased the 3-year eGFR by 0.260 ml/min/1.73 m^2 for each 1 ng/ml of KIM-1 elevation (P=0.008). However, in our study, perfusate L-FABP and IL-18 were negatively correlated with long-term graft function, such as 3-year eGFR, graft survival or urine albumin.
Conclusion
Perfusate NGAL and KIM-1 could be potential biomarkers to predict DGF and 3-year eGFR in KTRs.
Keywords
Biomarker; kidney transplantation; delayed graft function (DGF); predictive value; prognosis

MO14-1 A Case of Laparoscopic Donor Nephrectomy from a Horseshoe Kidney in a Married Couple Undergoing Living Donor Renal Transplantation

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The chronic shortage of donors has forced some patients with congenital renal malformations to undergo renal transplantation. In this report, we describe a case of a living donor renal transplantation performed laparoscopically in a married couple with a horseshoe kidney. Recipient is a 52 year old female. Donor is a 55 year old male. A patient with chronic renal failure due to diabetic nephropathy underwent ABO blood type incompatible donor specific antibody (DSA) positive living donor renal transplantation with her husband as the donor. HLA was 3mismatch, DSA was DQ6 (MFI: 6440), and the donor was a horseshoe kidney (Type 2) at preoperative examination, but both spouses strongly desired transplantation. Preoperatively, the patient underwent desensitizing antibody removal therapy with rituximab 160 mg (100 mg/m2) twice, double filtration plasma exchange (DFPP) four times, and donated blood venoglobulin IH 60 g (1000 mg/kg) four times. Donor surgery was performed by hand-assisted laparoscopy, and the isthmus was dissected using kidney-glasper forceps. Donor surgery was performed by hand-assisted laparoscopy, and the isthmus was dissected using kidney glasper forceps. No serious complications such as bleeding or urinary fistula were observed intraoperatively. The recipient's serum creatinine level remained around 0.9 mg/dl. The donor's serum creatinine level was 1.62 mg/dl postoperatively, but improved to 1.17 mg/dl at 1 month postoperatively. This is the 15th case of living donor renal transplantation of a horseshoe kidney that we have been able to find, and the first laparoscopic donor nephrectomy in the world. The postoperative course of both the recipient and the donor is good, but long-term follow-up is needed in the future.

MO14-2 A Case of Kidney Transplantation After Multiple Urinary Tract Conversion with an Ileal Conduit

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The patient was a 46-year-old woman, who had a right atrophic kidney, ectopic opening of the left ureter, and urethral dysplasia since birth. The patient underwent right nephrectomy, left ureteral sigmoidostomy, Stamey surgery, augmentation ileocystoplasty, and left ureteroileostomy. Thereafter, she underwent nephrostomy and ileal conduit diversion owing to persistent urinary incontinence when she was 30 and 37 years old, respectively. When she was 42 years old, she underwent an open sigmoid colectomy with lymph node dissection owing to sigmoid colon cancer. A total cystectomy was also performed thereafter owing to recurrent cystitis. Her renal function gradually deteriorated, and hemodialysis was initiated. A kidney transplant was performed when the patient was 46 years old. Then, a kidney from a living donor was transplanted in the right iliac fossa through the existing right ileal conduit. Her renal function stabilized, and there have been no noted signs of rejection for 2 years.

MO14-3 A Case of Kidney Transplantation After TAE for Cyst Infection in a Hemodialysis Patient with ADPKD

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In autosomal dominant polycystic kidney disease (ADPKD) patients, the frequency of cystic infections is high. Treatment options include antimicrobial therapy, puncture drainage, and nephrectomy, but there are problems such as recurrence and surgical risk. We report a case of a patient with repeated renal cyst infection that was controlled by transcatheter arterial embolization (TAE) and successfully treated with living donor kidney transplantation. A patient is a 33-year-old woman on hemodialysis with ADPKD as primary disease. She had been hospitalized twice for cyst infection, both times improved by antimicrobial treatment. She was scheduled for a living donor kidney transplant with her mother as the donor. 2 months before the surgery, she was hospitalized with a cyst infection again and treated with antimicrobial treatment and puncture drainage, but the surgery was postponed. She was subsequently re-hospitalized for cyst infection and required antimicrobial treatment. Therefore, she underwent TAE of the right kidney followed a week later by TAE of the left kidney with the aim of controlling cyst infection. Thereafter, no cyst infection was observed, and a living donor kidney transplant was performed 7 months after TAE. The patient was discharged on the 26th postoperative day. 17 months have passed without recurrence of cyst infection. TAE is less invasive than nephrectomy and may be considered as an option for patients with refractory and recurrent cystic infections. Further studies are needed to determine the efficacy and optimal timing of TAE for renal cyst infection.

MO14-4 Rapid Deterioration of Graft Function in Kidney Transplant from The Donor with Diffuse Proliferative Lupus Nephritis with Thrombotic Microangiopathy

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(Introduction) In the era of donor shortage, using kidneys from marginal donors has significantly increased. There were a couple cases which reported a successful renal transplant from a deceased donor with diffuse proliferative lupus nephritis (DPLN). Here, we report rapidly deteriorating graft function in a kidney transplant from the donor with a history of systemic lupus erythematous (SLE) whose time zero biopsy revealed DPLN and thrombotic microangiopathy (TMA).
(Methods) Two patients underwent deceased kidney transplant from a donor with a history of SLE. The clinical and pathological outcomes were analyzed.
(Results) Donor's initial serum creatinine was 1.2mg/dL and proteinuria was one positive. Creatinine level went up to 4.4 mg/dL during the donor management, with urine output maintained about 50 or 100ml/hr. Kidney transplants for both recipient were done uneventfully. On the first postoperative day, the time zero biopsy results were reported as diffuse proliferative lupus nephritis with thrombotic microangiopathy (TMA). It also had acute antibody mediated rejection (AMR) mimic findings which included intimal arteritis (v3), peritubular capillaritis (ptc 2) and C3d positive. Both recipients' creatinine levels were not improved and hemodialysis was started a couple days after transplant. The serial biopsies showed continuously worsening vasculitis and inflammation. The interstitial fibrosis was rapidly progressed within a month after transplant.
(Conclusion) There has been a couple reports which describe the successful renal transplantation from a donor with diffuse proliferative lupus nephritis. However, if the potential deceased kidney donor with a history of lupus nephritis shows TMA features, especially with the time zero biopsy-proven TMA, the kidney transplant should be avoided.
Donor thrombocytopenia 48x103/uL
Anemia hemoglobin 7.6 g/dL hematocrit 23.5%

MO14-5 Effectiveness of Lymphatic Lipiodol Embolization for Post Renal Transplant Lymphoceles

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Introduction: Lymphocele is a relatively common complications after kidney transplantation. Although the majority of cases are asymptomatic and self-limiting, interventional treatment is required for cases with worsening kidney function, deep vein thrombosis, lower leg edema or urinary tract obstruction. A wide range of treatment strategies are available, but there is no consensus on the optimal management as far as high recurrence and complication rate is concerned.
Case Description: A 75 year-old man with end-stage kidney disease due to diabetic nephropathy underwent ABO-incompatible living kidney transplantation from his wife. His perioperatively course was uneventful. He developed right lower leg edema 1 month after the surgery . Abdominal CT scan revealed the lymphoceles around the transplanted kidney with external iliac vein compression. Percutaneous catheter drainage reduced the size of lymphocele transiently only for 1 day. Since, right intranodal lymphography demonstrated active lymph leakage (Figure), we performed lymphatic embolization with Lipiodol. The lymphocele was diminished and his lower leg edema was improved successfully.
Discussion: Regarding treatment of lymphocele after kidney transplantation, high recurrence rate after aspiration and drainage have been important issue. Furthermore, sclerotherapy can cause allergy for sclerosant and spillage of it induces inflammation around the graft. Recently some case reports have indicated that lymphatic lipiodol embolization is effective for lymphoceles. Our case suggested that it is minimally invasive and safe for treatment as well as diagnosis of lymphoceles after kidney transplantation.

MO14-6 A Case Report of Thrombosis in a Transplanted Kidney Caused by PHD Inhibitor Administration in Our Hospital

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[Background]
Prolyl hydroxylase inhibitors (PHD inhibitors) are expected to be a novel treatment for renal anemia in patients with renal failure. However, activation of hypoxia-inducible factor (HIF) by PHD inhibitors has been reported to cause thrombus formation, inflammation, and tumor growth. The efficacy and safety of PHD inhibitors in transplant patients are not yet clear.
[Case report]
A 54-year-old woman was introduced to dialysis in 2004 due to end-stage renal failure of unknown cause, and underwent a living donor renal transplant from her own father in 2006. June 2021 blood test showed Cr2.44mg/dl, eGFR17ml/min, U-P/U-Cr0.31g/g-Cr, Hb11.1g/dl, Ht34.7%, ferritin 362ng/ml, Fe133μg/dl, TIBC209μg/dl, TSAT64%. She was switched from darbepoetin alfa 120 mg to Roxadustat 50 mg (PHD inhibitor) for post-transplant renal anemia. July 2021 blood test showed Cr2.47 mg/dl, eGFR 17 ml/min, U-P/U-Cr0.38g/g-Cr, Hb10.6g/dl, Ht33.0%, ferritin 305ng/ml, Fe131μg/dl, TIBC 256μg/dl, TSAT 51%, and renal anemia was poorly improved. Therefore, the dose of Roxadustat was increased to 100 mg. On November 5, 2021 petechial hemorrhage appeared in her extremities and trunk. Blood tests showed Cr3.36 g/g-Cr, U-P/U-Cr1.51 g/g-Cr and deterioration of transplant renal function; Hb10.2 g/dl, Ht30.7%, ferritin 477 ng/ml, Fe148 μg/dl, TIBC195 μg/dl, TSAT 76%, anemia continued. On November 10, 2021, a transplant kidney biopsy was performed, which revealed microthrombosis in the transplanted kidney, suggesting microthrombotic dysfunction of the transplanted kidney. A skin biopsy showed vasculitis. Based on the biopsy results, Roxadustat was discontinued, but there was no improvement in transplant renal function, with Cr 3.45 mg/dl and eGFR 12 ml/min in December 2021.
[Discussion]
PHD inhibitors contribute to anemia improvement by enhancing iron utilization as well as endogenous EPO production. On the other hand, there is concern that PHD inhibitors may induce microthrombosis and inflammation due to HIF activity. We have experienced a case of microthrombosis in the transplanted kidney during PHD inhibitor administration in a renal transplant patient, which led to a decrease in transplant renal function. We believe that careful evaluation, including evaluation of iron, is necessary when PHD inhibitors are administered, especially when PHD inhibitor doses are increased.

Day 1 November 25 (Fri), 2022 Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

MO15-1 Frailty and Sarcopenia in Older Kidney Transplant Recipients: A Cross-sectional Study

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Objectives
The objective of this study is twofold; firstly, to investigate the prevalence of frailty by the revised Japanese version of the Cardiovascular Health Study (J-CHS) criteria and the Kihon Checklist (KCL) and that of sarcopenia by the Asian Working Group for Sarcopenia (AWGS) 2019 as well as the relationship between frailty and sarcopenia, and secondly, to determine the concurrent validity of the KCL with the revised J-CHS criteria in older kidney transplant recipients.
Methods
Spearman's correlation analysis was used to investigate the correlation between the KCL score and the revised J-CHS score. The concurrent validity of the KCL for estimating frailty by the revised J-CHS criteria was evaluated using the receiver operating characteristics (ROC) curve analysis.
Results
Out of 100 older kidney transplant recipients, the prevalence of sarcopenia by the AWGS 2019 and frailty by the revised J-CHS criteria and the KCL was 16%, 15%, and 19%, respectively. Sarcopenia was significantly associated with frailty by the KCL ($p=0.016$), while not with frailty by the revised J-CHS criteria ($p=0.11$). The KCL score significantly correlated with the revised J-CHS score ($p<0.001$). The area under the curve value of the ROC curve was 0.91.
Conclusions
In old kidney transplant recipients, frailty and sarcopenia were highly prevalent and frequently co-exist. Furthermore, the KCL was verified a useful tool for frailty screening in older kidney transplant recipients.

MO15-2 Adverse Effect of Denosumab in Renal Transplant Recipient, 20-Year Retrospective Monocentric Observational Study

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Introduction:
Bone mineral density decreased after renal transplantation and related with fracture event. Denosumab, a potent monoclonal antibody to RANK ligand which was used for prevention bone mineral density loss. However, safety data still limited in renal transplant recipient.
Method
We retrospective electronic medical record of kidney transplant recipient who prescribed anti-resorptive agent in recent 20 years. No complete BMD score at least once was excluded. Medical records and their clinical data were reviewed and analyzed. We compared frequency of adverse effect of denosumab with other anti-resorptive agent. Our study was approved by Ethics Committee of Taichung Veterans General Hospital, IRB approval CE22167A.
Result: Total 75 patient enrolled and 46 used denosumab. Incidence of mortality, opportunistic infection, pneumonia, and genitourinary tract infection are similar in both group. Both one osteonecrosis of the jaw noted on denosumab group (2.2%) and compare group(4.3%). More hypocalcemia(<8.4 mg/dl) event noted in denosumab group(21.7%) but no significant difference in frequency of severe hypocalcemia(<7.0mg/dl) event in both group.
Conclusion: Denosumab might be as safe as other anti- resorptive therapy in kidney transplant recipient. More hypocalcemia events were noted and might be cautious in clinical prescription.

MO15-3 Remarkable Improvement of Diabetic Nephropathy in Transplanted Kidney after Kidney Transplantation

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Reports on the pathological findings of transplanted kidneys with diabetic nephropathy are rare. A 53-year-old woman underwent an ABO-compatible living renal transplant. The donor was a 57-year-old man with type 2 diabetes mellitus who had been treated for 10 years. Transplant renal biopsy performed 1 h after revascularization showed increased mesangial matrix and microvascular vitrification due to diabetic nephropathy. Her blood glucose was stable. A kidney biopsy performed 7 years after transplantation showed loss of increased mesangial matrix and microvascular vitrification. We report a case of significant improvement in donor renal failure due to diabetes mellitus after renal transplantation.

MO15-4 Wound Complications Following Renal Transplantation. A Single Centre Experience

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Purpose
Perioperative wound complications are associated with significant morbidity in post kidney transplant patients. Patients with raised BMI and diabetes are at increased risk of surgical complications in the general surgical population. We hypothesised that these two factors increased the risk of wound complications in kidney transplant recipients. This retrospective analysis sought to identify factors contributing to wound complication following renal transplantation.
Methods
We performed a single centre retrospective cohort analysis of kidney transplant recipients between July 2019-June 2020 at Prince of Wales Hospital, Randwick, Sydney. We used the departmental database and electronic medical records for data collection.
Results
A total of 24 patients with a mean±SD age of 52.4±14.3years were included in this study. One third were diabetic and 83% were male. Fifty percent of the cohort had a BMI greater than 25.
A greater proportion of patients with wound complications had pre-transplant diabetes (38% vs 19%; p=ns). The BMI between the groups, those with wound complications and those without, was not statistically significant (29.2±6.3 vs 26.9±3.5; p=ns).
Conclusions
We were unable to demonstrate a significant difference in diabetic status or BMI between the groups, though there may have been limited by the sample size. Further study of a larger cohort is warranted.

MO15-5 The Efficacy of Switch from ESA to HIF-PHI for Anemia in RT Patients

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Objective: The aim of the present study is to clarify the efficacy and safety of switch from erythropoiesis stimulating agents(ESA) to hypoxia-induced factor prolyl hydroxylase inhibitor(HIF-PHI) for anemia in renal transplant(RT) patients(pts).
Materials and Methods: 26 pts who required treatment for anemia were divided into two groups(ESA group and non-ESA group) according to an usage of ESA or not prior to the introduction of HIF-PHI. Time course change of hemoglobin(Hb) during the 6months after HIF-PHI was investigated, and the occurrence rate of adverse events(AEs) were compared.
Result: There were 18 pts in the ESA group and 8 pts in the non-ESA group. Hb was significantly higher in the ESA group than in the non-ESA group before HIF-PHI(ESA group:non-ESA group=11.2±1.4:9.9±1.0,respectively). In the ESA group, Hb did not significantly decreased at 1month(Hb11.3±1.6,p=0.69) and 3months(Hb12.1±1.9,p=0.07) after HIF-PHI. The Hb significantly increased 6months (Hb11.9±1.5,p=0.04) after HIF-PHI. In the non-ESA group, the Hb increased at 1,3,and 6months after HIF-PHI(Hb10.5±0.7,p=0.04; Hb11.8±1.0,p=0.002; Hb12.2±1.1,p=0.01,respectively). Concerning AEs, there were 2 pts with gastrointestinal symptoms(Grade1) in the ESA group and 1 pts with anorexia(Grade1) in the non-ESA group. No significant difference was observed regarding the AEs between the two group(p=0.92).
Conclusion: HIF-PHI was effective and safe for the RT pts who had prior use of ESA. Thus, switch from ESA to HIF-PHI was recommended for further improvement of adherence of treatment for anemia in the RT pts.

MO15-6 High Alternative Health Eating Index-Taiwan Scores Is Associated with Prevent Graft Dysfunction in Taiwanese Renal Transplant Recipients

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Background. Varies dietary quality indices were demonstrated that higher dietary quality score is associated with prevent several chronic diseases. However, an index which adapted to national population is necessary to be developed. The study is to investigate the association between Alternative Healthy Eating Index-Taiwan (AHEI-Taiwan) and graft dysfunction in Taiwanese renal transplant recipients (RTRs). **Methods.** A prospective cohort study recruit 102 RTRs with a functioning allograft and without any acute rejection in the past 3 months from September 2016 to June 2018. Laboratory data were obtained from medical records; graft dysfunction was defined as an estimated glomerular filtration rate (eGFR) < 60 mL/min/1.73 m^2 according to Kidney Disease Outcomes Quality Initiative (KDOQI) guideline. Dietary quality indices were performed using AHEI-Taiwan and Alternative Healthy Eating Index-2010 (AHEI-2010) which was modified from based on Taiwanese and American dietary recommendations, respectively. **Results.** RTRs with the highest quartile of AHEI-Taiwan scores have older age and higher eGFR. Logistic regression analysis adjusted age, gender, energy, comorbidity index, body mass index and geriatric nutrition risk index was demonstrated that the highest quartile of the AHEI-Taiwan and AHEI-2010 had 88% (odds ratio [OR] , 0.12; 95% confidence interval [CI] , 0.03–0.59, p trend < 0.01) and 83% (OR, 0.17; 95% CI, 0.04–0.73, p trend < 0.01) lower graft dysfunction risl, respectively. **Conclusion.** High AHEI-Taiwan scores was associated with prevent graft dysfunction in Taiwanese RTRs.
Keywords: eating index, dietary quality, renal transplant recipients, chronic kidney disease, Alternative Health Eating Index-Taiwan

MO16-1 Successful Renal Transplantation with CML After 15 Years of Remission

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It is controversial whether renal transplantation can be safely performed in patients with a history of chronic myeloid leukemia (CML) in remission. We describe the clinical course of a 64-year-old male patient with chronic kidney disease due to diabetic nephropathy who underwent living donor kidney transplantation. The patient was diagnosed with CML 15 years ago and promptly achieved cytogenetic and molecular biological remission after starting imatinib. After that, he continued imatinib treatment for 15 years and was in remission, but his chronic kidney disease due to diabetic nephropathy gradually worsened, so he came to our hospital for a living donor kidney transplantation. A preemptive living donor kidney transplant was performed in July 2020. Imatinib for CML was discontinued after kidney transplantation due to maintenance of deep molecular remission in complete molecular response (CMR) for more than 5 years. After the kidney transplantation, the transplanted kidney function remained good at around s-Cr 1.3mg/dL without histopathological rejection, and the monthly BCR-ABL measurement results were negative and are in progress. In conclusion, if imatinib-treated CML has a long history of CMR, renal transplantation may not be absolutely contraindicated because CML can be considered an inactive malignancy.

MO16-2 Outcome of Brain Lymphoma in High EBV-Prevalence Country After Kidney Transplantation

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Background The incidence of posttransplant lymphoproliferative disorder (PTLD) in adult kidney transplant (KTx) recipients was less common in Taiwan. Among our institute, we observed the brain lymphoma as the most notorious type of lymphoma.
Methods The study is to describe the clinical, histological, and radiological features of primary central nervous lymphoma (PCNSL) and the outcome and the association of Epstein-Barr virus (EBV) infection in our center.
Results In the 1113 KTx recipients, there are 5 patients with tissue-proven brain lymphoma (0.4%). The brain pathology disclosed diffuse large B-lymphocytes in all patients. EBV was detected through in situ hybridization for EBV-EBER to disclose the EBV inclusion in the nuclei of lymphoma cells. The first step of treatment was reduction of immunosuppressant, and besides, 3 of them received whole-brain radiotherapy after complete resection of PCNSL, and 1 had received CCRT. The only one patient had poor performance status at the time of diagnosis, and was poor response to the steroid. Four of them were still survival (mean 36.5 months, range 8.6 to 57.6 months), but one was died for rapid deteriorated neurological condition.
Conclusion The EBV inclusion was found in PCNSL in our patients, however, the role of EBV in PCNSL still remains to be clarified. PTLD is a rare malignancy following KTx with a predilection of brain involvement in Taiwan. We demonstrated the successful experiences of taking care of primary CNS lymphoma, with better patient survival.

MO16-3 Outcomes of Post-Transplant Lymphoproliferative Disorder in Kidney Transplantation in Japan

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Objectives: Post-transplant lymphoproliferative disorder (PTLD) is a potentially life-threatening complication that has a greater risk of occurrence in the setting of immunosuppression and oncogenic viral infections after transplant surgery. Few studies have reported the cumulative incidence, histological subtypes, and clinical outcomes of this disorder in kidney transplant recipients.
Methods: We retrospectively investigated 34 PTLD patients diagnosed out of the 1,210 kidney transplant recipients who had undergone the surgery at the two largest centers in Japan between January 1983 and December 2017.
Results: Thirty-two patients (94.1%) developed late-onset PTLD (diagnosed 1 year after transplantation). The cumulative incidence rates were 0.76% and 1.59% at 5 and 10 years post transplantation, respectively. The central nervous system was the most common site (35.3%, 12/34). Overall survival was similar between patients with and without central nervous system lesions ($p = 0.676$). Of all of the cases, 23.5% (8/34) were detected via cancer screening. Importantly, patients with screening-detected PTLD had better overall survival than those with the disorder who had been symptom detected ($p = 0.0215$). Overall survival was significantly reduced in patients who developed the disorder compared to those who did not ($p = 0.0001$).
Conclusions: PTLD was likely to occur in the late period, which indicated that long-term medical examination for transplant recipients is required. We propose vigilant, long-term, cancer screening in kidney transplant recipients.

MO16-4 Assessment of Tumor Markers in Renal Transplant Recipients

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Diagnosis of malignant tumors is performed in various ways, including various imaging methods. Measurement of tumor markers is often used because of its several advantages, such as non-invasiveness and simplicity. It is known that the excretion and metabolism of some tumor markers are affected by impaired renal function. In this study, we investigated whether the improvement of renal function in renal transplant recipients could affect the changes in tumor marker (CEA, AFP, CA19-9, PSA) values before and after transplantation. We included 116 renal transplant recipients who underwent transplantation at our hospital between February 2012 and November 2019 without diagnosed malignancy. CEA significantly improved with improvement of renal function after kidney transplantation (3.6 to 2.6ng/ml, $p<0.05$), while other tumor markers showed increased values (AFP: 3.6 to 3,7, CA19-9: 15.6 to 18.9U/ml, PSA: 0.95 to 1.05ng/ml). Logistic regression analysis showed that postoperative liver function was a significant factor influencing the variation in CEA (Odds ratio: 2.86, $p=0.02$) and AFP (Odds ratio: 0.17, $p=0.01$). No statistically significant factors were found for other tumor markers. This finding may be applicable to patients with renal dysfunction, and caution should be exercised because tumor markers may vary depending on the pathophysiology of each patient.

MO16-5 Successful Kidney Transplantation in a Patient with Chronic Myeloid Leukemia After Imatinib Treatment: A Case Report

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Active malignancy is an absolute contraindication to kidney transplantation. As for chronic myeloid leukemia (CML), a Philadelphia chromosome-positive myeloproliferative neoplasm, the introduction of tyrosine kinase inhibitors has transformed CML from a lethal into a manageable chronic disease with a close-to-normal life expectancy. To date it is unknown whether kidney transplantation can be safely performed in patients with pre-existing CML. Here, we report a patient with CML well controlled by tyrosine kinase inhibitors who developed end-stage renal disease during treatment and underwent living related kidney transplantation. This patient had been diagnosed CML 17 years earlier and first-line therapy with 400 mg imatinib daily was well tolerated and induced an optimal cytogenetic and molecular response 6 months after initiation. Immunosuppression included basiliximab, tacrolimus, mycophenolate mofetil, and corticosteroids. Considering a complete cytogenetic response of CML with imatinib has been reported and imatinib could worsen drug-induced nephrotoxicity, imatinib was discontinued after the kidney transplant. Currently, 2 years posttransplant, renal allograft function is stable (serum creatinine 1.25 mg/dL, estimated glomerular filtration rate 45.9 mL/min per 1.73 m^2), and CML remains in deep molecular remission without imatinib treatment. Imatinib-treated CML in deep molecular remission could be regarded as inactive malignancy and may therefore not be viewed as an absolute contraindication to kidney transplantation.

MO16-6 Recurrence of Cancer in 188 Kidney Transplant Recipients

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Recent advances in cancer treatment have made kidney transplantation possible for patients with a history of cancer treatment. Although these patients have risks of recurrence, there are few reports about cancer recurrence after the transplant. This study aims to evaluate the prognosis of cancer diagnosed before transplantation and to assess the interval between cancer treatment and transplantation. From Jan 2007 to Dec 2021, 188 patients with a history of cancer underwent kidney transplantation at the Department of Urology, Tokyo Women's Medical University. The Japanese Society of Transplantation (JST) recommendations regarding the time between cancer treatment and kidney transplantation were followed in most cases. Eighty-one of the patients had urological cancers, including 73 cases of renal cancer. Other pre-existing cancers included colon cancer: 30 cases, thyroid cancer: 15 cases, uterine cancer: 12 cases, breast cancer: 9 cases, gastric cancer: 8 cases, pancreatic cancer: 4 cases, pharyngeal cancer:3 cases, others: 28 cases. Among them, only 1 case of renal call carcinoma cancer recurred. The recurrence occurred 28 months after the transplantation, and he/she died 56 months after the transplant. Even though one case showed tumor recurrence, the low incident rate of tumor recurrence indicates that as long as we restrict the time interval after cancer treatment advocated JST, the transplantation can be safely performed for patients with a history of cancer treatment.

Day 1 November 25 (Fri), 2022 Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

MO17-1 The First Clinical Multi-Center Study on Machine Perfusion Preservation of Marginal Donor Kidney Transplantation in Japan – An Interim Report–

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The shortage of organs for transplantation, and the disparity between the number of patients awaiting transplantation and available organs is serious problem in Japan. Machine perfusion (MP) method has several advantages such as preservation, assessment, and intervention. The MP was not popular because of low demand in Japan; however, we thought that its advantages may increase the number of organ transplants. Here, we report the first clinical trials of machine perfusion of kidney transplantation in Japan. We used the CMP-X08 perfusion device (Chuo-Seiko Co, Ltd, Asahikawa, Hokkaido, Japan). The flow rate, perfusion pressure, renal resistance and temperature were monitored during hypothermic continuous perfusion. From August 2020 to the present, 11 cases of perfusion-preserved kidney transplantation were performed. Out of these, eight and three cases were performed with organs donated after brain death (DBD) and cardiac death (DCD), respectively. The average age of recipients was 53.9 ± 8.9 (37-66) years. The average dialysis period was 14.8 ± 8.4 (2-26) years. The warm ischemic time of the three DCD donors, were 3, 12, and 18 minutes. The average total ischemic time was 708.7 ± 242.2 (430-1211) minutes. The average MP time was 154 (85-240) minutes. A total of 5 cases had delayed graft function. The best creatinine level during hospitalization was 1.17 ± 0.43 mg / dL. A primary non-function case was absent. Therefore, we present this interim report as the first clinical trial of machine perfusion on kidney transplantation from marginal DBD and DCD donors in Japan.

MO17-2 Visualization of Ischemia Reperfusion Injury of Kidney and Prediction of Early Allograft Dysfunction After Kidney Transplantation Using Cysteine Probe

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Introduction
In kidney transplantation (KT), ischemia-reperfusion injury (IRI) of the transplanted kidney inevitably occurs through a series of processes, especially from deceased donors. About 20-30% of early graft failure is caused by this IRI. In order to prevent and minimize IRI, it is important to develop a model evaluating the presence and severity of IRI. However, adequate markers for kidney injury are not clear. In this study, we suggest the new diagnostic model for kidney injury and verified its effectiveness.
Methods
A new diagnostic method was introduced using the molecular probe NPO-B, which selectively responds to cysteine and exhibits fluorescence. To confirm the efficacy of the NPO-B probe, Human Kidney-2 cells IRI model in vitro and mouse IRI model in vivo was established. In addition, we compared the predictive capacity for posttransplant early allograft dysfunction between convention factors without urine cysteine and with urine cysteine using the area under the curve (AUC) in 91 KT recipients.
Results
In vitro model, an increased expression of cystathionine γ-lyase was observed in the IRI-treated cell group using Western blot. In the mouse IRI model, dose-dependent increases in NPO-B fluorescence according to ischemia time in both methods including NPO-B injection and NPO-B soaking method was confirmed by using FITS and two-photon microscopy (TPM) (Figure 1). Cysteine was measured well with NPO-B in mouse urine, and it was confirmed that the predictive power to predict immediate posttransplant graft dysfunction with patient urine was improved by adding urine cysteine to the conventional factors. (AUC 0.82 vs 0.79)
Conclusions
A method to identify and visualize the severity of IRI with cysteine detection using NPO-B was introduced. If this is applied to clinical practice in the future, it is expected to be used to determine the severity of IRI at the time of organ procurement or reperfusion from the deceased donors.

MO17-3 Kidney Transplantation Preserved with Hypothermic Machine Perfusion for Marginal Donor : A Report of Two Cases

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Background
The disparity between the number of patients awaiting transplantation and the number of available organs is large, and organ shortage for transplantation is a serious problem in Japan. The development of new medical technology, as well as technology to maintain organ function and allow functional recovery, is therefore required. Hypothermic machine perfusion, in which the perfusate is perfused into a blood vessel can aid kidney preservation. In Japan, the first clinical multicenter trial of diseased kidney transplantation preserved with hypothermic machine perfusion began in August 2020. Our two cases were preserved using a new perfusion machine developed in Japan.
The hypothermic machine perfusion machines in this study were a CMP-X08 perfusion device (Chuo-Seiko Co, Ltd, Asahikawa, Hokkaido, Japan), and a UW-gluconate solution Nelzer MPS (Bridge to Life m ISA). The perfusion pressure and temperature were monitored at 4–8 t and 30 mmHg during perfusion.
Case reports
The first case involved a 57-year-old man who received a kidney from a 55-year-old man who died of brain death following thoracoabdominal aortic dissection. The total perfusion time was 220 min. The total ischemia time was 5 h and 27 min. The recipient urinated postoperatively and required dialysis. The second case was a 66-year-old woman who received a kidney from a 65-year-old woman who died due to cardiac arrest after thoracic aortic rupture. The total perfusion time was 143 min. The total ischemia times were 19h and 53 min. Postoperative delayed graft function was observed, and dialysis was performed four times. The perfusion pressure during perfusion preservation did not increase in either case, nor did the the vascular resistance of the transplanted renal graft. There were no major complications during perfusion.
Conclusions
We treated two cases of kidney donation transplantation using a perfusion preservation device. Our experience indicates that the device could be safely used without damaging the transplanted kidney.

MO17-4 Hypothermia Protects Against Renal Fibrosis After Ischemia Reperfusion Injury

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Backgrounds: Although hypothermia protects against the renal injury induced by ischemia reperfusion, the detailed molecular pathway(s) involved in the process remain unknown. PGC-1α is known to protect against renal injury. Furthermore, hypothermia may induce PGC-1α in the brain and the kidneys. We evaluated the role of PGC-1α in hypothermia protection against renal ischemia reperfusion injury(IRI).
Method: We prepared a fibrosis model by inducing ischemia reperfusion injury. C57BL/6 mice were divided into the following groups: sham mice and ischemia reperfusion injury mice (37°C vs. 32°C). The kidneys were harvested 20 min after the induction of renal ischemia and on day 1, day 3, day 7, and after IRI. Fibrosis markers and the renal injury score were evaluated.
Result: The blood urea nitrogen (BUN) levels, and serum creatinine (s-Cr) levels, and the histologic renal injury scores were significantly lower in the 32°C IRI groups than in the 37°C ischemia reperfusion injury groups. The protein levels of fibrosis markers were significantly decreased, while the BMP7 and PGC-1α level was significantly increased in the 32°C ischemia reperfusion injury mice group. Hypothermia increased the PGC-1α both, in vivo and in vitro. Knock down of PGC-1 α expression increased in vitro renal fibrosis.
Conclusion: Hypothermia ameliorates renal function deterioration and renal fibrosis in renal IRI mice kidneys. Moreover, hypothermia increases PGC-1α in renal IRI mice kidneys. Therefore, PGC-1α may play a role in hypothermic protection in renal fibrosis following IRI.

MO17-5 OrganPocket: A Novel Protective Kidney Transplantation Device Against Secondary Warm Ischemia

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The kidney graft undergoing secondary warm ischemia during vascular anastomosis is in the recipient's body is an incessant issue. It is noteworthy that we developed an organ protection device using a proprietary elastomeric material made using thermodynamics. This device maintained the cold-preserved donor kidney at a low temperature even inside the abdominal cavity and successfully suppressed secondary warm ischemia. In this study, we report the thermal insulation effects and impacts of the OrganPocket protective kidney transplantation device on kidney tissue using a pig model.
The OrganPocket is made mainly from an ultra-soft elastomer that has excellent biocompatibility and insulation properties and can maintain a cold temperature inside the abdominal cavity without damaging the donor kidney. In this pig model study, after removing the kidney, it was stored in an organ-preservation fluid at 4°C. The OrganPocket was then attached to the kidney and its core temperature was kept at a mean 16°C or less even after being placed in a 37°C environment for 30 minutes, envisioning the inside of the abdominal cavity. Further, after the OrganPocket had been attached to a pig kidney cold-stored at 4°C for a given length of time, a pathological analysis confirmed there had been no damage to the tissue. Currently, a first in-human test of the OrganPocket is being conducted at Hiroshima University, and we aim to use it at more institutions going forward.

MO17-6 Protection From Second Warm Ischemic Injury Using Thermal Barrier Bag in Kidney Transplantation

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Introduction
Second warm ischemic injury during vascular anastomosis has been shown to adversely affect not only immediate post-transplant function, but also long-term patient and graft survival after kidney transplantation. We developed a pouch-type thermal barrier bag (Organ Packet®), which is made of a transparent and biocompatible insulating material and designed to be suitable for the kidney. Moreover, we conducted the first-in-human clinical trial for the Organ Packet® at Hiroshima University Hospital.
Methods
Living donor kidney nephrectomy was performed by minimum skin incision procedure. After back table preparations, the kidney graft was placed inside the Organ Packet® and kept inside it during vascular anastomosis. The kidney graft temperature was measured during vascular anastomosis, using a noncontact infrared thermometer. After completion of the vascular anastomosis, the Organ Packet® was carefully removed from the transplanted kidney before graft reperfusion. Clinical data including donor and recipient characteristics and perioperative variables were collected. The primary endpoint was the safety assessed by evaluating adverse events, and the secondary endpoints were feasibility, tolerability, and efficacy of the Organ Packet® in kidney transplant recipients.
Results
Between October 2021 and June 2022, 10 living donor kidney transplant recipients with a median age of 56 (range 39–69) years were enrolled in this study. No serious adverse events related to Organ Packet® were recorded throughout the study. The median second warm ischemic time was 31 (range 27–39) and the median kidney graft temperature at the end of anastomosis was 16.1 (range 12.8–18.7) °C.
Conclusions
Organ Packet® can maintain transplanted organs at low temperatures during vascular anastomosis, which is expected to contribute to the functional preservation of transplanted kidney and stable transplant outcomes.

MO18-1 A Case of Emphysematous Pyelonephritis After Renal Allograft Loss, Leading to Transplant Nephrectomy

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A 71-year-old man underwent ABO blood type incompatible renal transplantation for diabetic nephropathy with his wife as the living donor. Cytomegalovirus infection occurred one month after transplantation, acute T cell-mediated rejection three months after transplantation, and antibody-mediated rejection seven months after transplantation. Renal function deteriorated, and hemodialysis was initiated 12 months after transplantation.

The patient was followed up with a reduced dose of immunosuppressive drugs. Pain and swelling in the right lower abdomen were observed 16 months after transplantation, and percutaneous drainage was performed because emphysematous pyelonephritis was found in the transplanted kidney on a CT scan. After the drain was removed, pus retention was still observed, and the transplant renal artery was occluded, suggesting ischemic necrosis of the renal parenchyma. Based on these findings, a transplant nephrectomy was performed. The renal capsule firmly adhered to the peritoneum and iliac vessels, and a portion of the transplanted kidney was removed within the capsule. The renal artery and vein were severed in the capsule and sutured closed. There was no postoperative complication, and the patient was discharged 24 days after the removal of the transplanted kidney.

The patient was scheduled to gradually reduce the dose of immunosuppressive drugs after the loss of transplant renal function. However, after induction of hemodialysis, the patient developed a urinary tract infection, necessitating a rapid reduction in the dose of immunosuppressive drugs. The resulting recurrence of rejection led to occlusion of the transplanted renal artery, ischemic necrosis of the renal parenchyma, and abscess formation.

MO18-2 The Phenomenon of Helper T-Cell Exhaustion and Cytokine-Attenuation of NKT in BK-infected Renal Transplant Patients is Correlated to Poor Outcome

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Background

The BK viral infection is often found in renal transplant patients and outcomes can be devastating. The immune modulators should be adjusted to prevent rejection and fight infection. However, we have no ideal tool to assess the immune status. The multiparametric flow cytometry may help to search significant target for developing a practical tool for immune status assessment.

Method

We collected peripheral-blood-mononuclear-cell (PBMC) samples from four renal transplant patients who had BK viral infection. Two of the four patients were well recovered from the viral infection; the other two had persistent viral infection at the time of sample collection. PBMC samples were analyzed by multiparametric flow cytometry with the panel containing 14 markers.

Result

We found that NKT and helper T cells (Th) may play important roles in the BK infection process. The presence of NKT is crucial for cytokine production in our renal transplant patients and attenuation of these cytokines is noted in the poor outcome group. In the same comparison, Th cells present PD1 prominently without FOXP3 correlation, suggesting that Th cells become exhausted due to failed viral clearance.

Conclusion

In this study, we demonstrate that the poor outcome of BK viral infection may be achieved by two connected events: the exhaustion of Th cells and the attenuation of NKT cytokine production. This phenomenon warrants further study and can help to develop the practical tool to identify poor prognosis for those renal transplant patients suffering from BK infection.

MO18-3 Usefulness of Pre- and Post- Transplant BK Virus-Specific ELISPOT Assay for Predicting the Outcome of BK Virus Infection in Kidney Transplant Recipients

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Background/Aims: To investigate if BK virus (BKV)-specific T-cell immunity measured by an interferon-γ enzyme-linked immunospot (ELISPOT) assay can predict the outcome of BK virus infection in kidney transplant recipients (KTRs).
Methods: We included 68 KTRs with different viremia status [No viremia (n = 17), BK viremia (n = 27), and Cleared viremia (n = 24)] and 44 healthy controls (HCs). The BK viremia group was divided into Controller (< three months) and Noncontroller (> three months) according to sustained duration of BKV infection. We compared BKV-ELISPOT results against five BKV peptide mixes (LT, St, VP1-3).
Results: BKV-ELISPOT results were higher in three KTRs groups with different BKV infection status than the HCs group ($P < 0.05$). In KTR groups, they were higher in Cleared-viremia group than No-viremia or BK-viremia group. Within the BK viremia group, Controller group had higher LT-ELISPOT results compared to Noncontroller group ($P = 0.032$). Also, KTRs without BK virus-associated nephropathy (BKVN) had higher LT, St, VP1, and VP2-ELISPOT results than those with BKVN ($P < 0.05$).
Conclusions: BKV-ELISPOT assay may be effective in predicting clinical outcomes of BKV infection in terms of clearance of BK virus and development of BKVN.

MO18-4 Comparison of an Antigenemia Assay and Quantitative Nucleic Acid Testing for CMV Infection

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Background: Cytomegalovirus(CMV) causes opportunistic infection, and careful management of CMV infection is important for transplant recipients. In Japan, an antigenemia assay has been widely used for diagnosis and monitoring of CMV after kidney transplantation, while in the world the QNAT(quantitative nucleic acid testing) has become the standard method for CMV detection . The health insurance in Japan had covered a QNAT for CMV DNA from 2020, and we can adopt QNAT based CMV monitoring. Hence, we have to evaluate the difference of diagnostic performance between antigenemia assay and QNAT.
Methods: Between 2013 and 2015, a total of 502 samples from 27 renal transplant recipients in our institution were analyzed by both antigenemia assay and QNAT for CMV DNA.
Results: When CMV positivity was defined as >=1 antigen-positive cell (antigenemia assay) or >34.5IU/mL(QNAT), the concordance rate of positive result was 78.7%(48/61) and negative result was 95.2%(420/441). Furthermore using ROC curve analysis, we predicted that antigenemia threshold value of 1, 2, 4, 10 positive cells/1.5×10^5 was equivalent to QNAT value of <34.5, 87.0, 123, 652IU/mL, respectively.
Conclusion: Because the both methods correlate well, we can use QNAT for CMV DNA as with an antigenemia assay clinically in Japan.

MO18-5 A Case of Kidney Transplant Recipient with Organizing Pneumonia After Graft Loss

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We present a case of a 68-year-old male patient who received ABO-incompatible kidney transplantation from his wife due to IgA nephritis 13 years ago. The patient had a gradual decline in graft function over the years and required reintroduction of renal replacement therapy due to fluid overload, which led to his admission to our hospital. An arteriovenous fistula operation was performed, followed by starting hemodialysis therapy. Because he had chronic CMV retinopathy and thrombotic microangiopathy due to immunosuppressive therapy, mycophenolate mofetil, and tacrolimus were discontinued at the time of hemodialysis initiation. Only low-dose dose prednisolone was continued. One week later, the patient had a fever and a chest CT revealed bilateral pneumonia, which was not improved by antibiotics. Transbronchial lung biopsy diagnosed organized pneumoniae (OP). After ruling out pneumocystis pneumonia and CMV pneumoniae, increased doses of prednisolone resulted in remission of the OP.
Occasionally, it is difficult to differentiate diffuse lung disease in transplant patients that do not respond to antibiotic therapy. Bronchoscopy may be useful for accurate diagnosis. Additionally, diffuse lung disease became apparent after the discontinuation of immunosuppressive agents at the reintroduction of hemodialysis. This implicated that drugs were not the cause of OP in this case. We present a case of a kidney transplant recipient developing OP after graft loss. Bronchoscopy had an important role in the diagnosis of this case.

MO18-6 Examination of Multiple Renal Artery Grafts Sacrificed Based on CT Image Analysys

Taiki Ogasa[1], Yuki Nakagawa[1], Gento Oomae[1], Takeshi Ashizawa[1], Keisuke Saito[1], Toshiyuki China[1], Shuji Isotani[1], Kenta Futamura[2], Manabu Okada[2], Takahisa Hiramitsu[2], Norihiko Goto[2], Shuji Narumi[2], Yoshihiko Watarai[2], Shigeo Horie[1]

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In recent years, more detailed organ evaluation using CT volumetry analysis has been developed.In living donor renal transplantation, 3-dimentional CT volumetry analysis based on contrast-enhanced thin-slice CT images is performed preoperatively to estimate total renal weight and quantify renal cortical volume, which contributes to securing space for the transplant bed, and is also useful in evaluating split renal function and post-transplant renal function. In addition, in patients with multiple renal arteries, it is now possible to quantify the reflux area of each artery.In this study, we performed 3-dimentional CT volumetry analysis on 188 patients who underwent living donor renal transplantation at the Japanese Red Cross Aichi Medical Center Nagoya Daini Hospital between January 2020 and November 2021.Of these, 160 cases were analyzed with actual thin-slice data, 36 cases (22.5%) were grafts with multiple renal arteries, and 18 cases (11.3%) were selected for sacrifices.We will examine the effect of sacrificed multiple renal artery grafts on early renal function of recipients after living donor renal transplantation as predicted by renal cortical volume from 3-dimentional CT volumetry analysis.

Day 1 November 25 (Fri), 2022 Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

MO19-1 Usefulness of Dietary Salt Restriction in Kidney Transplant Recipients: Analysis of Blood Pressure Levels Depending on the Differences in the Levels of Salt Intake

Hajime Hirano, Yuya Fujiwara, Koichiro Minami, Ryoichi Maenosono, Syunri Taniguchi, Tomota Okabe, Keita Nakamori, Hirofumi Uehara, Kazumasa Komura, Hayahito Nomi, Teruo Inamoto, Haruhito Azuma
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<Objective> Sodium retention causes posttransplant hypertension, and sodium restriction is recommended in kidney transplantation recipients. We investigated the changes in salt intake and age-specific differences in salt intake over the posttransplant periods, and considered what are important to provide the guidance for salt reduction tailored to individual recipients. We also investigated the differences in blood pressure levels depending on the differences in the levels of salt intake.
<Methods> Spot urine sample was collected to test urinary sodium and creatinine excretions for 38recipients who underwent kidney transplantation from August 2013 to August 2018 in our hospital. Tanaka ´s equation was used to estimate 24h urinary sodium excretion, which reflects salt intake, and also extracted their blood pressure levels.
<Results> The rate of achieving the desired level of salt intake (less than 6g a day) was 7.9%. Average salt intake was 7.8±1.4g. Average BP (Systolic BP/Diastolic BP) by salt intake was, less than 6g a day:109/71mmHg, 6g or over less than7g:127/84mmHg, 7g or over less than 8g:124/79mmHg, 8g or over less than 9g:130/73mmHg, salt intake 9g or over less than 10g:133/83mmHg, salt intake over 10g:137/81mmHg.
<Discussion> The salt intake in this population far surpasses the recommended amount. The rate of achieving the desired level of salt intake (less than 6g a day) was lower than expected, suggesting the need for reexamining the methods and contents of guidance. The awareness for salt restriction diminishes as the time passes after transplantations, leading to increased salt uptake; therefore, regular guidance for keeping salt intake low is necessary for the patients to be able to maintain the awareness for salt restriction. The guidance needs to consider the possibility that the taste sensitivity decreases with age. In addition, the recipients with higher salt intake had higher blood pressure, suggesting the need for the management of salt reduction. Dietary counseling showed a short-term efficacy of reducing sodium intake and clinically relevant BP improvement in renal allograft recipients.

MO19-2 Identifying High Risk Patients for New Onset Diabetes after Kidney Transplantation Using a Continuous Glucose Monitoring Device

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Introduction
Perioperative hyperglycemia is common in kidney transplantation and is associated with not only renal allograft outcomes, but also increased risks for development of new-onset diabetes after transplantation (NODAT). The purpose of this study was to identify risk factors associated with NODAT using perioperative continuous glucose monitoring.
Method
A prospective observational study starting May 1st, 2021 was conducted for patients who underwent kidney transplantations. Upon enrollment, a CGM system was applied and CGM was undertaken 2 weeks preoperatively and 2 weeks postoperatively. No additional interventions were undertaken. Clinical characteristics and transplant related outcomes were collected along with glucose profile using the CGM system.
Results
A total of 99 patients were enrolled in the study and completion of both preoperative and postoperative CGM was accomplished in 69 patients. Excluding 13 patients with underlying diabetes, 11 (15.9%) patients developed NODAT and 45 (65.2%) patients did not. The underlying characteristics of patients that developed NODAT compared to nonNODAT were older (56.7±9.3 vs. 46.0±12.9; p=0.016), more likely male (90% vs. 45.7%; p=0.013), and had younger kidney donors (41.4±11.3 vs. 50.8±12.3; p=0.031). There was no difference in preoperative CGM, however NODAT patients had higher baseline HbA1c (5.55±0.48 vs. 5.16±0.37; p=0.022), and lower baseline HDL levels (37.90±12.21 vs. 50.89±16.68; p=0.024). The postoperative CGM showed higher mean glucose (138.91±22.04 vs. 120.48±18.40; p=0.006), higher daily peak glucose (167.93±27.52mg/dL vs. 115.90±19.58mg/dL; p=0.001), and longer time above glucose level of 250mg/dL (17.27±9.6% vs. 8.34±7.57%; p=0.002).
Conclusion
Despite the normal ranges of serum glucose levels or HbA1c, kidney transplant patients who develop NODAT have significantly higher preoperative HbA1c and postoperative glucose levels than those who do not.

MO19-3 The Relationship of the Fatigue with Graft Function and Employment Status in Kidney Transplant Recipients

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Introduction
Accumulating fatigue may interfere with kidney transplant recipients' self-management behaviors and affect renal function. Employment status has been reported to be associated with quality of life in renal transplant recipients, and more fatigue associated with employment may lead to decreased quality of life. The objective of this study is to investigate the relationship of the fatigue with graft function and employment status in kidney transplant recipients.
Methods
This study was a single-center, cross-sectional investigation carried out on kidney transplant recipients between December 2019 and March 2020 at Osaka Metropolitan University Hospital. The fatigue was assessed using the Functional Assessment of Chronic Illness Therapy (FACIT)-Fatigue Scale. Statistical analyses were performed using univariable and multivariable linear regression models.
Result
A total of 83 kidney transplant recipients were enrolled in this study. The median age was 54 [interquartile range (IQR) 44, 64] years and 29 (35%) were female. The median FACIT-Fatigue Scale score was 44 [IQR 38-48], the median serum creatinine level was 1.3 [IQR 1.0-1.6] mg/dL, and the median working hours was 24 [IQR 0.0-40] hours/week. In both univariable and multivariable analysis, the serum creatinine level and employment status were not associated with the FACIT-Fatigue Scale score (p=0.39 and p=0.28, respectively).
Conclusion
The fatigue was not related with graft function and employment status in kidney transplant recipients. We consider that renal transplant recipients may be adjusting their work hours and work content to manage their own health conditions.

MO19-4 Dietary Effect on Graft Function on Stationary Kidney Allograft Recipients during Traditional Holidays in Taiwan

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Purpose: We observed transient creatinine elevations in kidney recipients with stationary graft function in our hospital after two traditional holidays in Taiwan. In this retrospective cohort study, we compared the changes of their eGFR level after Dragon Boat Festivals and Mid-Autumn Festivals which are both associated with high-calorie and high-salt diets.
Materials and Methods: We retrospectively analyzed 367 stationary kidney recipients following at Chang Gung Memorial Hospital, Linkou, Taiwan. Their baseline graft function was defined by the mean 3-month eGFR prior to the festive event. The Dragon Boat Festival is on the 5th of May in lunar calendar and the Mid-Autumn Festival is on the 15th of August in lunar calendar. The post-festival graft function was defined by the eGFR calculated by the serum creatinine level at the clinic after the festival. Patients were further divided into subgroups by their gender, age, and co-morbidities.
Results: In the analysis of Dragon Boat Festival, although overall eGFR did not significantly decline, we observed if the festival last 4 days, the post-festival eGFR decreased significantly (from 51.01±1.41 to 49.98±1.35 ml/min, p=0.0089). Further sub-group analysis showed female gender (p=0.024), hypertensive (p=0.036), and diabetic (p=0.0082) patients had significant reduction in eGFR after the festival. In the analysis of Mid-Autumn Festival, overall eGFR similarly did not decline significantly, but after excluding the year 2020 due to COVID-19 restriction on barbecues, there was significant reduction of eGFR after the festival (from 56.04±1.28 to 55.14±1.26, p=0.041). Further sub-group analysis showed male gender (p=0.0033), hypertensive (p=0.00084), and diabetic (p=0.00014) patients had significant decline in their eGFR level after the festival.
Conclusion: In our cohort, high-calorie and high-salt diets may cause decline of eGFR, especially in hypertensive and diabetic renal allograft recipients.

MO19-5 Comparisons of Clinical Outcomes Among Young, Middle, and Elderly Kidney Transplant Recipients:Pharmacological Analyses of Immunosuppressants

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[Introduction] We investigated that pharmacokinetics of immunosuppressants among young, middle, and elderly kidney transplant recipients and its impact for clinical outcomes. [Method] A total of 179 pairs of recipients and donors who underwent living kidney transplantation in our institute between November 2009 and April 2019 were enrolled in this study. Recipients were divided into three groups according to age at transplantation: the young (< 55 years, 98 patients), middle-aged (55–64 years, 54 patients), and elderly groups (≥65 years, 27 patients). All recipients received the combination therapy, consisting of tacrolimus (TAC), mycophenolate mofetil (MMF), prednisolone (PSL), and basiliximab. Moreover, from October 2013, everolimus (EVR) was added and TAC and MMF doses were reduced after 14 postoperative days. In immunologically high-risk patients, single dose of rituximab at 200 mg/body was administered and 1–4 sessions of antibody removal were performed before transplantation. Doses of immunosuppressants were not arranged according to age of recipients. [Results] The age of donor in the elderly group was significantly higher than the other groups ($p < 0.01$, respectively); however, no significant difference in the donors´ renal function was observed among groups. Immunologically high-risk patients in the middle-aged and elderly groups were significantly higher than that in the young group ($p = 0.01$, respectively). In the pharmacokinetic analysis, no significant differences in trough levels and AUC of TAC, MPA, and EVR, were observed among the groups. No infectious death was observed in this cohort, and incidences of hospitalization for infectious events did not differ among groups. In addition, incidences of rejection and de novo malignancies between the young and elderly groups were similar. No significant difference of the death censored graft survival was observed among groups. [Conclusions] In the modern immunosuppressive protocol, the aging process itself may have little effect on the pharmacokinetics of immunosuppressants. It may be necessary to refrain from easy dose reduction of immunosuppressants in elderly kidney transplant recipients.

MO19-6 Prevalence of Frailty and Associated Factors Among Kidney Transplant Recipients in China

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Background: Frailty has adverse effects on the kidney transplant (KT) recipient's quality of life and long-term outcomes. However, there are few reports on the prevalence and influential factors of frailty after kidney transplantation. The purpose of this study is to investigate the prevalence of frailty among KT recipients in China and to analyze the associated factors of frailty after kidney transplantation.
Methods: A total of 201 KT recipients were selected as the cross-sectional study subjects. We investigated the prevalence of frailty based on the Physical Frailty Phenotype (PFP) criterion. Then the logistic regression model and CART decision tree model were established separately to explore the influential factors of frailty after kidney transplantation.
Results: Frail KT recipients accounted for 25.9% of all participants. The lowest frequent component of PFP was unexpected shrinking (19.4% in all participants and 44.2% in frail recipients). The logistic regression and CART decision tree model showed that age, history of acute rejection, serum albumin level, neutrophil to lymphocyte ratio (NLR), and comorbidity were associated factors of frailty among KT recipients.
Conclusions: In China, the prevalence of frailty among KT recipients is approximately 26%. Unexpected shrinking may not be appropriate as a criterion for assessing frailty status after kidney transplantation. Advanced age, history of acute rejection, low serum albumin level, increased NLR, and comorbidity are associated with the long-term frailty among KT recipients.

MO20-1 Occurrence of Malignant Tumors in Post-Renal Transplant Patients at Our Hospital

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With the recent introduction of various new immunosuppressive agents, the long-term outcome of renal transplantation has improved, and it is now necessary not only to treat rejection but also to prevent complications associated with long-term viability. Cardiac disease, infectious diseases, and malignant tumors are the leading causes of death among recipients. In Japan, various types of renal transplantation have been performed, such as blood group incompatible transplantation, transplantation with pre-existing antibody positive transplants, increasing number of transplants between married couples, and secondary transplantation. As a result, exposure to immunosuppressive agents has been increasing. Malignant tumors are said to account for about 14% of the causes of death among renal transplant recipients in Japan, and regular screening tests for early detection is considered important. Furthermore, adequate management such as changing or reducing the dose of immunosuppressive agents is considered necessary. We conducted malignancy screening for 101 renal transplant patients under follow-up from 2012 to 2022 at our hospital and examined the occurrence of malignancy.
We also report on our hospital's efforts for early detection of post-transplant malignancies.

MO20-2 A Case of Inguinal Lymphadenopathy After Renal Transplantation Leading to the Diagnosis of Prostate Cancer

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We report a case of prostate cancer (PCa) diagnosed by inguinal lymphadenopathy after kidney transplantation (KT).
A 72-year-old man who was started hemodialysis in X-18 years due to diabetic nephropathy was referred to our hospital for blood group-matched KT with his wife as a donor in X year. He was examined for cancer screening before the KT and was given diagnoses of neither any other cancers nor prostate cancer with low PSA level of 2.63. His postoperative course was good, and he was being followed up by his primary care physician. Three years after KT, he became aware of a lump in his left inguinal region and underwent a CT scan, which revealed multiple abdominal and left inguinal lymphadenopathy, and he was referred back to our department. Based on his clinical course, we strongly suspected post-transplant lymphoproliferative disorder (PTLD). However, a biopsy of the inguinal lymph node revealed adenocarcinoma with positive PSA staining suggesting lymph node metastasis of PCa. The blood PSA level reached 1600 ng/mL. A further prostate biopsy was performed, and PCa with Gleason Score of 10 was proven.
Despite of a previous review paper describing that inguinal lymph node metastasis were observed in 1.3% of recurrent or advanced PCa, there have been only four case reports, as far as we could find, of superficial lymph nodes being detected at the first visit and leading to the diagnosis of PCa. Also, there are no such cases reported in KT patients. Even though, the standardized incidence ratio (SIR) of PCa is not considered to increase in KT recipients, PCa should be listed as a differential diagnosis regardless of the PCa SIR and the possibility of PTLD. It is important to take physical examinations such as rectal examinations and PSA blood test. We also suggested the importance of regular screening for malignant tumors after transplantations.

MO20-3 Clinical Review of 35 Kidney Retransplamtation Cases : A Single Center Experience

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Introduction: The aim this study was to analyze the prognosis of patients and grafts of kidney retransplantation.
Methods: This was a retrospective study of 35 kidney retlansplantations performed at our center between February 1973 and May 2022 to evaluate patient and graft survival, rejection episodes and mortality.
Results: We performed 679 kidney transplantations (529 living donor and 150 cadaveric donor) and 35 of which were retlamsplantations. Patients were 17 male and 18 female. Mean age at first transplantation was 32.1(11-53), at retransplantation was 45.3(19-70). The mean period of the first graft survival is 112(0-389) months. The cause of first graft loss was acute cellular rejection (ACR) in 5cases, chronic allograft nephropathy (CAN) in 28 cases, vascular complications in 2cases and renal infarction in 1 case. The graft survival rates of retlansplantation at 5, and 10 years were 90.9%, 81.3%. Patient survival rates at 5, and 10 years were 97.0%, 88.5%. During the follow-up period, 10 grafts were lost. The cause of graft loss was ACR in 2cases, CAN in 3 cases, and death with functioning graft in 5 cases. About preoperative sensitization status, 18 patients were positive Flow PRA class1, 14 were positive Flow PRA class2. 9 were Donor-specific antibody (DSA) positive, and their graft survival rates were inferior compered with DSA negative cases. Recently, 3 DSA positive patients treated with preoperative desensitization, and their graft survival rates were the same as those of DSA negative.
Conclusion: This study showed graft survival rate of retlansplantation is comparable for first kidney transplantation within 10 years. Although the graft survival rates of DSA positive were inferior to DSA negative in cases kidney retlansplantation, currently good graft survival rates have been achieved with appropriative desensitization.

MO20-4 Association of *P*-Cresyl Sulfate with Peripheral Artery Disease in Kidney Transplantation Patients

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Objective: *p*-Cresyl sulfate (PCS) plays an important role in peripheral artery disease (PAD) given that PCS accumulation induces endothelial dysfunction and smooth muscle cell hyperplasia. PAD is associated with increased mortality in kidney transplantation (KT) patients. The present study aimed to determine the relationship between serum PCS level and PAD in KT patients.
Methods: A cross-sectional, single-center study included 90 KT patients. Liquid chromatography-mass spectrometry was used to assay serum PCS levels. ABI values were measured using an automated oscillometric device. Patients with ABIs of <0.9 were categorized into the low ABI group.
Results: In the study, 20 of the 90 KT patients (22.2%) had low ABIs. The rates of diabetes mellitus ($p = 0.036$) as well as the serum levels of PCS ($p < 0.001$) were higher in the low ABI group compared with the normal ABI group. The multivariable logistic regression analysis revealed that serum levels of PCS (odds ratio [OR] : 1.374, 95% confidence interval [CI] : 1.107-1.707, $p = 0.004$) was independently associated with PAD in KT patients. Left and right ABI were negative correlated with PCS ($r = -0.209$, $p = 0.049$ and -0.303, $p = 0.004$, respectively) by using the Spearman correlation analysis. The area under the receiver-operating characteristic (ROC) curve predicting PAD by serum PCS level in KT patients was 0.870 (95% CI: 0.783-0.932, H $P < 0.001$).
Conclusions: In this study, serum PCS levels were negative correlated with left and right ABI values and were associated with PAD in KT patients.

MO20-5 Appointment Non-Adherence and Graft Outcomes in Living Donor Kidney Transplantation

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Background: Medication non-adherence is known to be associated with worse graft outcomes but hard to be recognized in the clinical settings by its self-reporting nature. We hypothesized that appointment non-adherence might be associated with worse graft outcomes in living donor kidney transplantation.
Methods: We included 167 adult living-donor kidney transplants those grafts survived more than two years from April 2011 to May 2020. Thirty-two cases of appointment non-adherence were identified and compared with the controls (n=135).
Results: Younger age, higher body weight, male gender, parent donor were significantly observed in the appointment non-adherence group. Appointment non-adherence group was significantly associated with worse graft survival (5 years: 82.3% vs 98.9%, p<0.001, 10 years: 67.2% vs 89.6%, p<0.001), de novo DSA production, acute rejection as well as the decline of graft function. Furthermore, appointment non-adherence was revealed as an independent risk factor for worse graft survival after adjusting with several models.
Conclusions: Appointment non-adherence might be an alternative predictor for worse graft outcomes after living donor kidney transplantation.

MO20-6 Preconception Care and Pregnancy Complications After Kidney Transplantation: A Single-Center Study

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Background: Pregnancy after kidney transplantation may have severe effects on fetal development and the graft kidney function and health of the mother, thus making post-kidney transplant pregnancies challenging.
Methods: We retrospectively reviewed the medical records of pregnant women who have undergone kidney transplant. Complete medical records, including the information of transplantation and data on maternal characteristics, pregnancy, and delivery, were retrieved.
Results: Overall, 27 pregnancies (> 22 weeks of gestation) in 25 patients after kidney transplantation were included in this study. Two women had two pregnancies. The mean age at kidney transplantation was 29.6 ± 5.9 years. The mean time interval between the kidney transplantation and pregnancy was 6.3 ± 4.7 years. Mycophenolate mofetil (MMF) was discontinued at least 6 weeks prior to planned pregnancy and replaced by azathioprine in all women, and the mean time interval between discontinuation of MMF and pregnancy was 1.3 ± 1.1 years. The mean gestational age at delivery was 36.6 ± 3.3 weeks, and 14 (50%) were preterm deliveries. Prevalence of hypertensive disorders of pregnancy was 55%, and a cesarean section was performed in 18 (66%) pregnancies. Although renal function was exacerbated temporally after delivery (p=0.02), it recovered to baseline 1 year later.
Conclusion: The prevalence of maternal complications in our facility was mostly compatible with previously reported data, regardless of high percentage of childbirth at an older age.

Day 1 November 25 (Fri), 2022 Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

MO21-1 Beneficial Effects of Combined Use of ECMO and Hypothermic Machine Perfusion for Porcine DCD Liver

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Background. The use of donors after cardiac death (DCD) graft would greatly contribute to the expansion of the donor organ pool. The objective of this study is to determine the benefits of extracorporeal membrane oxygenation (ECMO) and hypothermic machine perfusion (HMP) in a large animal model of DCD liver.
Methods. Six outbred male weanling pigs (20-25 kg) were used. The abdominal aorta and the inferior vena cava were cannulated and connected to an ECMO circuit and abdominal organ was perfused in situ with ECMO at 22°C for 60 minutes after 45 minutes of cardiac death. Then the livers were procured. Experimental group was divided two groups. Group 1: ECMO and grafts were preserved with simple cold storage for four hours (N = 4). Group 2: ECMO and grafts were preserved with HMP for four hours (N = 5). The liver function was assessed by isolated liver reperfusion model with use of diluted autologous blood for two hours.
Results. AST, ALT and LDH in Group 2 were significantly lower than in Group 1 after reperfusion (394.8, 14.6, 775.0 (IU/L) vs 819.0, 32.5, 1799.0 (IU/L), respectively).
Conclusion. The combined use of ECMO and HMP is more essential for the evaluation and the recovery of the function of porcine DCD liver grafts.

MO21-2 Functional Assessment of Cardiac Arrest Hepatocytes and Effect of Mechanical Perfusion on Function

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Although liver transplantation is established as the only treatment for end-stage liver failure, it has the disadvantage of high surgical invasiveness and frequent complications. In contrast, hepatocyte transplantation has several advantages such as safety, simplicity, and minimal invasiveness. In clinical practice, the usefulness of hepatocyte transplantation for certain metabolic liver diseases has been reported. However, several concerns remain to be resolved before hepatocyte transplantation can be widely used. Among them, shortage of liver donors is a major challenge.
To overcome this problem, we used cardiac arrest donor livers to evaluate the function of cardiac arrest hepatocytes and examine the effect of mechanical perfusion on cardiac arrest hepatocytes, which we have reported to be useful in treating warm inhibition and reperfusion injury.
F344 rats induced to cardiac arrest by bilateral thoracotomy were divided into two groups: one in which hepatocytes were isolated directly after liver removal and the other in which hepatocytes were isolated after mechanical perfusion. Results showed that hepatocyte yield per body weight was significantly higher in the mechanical perfusion group ($p<0.05$).
It was suggested that mechanical perfusion of cardiac arrest donor livers increases hepatocyte yield. At present, we are evaluating the function of these hepatocytes by verifying the ammonia removal test and ADP/ATP ratio, and the results will be reported with future prospects.

MO21-3 Evaluation of Porcine DCD Liver Functions Prior to Transplantation During Machine Perfusion

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Evaluation of organ functions prior to transplantation using a machine perfusion, which are expected to expand organ transplantation, based on the results of clinical studies of NMP (Normothermic Machine Perfusion), it has not yet been established. As expectations for perfusion techniques in temperature ranges other than body temperature expand, the establishment of organ function evaluation methods appropriate to each temperature range is required. In this report, we focus on pre-transplantation evaluation techniques for the liver to expand transplantation applications and discuss the possibilities of pre-transplantation functional evaluation of organs using physical methods such as flow and metabolic indices, spatio-temporal temperature distribution, and spatial perfusion evaluation methods such as near-infrared fluorescence measurement using ICG. We will discuss the possibility of using these methods to evaluate the function of organs prior to transplantation.

Methods: Using porcine livers, organs were transplanted under different preservation conditions after subnormothermic regional perfusion to recover DCD organs. Pressure, flow rate, vascular resistance, metabolic indices such as oxygen consumption and pH were measured. The spatial perfusion characteristics index was obtained from time-series fluorescence intensity distribution measurements using a high-speed thermography camera and ICG to evaluate organ function prior to transplantation. In addition, we evaluated the initial state of organ reperfusion in an ischemia-reperfusion model using body temperature perfusion with diluted autologous blood and examined the characteristics of organ function evaluation.

As an example, CS and HOPE were compared after local perfusion in the body temperature, and the concentration transition coefficients were CS 0.03 and HOPE 0.36, with higher values indicating better flow characteristics, and the number of concentration transition systems showed a strong negative correlation with hepatic artery pressure.

Conclusion: Pig livers with different degrees of injury were evaluated by flow index, metabolic index, and spatial perfusion property index by image measurement, and the possibility of pre-transplantation function evaluation was discussed.

MO21-4 Basic Characteristics of Subnormothermic Regional Perfusion for DCD Porcine Liver

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There are high expectations for in-vivo normothermic regional perfusion, in which organs are transplanted after their functions are restored by regional oxygenated perfusion in the body using ECMO, mainly in Europe. However, blood perfusion at body temperature has the risk of inducing ischemia-reperfusion injury. Against this background, the possibility of subnormothermic regional perfusion using ECMO has been discussed. However, the basic characteristics of organs at non-homeostatic room temperatures have not yet been clarified. In this study, we performed subnormothermic regional perfusion of the DCD porcine liver using ECMO, and examined the basic characteristics of the metabolism of the donor during regional perfusion.

Porcine DCD livers were used in the experiments. After 45 minutes of cardiac arrest, subnormothermic regional perfusion with autologous blood was performed using ECMO at room temperature (22°C). During regional perfusion, oxygenation, metabolic factors such as lactate and glucose, enzymes, and various ion concentrations were measured. The flow rate was maintained at 1 L/min.

The following is an example of changes in the amount of released enzymes during the ECMO. Here, the results were divided into two groups with d LDH value; good perfusion groups and poor perfusion group. The differences in dLDH, dAST, and dALT between the beginning and end of ECMO were 98±43 vs. 4±36, 32±15 vs. 12±7, and 1.83±1.17 vs. 0.63±0.74, respectively, indicating that the amount of enzymes released by the good group was less than that of the poor group. Good regional perfusion improves organ function even under room temperature conditions.

The basic characteristics of subnormothermic regional perfusion using ECMO were clarified and the availability of the subnormothermic regional machine perfusion is confirmed.

MO21-5 Novel Strategy to Enable Transplantation of Liver Graft After Cardiac Arrest - Study in Pig Models

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As a strategy to expand the donor pool, the machine perfusion method has been explored for transplantation of organs from donors after cardiac death (DCD). Two methods of machine perfusion have been attempted: one is to use a machine to pump blood forcibly throughout the body of a patient after cardiac death, and the other is to extract and perfuse the organ to be transplanted ex vivo. The first, however, may cause problems with the concept of brain death, while the second involves problems with removing intra-organ thrombi.

In this study, we have performed normothermic machine perfusion in porcine models with a strategy to resuscitate the liver graft after prolonged cardiac arrest. The thoracic aorta was clamped without pre-administration of anticoagulants to stop blood flow to the liver, and after 1-3 hours of warm ischemia, the liver was harvested and defleshed.

In order to reperfuse the DCD liver efficiently, there was a need to flush out microthrombi, and we establish a novel concept of "environmental pressure-controlled perfusion" as a solution. Additionally, the machine perfusion system developed by our team was confirmed to provide safer machine perfusion to poor perfusion dynamics due to the pump-free pumping of fluid to the liver using a hydraulic head difference. The developed normothermic machine perfusion system showed more bile production and metabolic improvement in 1-hour cardiac arrest grafted livers than in 2-hour or longer circulatory arrest livers and resulted in a case of survival by liver transplantation after resuscitation.

MO22-1 Validation of Mycophenolate Mofetil Dose in Living-Donor Kidney Transplantation in Our Institution

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Background
Although mycophenolate mofetil (MMF) is recommended to be administered to maintain a certain blood concentration of mycophenolic acid (MPA) among kidney recipients, there has been no reports showing actual area under the concentration-time curve (AUC) of MPA from perioperative phase.
Methods
The sixty-one patients who underwent living donor kidney transplantation (Tx) from November 2011 to February 2020 in our institution, and whose AUC of MPA were monitored were included in this study. MMF, tacrolimus and methylprednisolone as well as basiliximab were used for immunosuppression. MMF was initiated at fixed dose of 1000mg/day, 7 or 4 days before Tx according to their immunological risk, and the dose of which was increased to 2000mg/day after Tx, with reducing to 1500mg/day at 14 days and 1000mg/day at 2 months. The $AUC_{0\text{-}12}$ were measured a day before Tx, and 7days, 14 days, 2 months and 6 months after Tx. PETINIA method was used to determine the AUC. The AUC0-12 of 37μgh/mL or more was defined as sufficient according to previous reports.
Results
There was no graft loss and one case (1.6%) of acute rejection. MMF was reduced from standard regimen in 19 cases (31.1%) and converted to other agents in 8 (13.1%) due to adverse events. The mean $AUC_{0\text{-}12}$ at above-mentioned timing were 58.3, 62.4, 64.3, 51.8, and 48.1μgh/ml, respectively. Among the cases, 81.6, 87.9, 90.2, 83.7, and 86.4% of recipients were able to obtain sufficient $AUC_{0\text{-}12}$ of MPA, respectively.
Conclusion
Our protocol was able to secure adequate MPA concentration from perioperative phase.

MO22-2 mTOR Inhibitor Effects on Activated Regulatory T Cell Expansion in Kidney Transplantation

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Background: The mammalian target of rapamycin (mTOR) plays a critical role in the host immune response in organ transplantation.
Methods: To analyze the mTOR-dependent immune-regulating effects in kidney transplant (KTx) recipients, we evaluated T cell subsets in peripheral blood mononuclear cells (PBMCs) in 79 KTx recipients. Recipients included early introduction of EVR and reduced-exposure tacrolimus (EVR) group (N=46), and compare it with the standard tacrolimus-based (non-EVR) group (N=33).
Results: The trough concentrations of tacrolimus at 3 month and 1 year were significantly lower in the EVR group than those in the non-EVR group (both $P < .001$). In addition, Freedom from estimated glomerular filtration rate <20% in EVR group and non-EVR group, respectively, 100% and 93.3% at 1 year, 96.3% and 89.7% at 2 years, and 96.3% and 89.7% at 3 years after the point of blood collection. The incidence of $CD3^+$ T cells and $CD4^+$ T cells were comparable in PBMCs obtained from both groups. Total $CD25^{high}CD127^-CD4^+$ regulatory T (Treg) cells in EVR group had a similar level in non-EVR group. In contrast, circulating $CD45RA^-CD25^{high}CD127^-CD4^+$ activated Treg (aTreg) cells were significantly higher in EVR group ($P = .008$).
Conclusion: These results suggest that early introduction of mTOR can be a beneficial strategy leading to long-term great renal function and circulating aTreg cell expansion in KTx recipients.

MO22-3 Late Conversion to a Calcineurin Inhibitor-Free Regimen with Everolimus After Renal Transplantation

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Background: Conversion to CNI-free regimens is important to improve the long-term outcomes of renal allograft. However, early conversion increases the risk of rejection and development of donor specific antibody (DSA). In this study, we evaluated the efficacy and safety of late conversion to everolimus (EVR)-based regimen without CNI.
Methods: Nine kidney recipients with biopsy-proved, CNI-induced nephrotoxicity were enrolled. All recipients had undergone conversion from CNI to EVR. The median time from transplant to CNI withdrawal was 10.1 (5.8-17.3) years. We evaluated changes in renal function, incidence of rejection, development of DSA, graft survival, and anti-donor T cell response.
Results: The median follow-up after conversion was 5.1 (1.4-9.0) years. There was no significant difference in renal function between before and after conversion. Eight of nine recipients did not develop both rejection and DSA during follow-up. However, one recipient without DSA developed acute T cell-mediated rejection, and CNI was resumed. Among eight recipients who continued CNI-free regimen, six recipients achieved long-term allograft survival. Mixed lymphocyte reaction demonstrated two types of reaction. One group showed loss of anti-donor T cell response as well as recipients who continued CNI, whereas the other showed marked $CD4^+$ T cell proliferation in response to donor antigens. Furthermore, a significant proportion of the proliferated $CD4^+$ cells were $FOXP3^+$.
Conclusion: Late conversion to EVR-based regimen without CNI could be a therapeutic strategy against CNI nephrotoxicity.

MO22-4 Development of Medication Adherence Scale Appropriating for Transplant Patients in Japan

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Background
A valid and reliable instrument that can measure medication adherence (MA) is needed to identify non-adherent patients and to improve MA rates. However, to date, there is no validated Japanese self-report instrument to evaluate the MA for transplant patients. The purpose of this study was to determine the reliability and validity of the Japanese version of the Basel Assessment of Adherence to Immunosuppressive Medications Scale (J-BAASIS).
Methods
We translated the BAASIS into Japanese and analyzed the reliability (test-retest reliability and measurement error) and validity of the J-BAASIS (concurrent validity with the medication event monitoring system (MEMS) and the 12-item Medication Adherence Scale) referring to the COSMIN Risk of Bias tool.
Results
A total of 106 kidney transplant recipients were included in this study. In the analysis of test-retest reliability, kappa coefficient was 0.62. In the analysis of measurement error, the positive and negative agreement were 0.78 and 0.84, respectively. In the analysis of concurrent validity with the MEMS, sensitivity and specificity were 0.84 and 0.90, respectively. In the analysis of concurrent validity with the 12-item Medication Adherence Scale, the point-biserial correlation coefficient was 0.12 (p=0.23).
Conclusions
Using the valid and reliable J-BAASIS to evaluate MA may help clinicians to identify non-adherent transplant patients and institute appropriate corrective measures to improve transplant outcomes.

MO22-5 Quadruple Induction Regimen with Everolimus Prevents Development of De Novo Donor-Specific Antibody

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Objectives: Chronic antibody-mediated rejection (CAABMR) has been a hurdle against long-term graft survival in kidney transplantation. The aim of this study was to evaluate the benefits of everolimus (EVR)-based immunosuppression.
Methods: This retrospective study included kidney recipients with follow-up period of >3 years. They were divided into 2 groups based on the type of induction immunosuppression, STD group without everolimus (n=47) and EVR group with everolimus (n=55). Both groups were treated with basiliximab, tacrolimus (TAC), mycophenolate mofetil (MMF) and methylprednisolone. The following data were compared at 6 months, 1, 2, 3 and 5 years post-transplant: estimated glomerular filtration rate (eGFR), urine protein (uP), TAC and EVR trough levels (C0), mycophenolate concentration area under-the-curve (MPAAUC), aah score at protocol graft biopsy, incidences of cytomegalovirus infection (CMV), new-onset diabetes (NODAT), statin treatment, acute rejection (AR), CAABMR and de novo donor-specific antibody (dnDSA).
Results: EVRC0 was kept at 4-5 ng/mL throughout the study period. TACC0 was lower until 1y in EVR group but was equivalent afterwards. MPA was kept lower in EVR group until 3y. eGFR and uP were comparable. The incidence of AR was lower in EVR group and there was no CAABMR or dnDSA in EVR group. No difference in aah score was observed. The incidence of CMV infection was lower in EVR group but NODAT and statin treatment were more frequent in EVR group.
Conclusions: Addition of EVR on the conventional regimen prevented development of dnDSA and CAABMR.

MO22-6 Bexarotene Induces the Differentiation of Monocytes into Immunosuppressive MDSCs

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Background: Cellular therapy has emerged as a promising strategy to minimize conventional immunosuppressive drugs and ultimately induce long-term graft survival. Myeloid-derived suppressor cells (MDSCs) could be utilized for immunosuppressive treatment in solid organ transplant.
Methods: In this study, granular macrophage colony-stimulating factor (GM-CSF) and Bexarotene, a retinoid X receptor-selective retinoid, was applied for in vitro induction of MDSCs. Phenotypical changes of bone marrow derived monocytes were examined via flow cytometry and real-time PCR. A mouse skin transplantation model was used to verify its inhibitory role.
Results: The combination of GM-CSF and Bexarotene could induce the differentiation of myeloid-derived monocytes into MDSCs. These MDSCs could inhibit the proliferation and activation of T cells, and suppress cytokine secretion. The combined treatment up-regulated the expression of Arg-1 in MDSCs. Arg-1 inhibitor, nor-NOHA, neutralize the immunosuppressive activity of MDSCs, suggesting the involvement of the Arg-1 in MDSC mediated immunosuppression. GM-CSF+Bexarotene induced MDSCs also prolonged the graft survival in moues skin transplant, exhibiting their in vivo immunosuppressive effects.
Conclusions: A new method of inducing MDSCs is presented. The combination of GM-CSF and bexarotene could induce G-MDSCs with remarkable regulatory function. The adoptive transfer of the these induced MDSCs extended the survival of allografts. These results suggested that MDSCs could potentially be applied in future clinical transplantation for inhibiting rejection, reducing the adverse events and even inducing operative tolerance.

Day 1 November 25 (Fri), 2022 Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

MO23-1 Arteriosclerosis Decreases TRAIL Expression on Liver Natural Killer Cells in Living Donor Liver Transplantation

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Tumor necrosis factor-related apoptosis-inducing ligand (TRAIL) is a critical molecule for natural killer (NK) cell-mediated anti-tumor and anti-microbe killing. The TRAIL expression on donor's liver NK cells from liver perfusate after IL-2 stimulation varies individually and is unexpected. The purpose of the study is to clarify the risk factors for low TRAIL expression by analyzing the perioperative donor characteristics. A retrospective study of 75 living donor liver transplant (LDLT) donors between 2006 and 2022 was performed to analyze the risk factors of the low TRAIL expression. A total of 75 donors who had undergone hepatectomy for LDLT were divided into two groups according to the TRAIL expression on liver NK cells by the median values. The low TRAIL group (N=38) was older, had lower nutrition, and higher LDL/HDL cholesterol ratio, associated with arteriosclerosis, than the high TRAIL group (N=37). In the multivariate analysis, the GNRI score (odds ratio: 0.86; 95% CI: 0.76-0.94; p<0.001) and the LDL/HDL cholesterol ratio (odds ratio: 2.32; 95% CI: 1.10-4.86; p=0.005) were independent predictive factors for the low TRAIL expression on liver NK cells. Furthermore, the TRAIL expression on liver NK cells was strongly associated with the degree of atherosclerosis, which was categorized with the presence of abdominal aortic calcification in donors and the LDL/HDL cholesterol ratio. In conclusion, the TRAIL expression of liver NK cells in donors was a strong relationship with atherosclerosis and GNRI. Atherosclerosis would reflect the TRAIL expression of liver NK cells.

MO23-2 Cold Storage in D2O Containing Solution and Post-reperfusion H2 Gas Treatment Reduced Rat Liver Damage: An IPRL Study

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[Background/Aim] We have reported separately the efficacy of D2O containing solution (Dsol), and post-reperfusion treatment with H2 gas, in a model of extended simple cold storage (SCS) and subsequent reperfusion using rat liver. The aim of the present study was to evaluate the combination effect of SCS with Dsol and subsequent H2 gas treatment in rat liver.
[Methods/Materials] Rat livers were subjected to 48 hours of SCS in Dsol, and subsequently reperfused with oxygenated Krebs-Henseleit Bicarbonate buffer (KHB) on an IPRL for 90 min together with administration (civ) of H2-saturated KHB at a flow of 4% (vs. main perfusion flow). Portal vein resistance (PVR), bile production, oxygen consumption rate (OCR), liver enzyme leakage, and hyaluronic acid clearance were assessed.
[Results] Bile production and OCR were the lowest together with the highest PVR and liver enzyme leakage in UW group. These changes were significantly suppressed in treatment groups (Dsol, UW+H2, and Dsol+H2 groups). It is of note that bile production was significantly higher in Dsol+H2 (combination treatment) group than that in single treatment (Dsol or UW+H2) groups. Liver histopathology showed severe damage in UW group, whereas reduced damage in single treatment groups, and almost normal appearance in Dsol+H2 group. Although PVR was decreased by H2 gas regardless of preservation solution, phosphorylation of cofilin and Myosin phosphatase targeting subunit 1 (MYPT1) were shown only in Dsol+H2 group, suggesting the suppression of actin depolymerization and of myosin phosphorylation.
[Conclusion] SCS with Dsol and subsequent H2 gas treatment showed an additive effect in cold preservation and reperfusion injury in rat liver.

MO23-4 Study on Improvement of Aged Liver Regenerative Potential Using Chemically Induced Liver Progenitor Cells

Kunihito Matsuguma, Takanobu Hara, Akihiko Soyama, Daisuke Miyamoto, Masayuki Fukumoto, Hajime Imamura, Hajime Matsushima, Tomohiko Adachi, Shinichiro Ito, Masaaki Hidaka, Kengo Kanetaka, Susumu Eguchi

Department of Surgery, Nagasaki University Graduate School of Biomedical Sciences, Japan

Background
Using the reprogramming technology of chemically-induced liver progenitors (CLiP) from mature hepatocytes by chemically stimulating a combination of small molecules (Cell Stem Cell. 2016), we investigated the improvement of regenerative potential of age-damaged liver by CLiP administration using an aged mouse model.
Subjects and Methods
Aged mice (>90 weeks old, n=15) and younger mice (<20 weeks old, n=13) underwent 70% hepatectomy and simultaneously CLiP (8×10^5 cells, about 1% of the number of liver cells in mouse) generated from the liver tissue of young mice was injected from the spleen into each group. The residual liver/body weight ratio was measured on postoperative days 1 and 7, and changes in liver regeneration and histology of the liver were compared with those of the non-injected group.
Results
The residual liver/body weight ratio of the elderly group was significantly lower than that of the younger group on days 1 and 7 after liver resection (day1: $p<0.01$, day7: $p=0.02$). The liver tissue of the elderly group injected with CLiP showed a significantly higher area fraction of Ki-67 positive cells than that of the non-injected group ($p<0.01$), and the residual liver/body weight ratio was comparable to that of the young group ($p=0.11$). The expression of STAT3, a hepatocyte proliferation signal, was also significantly increased in the CLiP-injected group ($p=0.02$).
Conclusion
Transplantation of CLiP generated from young liver tissue is expected to promote liver regeneration in age-damaged livers.

MO23-5 TLR4-mediated Hepatocellular Senescence Impairs Tumor Surveillance of Natural Killer Cells via HLA-E-NKG2A Axis

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Introduction: Recurrence of hepatocellular carcinoma (HCC) significantly shortens patient survival after liver transplantation (LT). Accumulating evidence shows that senescent cells have deleterious effects on the tissue microenvironment and tumor progress. Here, we aimed to explore the role and mechanism of hepatocellular senescence on natural killer (NK) cell regulation and tumor recurrence.
Method: 346 HCC patients who underwent LT were recruited. The correlations among graft size, hepatocellular senescence, the number of NK cells, and tumor recurrence were analyzed. A mouse model with hepatic ischemia-reperfusion injury plus hepatectomy (IRI+Hx) was applied to investigate the role of TLR4 on cellular senescence and tumor recurrence. The underlying mechanisms were further explored in LO2 cells (human hepatocyte cell line) with cellular senescence induced by H_2O_2.
Results: LT recipients with GWR (the ratio of graft volume to estimated liver volume) < 60% had a higher rate of early HCC recurrence and showed more hepatocellular senescence. The frequencies of both circulating and intra-graft NK cells were significantly decreased in GWR < 60% patients. The upregulation of checkpoint NKG2A on NK cells suppressed their cytokine secretion and cytotoxic function. The intragraft expression of HLA-E, the ligand for NKG2A, was elevated in GWR < 60% patients and significantly associated with TLR4 expression. TLR4 knockout suppressed hepatocellular senescence and downregulated NKG2A expression on both circulatory and hepatic NK cells after IRI+Hx *in vivo*. NKG2A blockade further retarded HCC recurrence in an NK-cell-dependent manner. When co-cultured with senescent LO2 cells, NK cells showed less cytotoxic with increased expression of NKG2A, regulated by the MAPK signalling pathway.
Conclusion: TLR4-mediated hepatocellular senescence activated the NKG2A–HLA-E axis after liver transplantation, inducing tumor immune escape via inhibition of NK cell function. Anti-TLR4 and/or anti-NKG2A provide a novel strategy for preventing HCC recurrence.

MO23-6 The Synergetic Effect of mTOR and Metabolic Inhibitors to Prevent Allograft Rejection

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Background: Metabolic signaling pathways have emerged as playing critical roles in dictating the outcome of T cell responses. Our published data have demonstrated that selective targeting of T cell proliferation and function by blocking glycolysis and glutamine metabolic pathways can inhibit acute rejection and promote allograft survival. Since it has become clear that mTOR also plays an important role in regulating the metabolic machinery necessary for T cell generation and differentiation, we integrated mTOR inhibitor rapamycin into these regimens as well to determine if we can prolong even further graft acceptance in this study.
Methods: The effects of mTOR, glycolysis, and glutamine metabolism inhibitors were tested on T cell activation and proliferation. We devised a regimen employing the hexokinase inhibitor 2-deoxy-D-glucose (2-DG), the glutamine analog6-diazo-5-oxo-L-norleucine (DON) and mTOR inhibitor rapamycin in a fully MHC mis-matched mouse full thickness skin transplantation.
Results: 2-DG and metformin markedly inhibited T cell proliferation. The effect of rapamycin was comparable to that of glutamine inhibition with DON. Used in combination, there was a robust inhibition of T cell proliferation. In BALB/c to C57BL/6 skin transplants, rapamycin with combined metabolic inhibitors could achieve prolonged (>100 days) graft survival.
Conclusion: Combining metabolic inhibition with rapamycin could synergistically prevent rejection and achieve long-term allograft survival.

MO24-1 Rethinking ABO-Incompatible Liver Transplantation in the Rituxan Era -Single Center Experience-

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[Purpose] The prognosis of ABO-incompatible liver transplantation was initially extremely poor, but after the introduction of rituximab, the results of ABO incompatible liver transplantation were comparable to those of ABO-identical/-compatible liver transplantation. In this study, we examined ABO-incompatible liver transplantation at our hospital during the Rituximab era.

[Methods] Of 513 adults who underwent living-donor liver transplantation at our hospital from January 2006 to December 2021, 121 patients who underwent ABO- incompatible living donor liver transplantation were subjected to acute cellular rejection (ACR) and antibody mediated rejection (AMR). We examined the presence or absence of these rejection and the cumulative survival rate after transplantation.

[Results] 121 patients (23.6%) underwent blood group incompatible living donor liver transplantation. There were 54 males and 67 females with a median age of 53.9 years (quartile 40.9-59.3 years), and 119 patients (98.3%) received Rituxan. ACR was observed in 45 cases (37.2%) and AMR in 27 cases (22.3%). The 5-year survival rate was 81.1% for ABO-identical/-compatible liver transplantations and 70.6% for ABO-incompatible liver transplantations. The 5-year survival rate for ABO-incompatible transplants that did not cause AMR was 77.2%, whereas the 5-year survival rate for cases that caused AMR was 47.9%, showing a significantly poorer prognosis (p=0.005). On the other hand, there was no significant difference in the 5-year survival rate between the presence and absence of ACR (p=0.468).

[Conclusion] The introduction of rituximab markedly improved the outcome of ABO-incompatible transplantation, but the prognosis of patients with AMR was poor. Establishment of optimal protocols and development of new therapeutic agents for the prevention of AMR are required.

MO24-2 Outcome of ABO-Incompatible Living Donor Liver Transplantation Recipient Under 1-Year Old

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Background

Antibody mediated rejection(AMR) is unlikely to ABO-incompatible living donor liver transplantation(ABO-I LDLT) of one year old or less, unlike cases older than 1 year. The use of Rituximab or anticoagulant therapy has not been carried out for one year old or less patients. However, there is only a little report of the prognosis after LDLT compared with identical / compatible cases. This time, we examined the prognosis, complications of ABO-incompatible living donor liver transplantation under 1 year old patients performed in our hospital.

Method

In our hospital, 2024 cases of liver transplantation have performed from June 1990 to December 2021. 1 year old or less at the time of surgery was 319 cases (identical 192cases, compatible 62cases, and incompatible 65cases). We examined the prognosis, complications, and isohemagglutinin titer for 318 people, except one case who performed under Rh incompatibility from there.

Result

Among Identical / compatible / incompatible cases, there was no difference in the prognosis (p = 0.718). Maximum postoperative anti-donor ABO isohemagglutinin titers were IgM 4x (<1 - 128) and IgG 4x (<1-64). In addition, AMR due to blood group antigens, were not observed in the non-conforming transplant patients under 1 year.

Conclusion

ABO-I LDLT for 1 year or less was no difference in the prognosis to ABO-identical/compatible liver transplantation without the anti-coagulation therapy. This can be a help to protocol selection of ABO incompatible transplantation definitive one year old or less.

MO24-3 Acute Liver Failure with Hepatic Coma Saved by ABO-Incompatible Liver Transplantation: A Case Report

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Acute liver failure (ALF) with hepatic coma is associated with high mortality. There should be prompt decision-making about the treatment plan including liver transplantation (LT) to salvage the liver. In cases where only an ABO-incompatible (ABO-i) donor is available, LT is difficult because desensitization by rituximab (Rit) usually requires 2 weeks. This is a report of a 33-year-old female with a history of headaches for which she was taking analgesics daily. There was no history of substance abuse or attempt to suicide. She developed acetaminophen (APAP)-induced-ALF with hepatic coma. It is not known if the APAP overdose (13.2 g) was intentional. Her ABO-i sister desired to become a donor. The liver transplantation review committee allowed living donor LT if the patient recovered from coma and confirmation of intent toward LT was obtained. However, deceased donor LT was not allowed because the possibility of suicide remained. After FFP and flumazenil administration with CHDF, the patient woke up 10 days after the onset of coma and agreed to LT. Desensitization using Rit (500 mg/body) and mycophenolate mofetil (MMF, 2000 mg/day) was started carefully, followed by 5 sessions of plasmapheresis. Eight days after Rit administration, ABO-i LT with splenectomy was performed, because $CD19^+$ cells decreased from 31.1% to 0.1%. Postoperatively, local infusion via portal vein for 14 days and immunosuppression with tacrolimus, prednisone, and MMF were provided. No episode of cellular or antibody-mediated rejection was observed. She was discharged uneventfully 56 days after LT.

MO24-4 Management and Clinical Impact of Anti-HLA Donor-specific Antibodies (DSA) in Living Donor Liver Transplantation

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Background: Although the clinical significance of anti-HLA donor-specific antibodies (DSA) in liver transplantation remains controversial, DSA is recognized as a cause of antibody-mediated rejection (AMR) and long-term graft dysfunction. In this study, we investigated the results of DSA-positive living donor liver transplantation (LDLT).
Method: DSA of which mean fluorescence intensity (MFI) of 2,000 or more by Luminex is defined as DSA-positive. Rituximab and mycophenolate mofetil were administered before DSA-positive LDLT. In addition, plasma exchange (PE) was performed before DSA-positive LDLT for patients with MFI of 5,000 or more. From 2020, PE is performed using albumin instead of fresh frozen plasma. After transplantation, immunosuppression with tacrolimus, steroid and mycophenolate mofetil was maintained.
Results: Between November 2015 and March 2022, five DSA-positive LDLT were performed. One case was ABO-incompatible LDLT. Rituximab was administered 20 ± 5 days before transplantation. MFI at the first visit and immediately before transplantation were 10,078 ± 5,293 and 9,169 ± 6,830, respectively. No cases developed AMR. There were 4 cases in which DSA was measured 3 months after LDLT, and DSA was negative in all of cases. On the other hand, one patient who had not confirmed DSA-negative conversion developed chronic rejection 2 years after transplantation and received steroid pulse therapy.
Conclusions: Future accumulation of DSA-positive LDLT and further research are needed.

MO24-5 Lysophosphatidylinositol (16:0) as a Possible Cause of Ischemia Reperfusion Injury

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[Background/Aim]
Ischemia and reperfusion injury (IRI) in DCD liver transplantation is a critical issue. The aim of the study was to find out key molecules triggering and exacerbating IRI during ischemia.
[Methods/Materials]
Male rats were subjected to 70% partial hepatic ischemia and subsequent reperfusion. Animals were sacrificed and collected at the end of warm ischemia (EWI), 1h, 6h, 24h, and 7d after reperfusion. Tissue sections were evaluated by an Imaging mass spectrometry (IMS). Next, we evaluated the role of the possible harmful molecules, detected by IMS, in in vitro hypoxia and reoxygenation in cell lines derived from rat hepatocytes and hepatic stellate cells, RL34 and RIT, respectively, by LDH leakage at the end of hypoxia (ECH), and cytoplasmic Ca2+ concentration after reoxygenation using Fura2-AM
[Results] IMS revealed the increase of Lysophosphatidylinositol (LPI)(16:0) during ischemia. LPI(16:0) supplementation reduced cellular injury both cell lines at a normal condition. Hypoxia-induced cellular death was reduced by LPI (16:0) supplementation in hepatocytes, together with transient increase of cytoplasmic Ca2+ through Ca2+ uptake from extracellular space. On the other hand, hypoxia-induced cellular death was enhanced by LPI (16:0) supplementation in HSC together with transient increase of cytoplasmic Ca2+ due to the Ca2+ uptake from outside and release from intracellular storage, presumably due to the endoplasmic reticulum-related mechanisms.
[Conclusion]
LPI (16:0) involved in the progression of hepatic IRI during ischemia through distinct roles in hepatocytes and hepatic stellate cells.

MO24-6 Novel Perspective of Antigen-presenting Neutrophils in Mediating Adaptive Immunity of HCC and Liver IR Injury

Yum Hung Fredrick Cheng, Sui Yan Tam, Wai Ho Yeung, Kwan Man

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Background: Extended lifespan of tissue-infiltrating neutrophils augmented need to review their pathological roles. With evidence revealing neutrophil heterogeneity and novel discovery of antigen-presenting neutrophils, we aimed to study their role in mediating adaptive immunity in HCC and liver IR injury.
Methods: CD66b, HLA-DR and CD10 expression in 106 HCC patients and 30 post-reperfusion liver grafts were quantified with qPCR, IF and flow cytometry. Intrahepatic APN from murine HCC and IR injury models were isolated and cocultured with naïve T cells, with subsequent characterization of T cell activation and polarization.
Results: CD66b and HLA-DR expression highly elevated in HCC and post-IRI grafts. demonstrating mature CD10+ phenotype in HCC, and immature CD10- phenotype in hepatic IRI. CD10 expression positively correlated with HCC staging, recurrence and negative correlated with graft injury ($p<0.05$). Naïve T cells cocultured with CD10+ APN skewed towards Treg phenotype through elevated anti-inflammatory cytokines (IL10) and coinhibitory signals (PDL1), in contrast with Th1 phenotype with CD10- APN, through elevated pro-inflammatory cytokines (IFNg) and costimulatory signals (CD86).
Conclusion: APN demonstrated 2 distinct phenotypes in HCC and liver IRI. Mature CD10+ APN promoted HCC progression through T-cell inhibitory N2 phenotype, while immature CD10- APN exacerbated graft injury through T-cell activating N1 profile. Phenotypic switching of APN represents promising therapeutic potential to restore HCC immune surveillance and alleviate post IRI graft injury.

Day 1 November 25 (Fri), 2022 Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

MO25-1 Pre-transplant Treatment Is Not A Risk Factor for Hepatocellular Carcinoma Recurrence After LDLT

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Background: Hepatocellular carcinoma (HCC) is predominantly treated by hepatic resection and/or locoregional therapy before liver function deteriorates into the Child C category. We aimed to evaluate the impact of treatment prior to living donor liver transplantation (LDLT) for HCC recurrence.
Patients and methods: We divided patients into two groups according to treatment received before LDLT (*n = 147*) and no such treatment (*n = 82*), and compared their background characteristics and recurrence-free survival rates. To overcome selection bias, we performed one-to-one propensity score matching (PSM) (*n = 66, per group*).
Results: Patients who had received pre-LDLT treatment were more often male, more hepatitis C virus, had lower model for end-stage liver disease scores, had less frequently undergone splenectomy, and more often had bi-lobar tumors and not meeting the Japan criteria. They also had poorer 5-year recurrence-free survival rates than did those with no pre-LDLT treatment (82.5% vs. 96.2%, *P = 0.002*). After PSM, pre-LDLT treatment was not a risk factor for HCC recurrence. Multivariate analysis identified DCP ≥ 500 mAU/ml (hazard ratio 12.6, *P = 0.006*) and not meeting the Japan criteria (hazard ratio 8.20, *P = 0.007*) as an independent risk factors for HCC recurrence after LDLT.
Conclusion: Our findings indicate that pre-LDLT treatment to keep HCC within Japan criteria with DCP < 500 mAU/ml does not impact survival outcomes of patients with hepatic functional reserve.

MO25-2 Optimizing the Safe Washout Period for Liver Transplantation Following Immune Checkpoint Inhibitors with Nivolumab or Pembrolizumab

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Purpose:
Using immune checkpoint inhibitors (ICI) as a downstaging therapy for liver transplantation (LT) has shown the dawn for patients with advanced hepatocellular carcinoma (HCC). However, the risk of post-transplant graft rejection conflicted with its results. The washout period (WO) between the last ICI dose to LT seems to be the critical point in preventing post-operative rejection. This study aimed to optimize the safe WO in balancing the tumor burden suppression and rejection prevention by using ICI before LT.
Methods:
We reviewed the published case report or series from August 2019 to July 2022 about LT for HCC after downstaging or bridge therapy with ICI and combined our four cases. We noted most patients received nivolumab or pembrolizumab, and both ICI shared a similar half-life of around 28 days. Therefore, we excluded the cases without definite data of WO or using ICI of non-nivolumab/pembrolizumab and enrolled 22 patients for analysis. We compared their clinical outcomes and estimated the rejection-free survival by every 0.5 half-life interval.
Results:
Most study subjects received nivolumab (n = 20). Six patients had severe rejections (nivolumab group, n = 5) and needed rescue management. Of the six cases, one patient died after rejection, and two underwent re-transplantation. The median WO in these six patients was 23 days (IQR: 9–35 days). In addition, we found that a 1.5 half-life (42 days) was the shortest safe WO with significant rejection-free survival (p = 0.038).
Conclusions:
Our results showed that 42 days was the shortest balancing time to arrange LT for HCC following ICI with nivolumab or pembrolizumab.

MO25-3 Tertiary Lymphoid Structures Promote HCC Immunotherapy Response

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Background: Tertiary Lymphoid Structures (TLSs) have been identified in various tumors, including hepatocellular carcinoma (HCC). Current studies have found that TLSs could exert their anti-tumor effect by promoting immunotherapy response in several types of cancer. However, the role of TLSs in HCC remains controversial.
Methods: H&E staining and multiplex immunohistochemistry (mIHC) were used to detect TLSs in HCC. The expression of PD1 in tumors was evaluated by IHC. Patients receiving nivolumab treatment were divided into response and non-response groups according to the tumor necrosis area.
Results: 119 HCC patients not receiving immunotherapy were divided into two groups according to the presence of TLSs in tumors. HCC patients with intra-tumoral TLSs had a higher 5-year recurrence rate and shorter overall survival than patients without TLSs. Tumors with TLSs had significantly higher densities of tumor infiltrating PD1+ cells, even if PD1+ cells within TLSs were excluded. These results showed that immune cells infiltrated in TLS+ tumors are exhausted. Among 15 HCC patients receiving anti-PD1 treatment before surgical resection, 3 patients achieved complete pathological response (CPR). The CT scan and H&E staining showed tumor necrosis in CPR patients. Compared with non-responders, more CD8+ T cells infiltrated in the tumors of responders and tended to gather around TLSs.
Conclusion: TLS+ HCC tumors were in an immunosuppressive microenvironment. Anti-PD1 treatment could educate TLSs to develop anti-tumor activity and potentially reserve unfavorable clinical outcomes.

MO25-4 The Outcomes of Liver Transplant and Liver Resection for Recurrent HCC Within 5-5-500 Criteria

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Introduction: The treatment algorithm for the recurrent hepatocellular carcinoma (HCC) is same as the primary HCC, and liver transplantation (LT) is recommended only for Child-Pugh class C patients according to the Japanese HCC treatment guideline. On the other hand, the good results of LT for recurrent HCC are reported. In 2019 5-5-500 criteria was published as an extended criteria of LT for HCC. We will report the outcomes of LT and hepatectomy for recurrent HCC within 5-5-500 criteria.
Patients and Methods: From 2010 to 2015, 39 recurrent HCC patients, who were within 5-5-500 criteria, received hepatectomy. Twelve recurrent HCC patients underwent LT from 2010 to 2019. The 5-year overall survival and 5-year disease free survivals were compared between these two groups.
Results: The average age at operation in hepatectomy and LT group was 67.1±6.3, and 57.8±5.7 year old respectively. The average period between first treatment and operation for recurrent HCC in hepatectomy and LT group were 5.7± 3.8 years, and 2.9±2.2 years respectively. As for Child-Pugh classification, all the patients in LT group were class B or C, however 87.4% of hepatectomy group were class A. AFP in hepatectomy and LT group was 37.0±77.0 and 23.1±37.9 ng/ml respectively. Five-year survival rate of hepatectomy and LT group was 65.1 % and 71.6% (p=0.80), and 5-year disease free survival rate of hepatectomy and LT group was 30.2% and 76.5% (p=0.02).
Conclusion: 5-year recurrence rate was significantly lower in LT group than hepatectomy group. The criteria for LT in recurrent HCC could be extended.

MO25-5 Living Donor Liver Transplantation for Primary Sclerosing Cholangitis with Colon Cancer and Hilar Cholangiocarcinoma After Intensity Modulated Radiotherapy

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(Background)
Patients with primary sclerosing cholangitis (PSC) have a high risk of developing cholangiocarcinoma and is known to be associated with ulcerative colitis (UC). We report a case of a patient with PSC complicated with suspected hilar cholangiocarcinoma and early-stage colon cancer who underwent liver transplantation followed by total colorectal resection.
(Patient)
The patient was a 20-year-old male who had developed PSC and UC at the age of 10 and was treated medically. He was diagnosed with hilar cholangiocarcinoma 4 years prior to liver transplantation (LT) and underwent intensity modulated radiotherapy, He was also diagnosed ascending colon cancer 1 year before LT. He was referred to our department for treatment including transplantation due to worsening symptoms associated with decompensated liver cirrhosis. With respect to hilar cholangiocarcinoma, we judged that he may have been cured or that there may have been an error in the preradiotherapy diagnosis. Because the radiation dose administered previously for cholangiocarcinoma was not curative, the bile cytology remained negative and there was no change in image findings over the past 4 years. As for the ascending colon cancer, the diagnosis of adenocarcinoma had been made at other hospital, but the histological examination at our hospital showed adenoma, so we considered it to be an early stage cancer and decided to perform a total colorectal resection (3-stage surgery) after LT. The patient underwent living donor LT and histopathological examination showed no malignant findings in the bile ducts. Five months after transplantation, the patient underwent subtotal colorectal resection and histopathological examination revealed a diagnosis of carcinoma in situ.
(Conclusion)
Appropriate preoperative diagnosis could be achieved curative treatment for a patient with PSC complicated with UC suspected of coexisting with cholangiocarcinoma and colorectal cancer.

MO25-6 Living Donor Liver Transplantation for Hepatocyte Nuclear Factor 1 Homeobox Alpha (HNF1A)-Inactivated Hepatocellular Adenoma in Pediatric Patient

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Hepatocellular adenoma (HCA) is uncommon, benign neoplasm that most of the case occurs in females taking oral contraceptives. Multiple adenomas occur in normal livers or in cases of underlying liver disease, such as glycogen storage disease (GSD) or vascular anomalies. Liver adenomatosis (LA) is a unique disease entity, in cases with more than 10 adenomas in a normal liver without GSD or vascular disease. In pediatrics, HCA comprises less than 5% of hepatic tumors and demonstrates association with various situations, GSD, galactosemia, Hurler syndrome (mucopolysaccharidosis type 1), familial adenomatous polyposis syndrome, and Fanconi anemia (FA), among others. HCA may also occur spontaneously in pediatric patient. In previous study, about 30% of HCA of pediatric patients developed without risk factors.
Major complications of HCA that need surgical resection are hemorrhage and malignant transformation. However, surgical resection can be impossible in cases of LA because of large number of tumors.
We will discuss the pediatric patient case that was proceeded living donor liver transplantation due to HNF1A-inactivated HCA with liver cirrhosis.
A 2-year-old female presented with jaundice and abdominal distension. In CT scan, hepatomegaly, ascites and multiple tumors in whole liver were found, suspicious multiple HCCs. Hyperbilirubinemia and hypoalbuminemia were checked in laboratory test, alpha-feto protein (AFP) was elevated. Her parents were decided to surgical treatment, liver transplantation (LT), her mother was volunteered as a living donor. Laparoscopic left lateral sectionectomy was performed for graft procurement, and the graft was implanted in the patient. Postoperative course was uneventful, the patient was discharged postoperative day 17. Donor was discharged postoperative day 7 without complications. Pathologic report was adenomatosis, suggestive of HNF1A-inactivated hepatocellular adenoma with dysplastic change and cirrhosis.
Liver adenomatosis is rare, unique disease entity, and occurs spontaneously without predisposing factors. LT can be considered as treatment choice. However, it may be difficult to decide in some cases, because of benign nature of disease, the mortality of LT and the graft shortage. In this case, the patient had spontaneous LA with cirrhosis, which is not associated with abnormal or metabolic disorder, we performed LT with living donor. LT can be alternative treatment choice of LA with thorough preoperative examination and assessment of the risk-benefit ratio.

MO26-1 Hypothermic Machine Perfusion with H2 Gas Reduced Focal Injury in DCD Rat Liver but Failed to Restore Organ Function

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[Background/Aim] We have reported the efficacy of post-reperfusion H2 gas treatment in simple cold storage (SCS) and subsequent reperfusion using rat liver due, at least, to the rapid action of H2-derived vasodilation rather than the antioxidative actions. The aims of the present study were to evaluate the effect of H2 gas treatment during hypothermic machine perfusion (HMP) in rat liver retrieved from donors after cardiac death (DCD), and to elucidate the target site of the H2 gas.
[Methods/Materials] Liver graft was procured from rats subjected to 30 min of cardio-pulmonary arrest. The graft was subjected to hypothermic oxygenated perfusion (HOPE) for 3 hours at 7 degrees using Belzar UW-MPS ® with or without dissolved H2 gas. Then, the graft was applied to the isolated perfused rat liver (IPRL) apparatus for simulating reperfusion (37 degrees) for 90 min. Perfusion kinetics, liver damage and functions, oxidative stress were evaluated.
[Results] Portal vein resistance, oxygen consumption rate, bile production, liver enzyme leakage, tissue lipid peroxidation were unchanged regardless of the H2 treatment during HOPE. Histopathology revealed that poorly stained and structural deformity was observed just below the liver surface in H2(-) group, whereas these findings were improved by H2 treated group. Apoptotic index was significantly higher in H2(-) group than that of H2 treated group.
[Conclusions] Although H2 treatment during HOPE suppressed apoptosis in the whole liver and peripheral liver injury just below the surface area, the protective ability appeared to be insufficient.

MO26-2 Initial Reduction of Tacrolimus with Additional Everolimus May Not Prevent Early Acute Rejection

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Background: We have recently reported de novo use of EVR in addition to reduced dose of TAC regimen resulted in higher incidence of acute rejection (AR) in early phase than that in normal dose of TAC and MMF regimen. We evaluated an optimal dose of TAC retrospectively.
Methods: One hundred twenty-two patients who received reduced dose of TAC, MMF and EVR were enrolled in this study and divided into AR group and control group. AR group consisted of 37 recipients who developed biopsy proven and clinically diagnosed AR that were treated with steroid pulse therapy within 1 year after living ABO compatible kidney transplantation. Control group was 85 recipients who did not exhibit AR clinicopathlogically. The immunosuppressive regimen comprise of TAC, MMF, EVR and basiliximab as induction mAB. Corticosteroid therapy was discontinued on day 2 post kidney transplantation. TAC-AUC and trough level of EVR were analyzed between the two groups.
Results: TAC-AUC at 3 months after transplant was significantly lower in AR group than control group (143±6.4 vs 160±5.2 p=0.048) despite no difference in other time points including trough level of EVR. ROC analysis showed that cut-off value in TAC-AUC at 3M was 174 with AUC 0.67 and 95%CI 0.56-0.79 and P value 0.0048. Finally, we found that significant difference in the cumulative incidence of AR between recipients with lower TAC-AUC (<174) and higher TAC-AUC (174<).
Conclusion: High TAC-AUC at 3 months could be most important parameter to prevent early graft rejection in combination with EVR even in low-risk kidney transplantation.

MO26-3 Efficacy and Safety of Early Everolimus Immunosuppressive Regimen in Kidney Transplant Recipients

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[Introduction] In this study, we investigated the efficacy and safety of four-drug combination therapy consisting of low-dose everolimus (EVR), low-dose tacrolimus (TAC), mycophenolate mofetil (MMF), and prednisolone (PSL) in kidney transplant recipients.
[Materials and Methods] In Akita university hospital, since 2009 to 2013, the maintenance immunosuppressive regimen consisted of standard-dose TAC, MMF with 1500 mg/day, and PSL (the non-EVR group, 83 patients). Since October 2013, we modified it to a new regimen consisting of low-dose EVR (target trough level; 3-5 ng/mL) from 2 weeks after KTx, low-dose TAC, MMF with 1000 mg/day, and PSL (the EVR group, 90 patients). To evaluate the efficacy and safety of new regimen including EVR, we compared the clinical outcomes between the EVR group and the non-EVR group. [Results] The median follow-up periods after KTx were 90 months for the non-EVR group, 48 months for the EVR group, respectively. The cumulative incidence of cytomegalovirus infection at 1 year post KTx was significantly lower in the EVR group compared with the non-EVR group (19% vs. 33%; p = 0.008). As adverse events (AEs), the incidence of stomatitis was significantly higher in the EVR group than the non-EVR group (30% vs. 10%; p = 0.001). No significant difference was found between the groups in terms of the graft survival and graft function.
[Conclusions] Clinical outcomes of early, low-dose EVR administration combined with low-dose TAC, MMF, and PSL in kidney transplant recipients is feasible compared with conventional modern immunosuppressive protocol.

MO26-4 Usefulness of Mycophenolic Acid AUC Measurement for Renal Transplant Patients

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[**Background**] Mycophenolic acid mofetil (MMF) is an immunosuppressant drug synthesized as a prodrug of mycophenolic acid (MPA), and the blood concentration of MPA shows a second peak after 6 hours after administration due to the effects of enterohepatic circulation. Therefore, MPA should be measured at the AUC from 0 to 12 hours after MMF administration (AUC0-12), but few facilities currently measure MPA-AUC. We examined the usefulness of MPA-AUC0-12 based on the results of 47 cases in which MPA-AUC0-12 was measured at our institution.
[**Methods**] We retrospectively studied 45 patients who underwent renal transplantation from 2018 to July 2022 at our hospital and had AUC0-12 measured. The MPA-AUC measurement date was at 2 weeks after transplantation. The MMF dose was basically 1500 mg, and the dose was reduced as needed if adverse events such as gastrointestinal symptoms or pancytopenia were observed. The target AUC0-12 was set at 30-60 μg h/mL.
[**Results**] The MMF dose at the time of MPA-AUC measurement was 1500 mg/day in 36 patients, 1000 mg in 8 patients, and 500 mg in 1 patient; the median AUC0-12 for the 1500 mg group was 54.0, and for the 500 mg and 1000 mg groups was 51.9. (P=0.18) Sixteen patients were above target, and all were treated with MMF dose reduction. Five patients were below target, and all were treated by increasing MMF or adding everolimus. There was one case of ATCMR rejection. There were no cases of graft dysfunction. Infection was observed in 11 patients, including 1 case of CMV infection, 3 cases of BKV nephropathy, 1 case of pneumonia, 3 cases of urinary tract infection, and 3 cases of COVID19 infection, but none of the patients developed severe infection requiring intensive care.
[**Conclusion**] It is suggested that measuring AUC0-12 of MPA may be useful in preventing severe infections and avoiding rejection by identifying overdose and underdose.

MO26-5 Effect of Tacrolimus Trough Level on De Novo Donor-Specific Antibody Production in Long-Term Renal Transplant Patients

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[Purpose] The present study investigated risk factors contributing to the development of donor-specific anti-HLA antibodies (DSA) in a long-term follow-up of renal transplantation.

[Methods] Among patients who underwent renal transplantation from 2001, 212 who underwent anti-HLA antibody testing between 2018 and 2020 were evaluated. LAB Screen PRA® and SingleAntigen® were used to conduct the antibody test, and *de novo* DSA were identified based on donor and recipient HLA alleles. Average, CV, and minimum outpatient tacrolimus (Tac) trough values 1 and 3 years before DSA testing were calculated as medians [IQR] and statistically analyzed.

[Results] There were 20 dnDSA-positive patients, and antibody specificities were 5, 2, 1, 3, 12, and 0 at the A, B, Cw, DR, DQ, and DP loci, respectively. The cumulative incidence rates of dnDSA were 1.0, 1.5, 3.5, 9.4, and 22.3% at 3, 5, 7, 10, and 15 years, respectively, with an increase in the positive rate after the 7th year. In a comparison of Tac trough values in the last year and dnDSA production, values were significantly lower in the all loci dnDSA-positive group than in the negative group (average value 4.6 [1.8] vs 4.1 [1.9] ; p=0.045, and personal minimum value 3.4 [1.7] vs 2.8 [1.8] ng/mL, p=0.049, respectively). They were also significantly lower in the DR&DQ loci dnDSA-positive group than in the negative group (average value 4.6 [1.8] vs 3.5 [1.8] ; p=0.008, and personal minimum value 3.4 [1.7] vs 2.7 [1.8] ng/mL, p=0.032, respectively). In addition, cut-off average and personal minimum values for the last year were calculated as 3.7 and 3.0 ng/mL, respectively, and were associated with dnDSA positivity. No significant differences were observed in comparisons of CV values.

Day 1 November 25 (Fri), 2022 Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

MO27-1 Does Postoperative Inhalation of Carbon Monoxide Prolong Pulmonary Allograft Survival in Miniature Swine?

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Background: We previously reported the CO inhalation reduces pulmonary ischemia-reperfusion injury and prolongs pulmonary allograft survival in a large animal model for the first time. To investigate a more effective method and clarify the mechanism of CO inhalation for increasing clinical applicability, we evaluated the therapeutic effect of long-term postoperative CO inhalation using lung transplant model of miniature swine.
Methods: Fourteen CLAWN miniature swine received fully MHC-mismatched lungs treated with 12 days of tacrolimus (days 0-11; 35-45 ng/ml). In Group 1 (n=6), recipients received tacrolimus alone. In Group 2 (n=5), both donor and recipient additionally inhaled 250 ppm CO (180 min for donor; 390 min for recipient until 2-hour reperfusion). In Group 3 (n=3), recipients inhaled 250 ppm of CO for 60 minutes for 14 days following transplantation in addition to CO inhalation at the time of transplantation. The concentration of inhaled CO was adjusted, such that carboxyhemoglobin levels did not exceed 20%. Graft function was monitored by chest radiography and serial open lung biopsy. Immunologic responses were assessed by mixed lymphocyte reaction (MLR), cell-mediated lympholysis (CML) assays and allo-antibody (Ab) development using flow cytometry.
Results: No adverse effects were observed due to daily CO inhalation. In Group 1, all recipients rejected the grafts by POD63 (47 ± 7 days) with development of cytotoxic anti-donor antibodies, whereas in Group 2, four out of 5 recipients accepted the grafts over 63 (82 ± 13) days. On the other hand, in Group 3, two recipients accepted the graft for 91 days, while one recipient rejected the graft on POD28 (70 ± 21 days). Although the graft survival in Group 3 was better than that in Group 1, the results was similar to that of Group 2, and no further prolongation of pulmonary allograft survival was observed by postoperative CO inhalation.
Conclusions: Although the effect of CO inhalation on prolonging pulmonary allograft survival at the time of transplantation was reproduced using miniature swine, no additional effect was observed by 14-day CO inhalation following transplantation. Considering that the therapeutic effect of postoperative CO inhalation has been demonstrated in small animals, the need for large animal studies as preclinical experiments is considered to be very important.

MO27-2 Farnesoid X Receptor Agonist Enhance the Function and Reduces Apoptosis of Pancreatic β- Cell Line

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Background: Farnesoid X receptor (FXR) activation has been reported to reduce inflammation and oxidative stress. FXR is a nuclear receptor and plays a key role in bile acid metabolism and inflammation. Obeticholic acid (OCA) is a first-in-class FXR agonist. It was shown that islets are susceptible to oxidative stress due to their inherent low antioxidant capacity. In the present study, we investigated whether treatment of INS-1 cell line with OCA could enhance their function before transplantation.
Methods: INS-1 cell were randomly divided into 2 groups, and cultured in medium supplemented with or without OCA, their viability, function (SI), NO and iNOS were determined before and after cytokines (TNF-α, interferon-β, and IL-1β) treatment. The expression of antioxidant genes was determined. Apoptosis and apoptosis-associated genes expression was measured using INS-1 cell with or without OCA treatment after cytokines treatment.
Results: The OCA-treated INS-1 cell significantly enhanced cell viability compared to untreated control after cytokines treatment. The OCA-treated INS-1 cell showed 1.5 fold higher glucose-induced insulin secretion compared to untreated control, the expression of HO-1, and Bcl-2 were enhanced, and the expression of MDA, NO, iNOS, caspase 3 and BAX were reduced before and after cytokines treatment.
Conclusions: Our results show that OCA could enhance the viability and reduce apoptosis of INS-1 cell and improve their function before transplantation.

MO27-3 Important Components of D2O Containing Solution for Liver Cold Storage Using an Isolated Perfused Rat Liver (IPRL)

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[Background/Aim] Machine perfusion becomes alternatives to the static cold storage (SCS) in liver transplantation. However, solutions surpassing UW solution have been longing. We have reported the efficacy of heavy water (D2O) containing buffer, Dsol, in an extended SCS and subsequent reperfusion on an IPRL. Here, we developed novel D2O containing buffers, a modified Dsol named FJ. The aims of the present study were to show the effect of FJ, and to elucidate the important components and actions.
[Methods/Materials] Rat livers were subjected to SCS for 48 hours in test solutions, and subsequently reperfused on an IPRL for 90 min. Groups: UW, FJ, FJ-D2O(-), FJ-DFX(-) (without deferoxamine), FJ-PB (phosphate buffer), and FJ-His (Histidine buffer). During the 90 min of reperfusion, portal vein resistance (PVR), bile production, oxygen consumption rate (OCR), liver enzyme leakage, and hyaluronic acid clearance were assessed.
[Results] ALT leakage was the highest in UW group and the increase was significantly suppressed in FJ and FJ-D2O(-), whereas FJ-DFX(-) and FJ-PB showed higher values. OCR and bile production showed significantly higher value in FJ than UW, whereas FJ-His showed the lowest value. PVR showed the highest value in FJ-His and the lowest in FJ. Maximum liver weight change throughout the experiment was the highest in FJ-His, and FJ-D2O(-), FJ-DFX(-), and UW in order. Liver weight was almost unchanged in FJ during SCS. Hyaluronic acid clearance was higher in FJ and FJ-DFX(-) than that of UW, FJ-D2O(-), and FJ-His,
[Conclusion] D2O, DFX, and HEPES-based buffer in the FJ solution appeared to protect hepatic parenchymal and non-parenchymal cells via distinct mechanisms, and reduced graft damage mainly by protecting mitochondrial function and post-reperfusion microcirculation.

MO27-4 14-3-3 Zeta Enhanced Survival Signals in Renal Tubular Cells Subjected to Simulating Hypothermic Perfusion

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[Background/Aim]
We reported that 14-3-3 zeta stimulates ATP production together with oxidative stress in renal tubular cells subjected to a prolonged cold preservation. However, the role of 14-3-3 zeta in the less severe stress remains elusive. The aim of the present study was to show the effect of 14-3-3 zeta in a simulating hypothermic machine perfusion (HMP) in shorter preservation period, and to elucidate the mechanism of cellular protection.
[Methods/Materials] The 14-3-3 zeta gene was introduced to the HK-2 cell line, derived from human renal tubular cells. Wild type (Wild) and overexpression cells (OE) were subjected to cold preservation in UW solution for 48 hours under atmosphere, simulating oxygen-dissolved environment during HMP, and subsequent normal culture in the culture medium, mimicking the reperfusion phase. Viability was assessed by MTT and ATP assays. Stress response was evaluated by western blots, of which data were presented as % versus that of normal conditions in each cell. The effect of cold preservation (CP) time and inhibitors (glycolysis and mitochondrial function) were also evaluated.
[Results] MTT assay revealed identical values at the end of cold preservation (ECP) and significantly higher in OE group at 1 hour after reoxygenation (R1h). ATP content was significantly higher in OE group at ECP and R1h. Phosphorylated mTOR revealed significantly higher responses at ECP over 72 hours, and CP for 48 hours with inhibitors of mitochondrial complex 1 and 3, and GAPDH (glycolysis) in OE group. Phosphorylated AMPK alfa showed opposite time course, suggesting the inhibitory signal for autophagy. However, autophagy regulating protein ULK1 showed multiple phosphorylation including positive and negative regulatory sites. Phosphorylated PTEN showed significantly higher values from ECP to R6h in OE group, presumably contributing to the rapid phosphorylation of Akt and its maintenance during reoxygenation.
[Conclusion] 14-3-3 zeta protect cellular function through maintenance of phosphorylation in PTE-Akt and mTOR signaling pathways in the simulating short HMP model.

MO27-5 Rapid and Reliable Steatosis Rat Model (SHRSP5-Dmcr) for Cold Storage Experiments: A Preliminary Study

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［Background/Aim］ Steatosis is a critical factor that enhancing hepatic ischemia and reperfusion injury (IRI). We reported the pathophysiology of hepatic IRI using high carbohydrate diet (HCD) after fasting. Although the model needs only 5 days to create steatosis, hepatic lipid content continuously decreases after surgery. Here, we tested high fat and cholesterol (HFC) diet to create steatosis model for the use of hepatic cold preservation and reperfusion experiment. The aim of the present study was to assess the reliability of steatosis model for a preservation experiment and to evaluate the efficacy of D2O containing preservation solution (modified Dsol).
［Methods/Materials］ Male SHRSP5-Dmcr (4-week old) was raised with free access to HFC diet for 5 to 17 days to create simple steatosis, suitable for the preservation experiment. Fat content was evaluated by MRI (PDFF%). Animals were sacrificed and the livers were excised. NAFLD activity score (NAS) was evaluated. Steatotic graft, created by 5 days of HFC diet, were subjected to 24 hours of simple cold storage (SCS) in UW and D2O containing solution (modified Dsol). The graft was applied to the isolated perfused rat liver (IPRL) for simulating reperfusion (37 degrees) for 90 min thereafter. Portal vein resistance (PVR), oxygen consumption rate (OCR), liver enzyme leakage, histopathology, and bile production were evaluated.
［Results］ NAS was 2.3 ± 0.5 (HFC5d), 3.3 ± 0.7 (HFC8d), and 5.0 ± 0.8 (HFC8d). Blooning and fibrosis were not observed in these animals. NAS grade was linear to the fat content evaluated by MRI (PDFF%). Modified Dsol group showed significantly higher OCR and lower PVR just after reperfusion. PVR was lower in modified Dsol group throughout the experiment (but statistically not significant). All other indices were not improved in modified Dsol group.
［Conclusions］ HFC diet for 5 to 8 days in SHRSP5-Dmcr rat appeared to be a reliable method to create simple steatosis, suitable for preservation experiment. MRI may minimize the variation of steatosis grade D2O containing solution (modified Dsol) tended to reduce PVR, but not effective in this model.

MO27-6 Urine-Derived Stem Cell Attenuated Renal Fibrosis via Klotho Activation

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Background: After renal IRI, regeneration and recovery of the renal tubular cell occurs. However, if the renal repair process is maladaptive, it progresses to renal fibrosis. The role of stem cells in kidney regeneration or fibrosis has not been fully elucidated. we evaluated the urine drived stem cells(UDSC) for renal inflammation and fibrosis after renal ischemia reperfusion(IR).
Methods: 10 week old balb/c nude male mice were used. sham, sham with UDSC, IR, IR with UDSC. UDSC were infused 3 times via tail vain at 6,7,8th day after renal IR. Urine NGAL/creatinine(Cr) were checked. The kidneys tissue were harvested at day 14 day. In vitro, TGF-β treated HK2 cell were co-cultured with UDSC. Klotho siRNA silencing was performed in UDSC.
Results: Urinary NGAL/Cr were significantly increased in IR mice after 14 day IR, compared to sham mice. Urinary NGAL/Cr significantly decreased in UDSC treated IR mice, compared to IR mice. In H&E stain, renal tubulo-interstitial injury were significantly decreased in UDSC treated IR mice, compared to IR mice. In masson trichrom stain, renal fibrosis area were were significantly decreased in UDSC treated IR mice, compared to IR mice. The renal expression of MCP-1, ostemopontine, TGF-β, α-SMA, collagne IV, and F4/80 positive cells were significantly decreased in UDSC treated IR mice, compared to IR mice. The renal expression of Klotho were increased in UDSC treated IR mice, compared to IR mice. in vitro, UDSCs were stem cells that expressed Klotho protein more strongly than other mesenchymal stem cells (MSCs). UDSCs also suppressed fibrosis by inhibiting transforming growth factor (TGF)-β in HK-2 human renal proximal tubule cells in an in vitro model. Klotho siRNA silencing reduced the TGF-β-inhibiting ability of UDSCs.
Conclusion: UDSC attenuate renal fibrosis after renal IR. Klotho-secretion of UDSC play a role in these anti- fibrotic effects.

MO28-1 Retroperitoneoscopic Donor Nephrectomy in the Right Side Provides Equivalent Outcomes and Donor Safety Comparable with Left Side

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Background The left kidney is usually selected for laparoscopic donor nephrectomy. On the contrary, the right kidney raises concerns for donors' safety and difficulty for venous anastomosis due to short renal vein. We investigated the safety and the operative outcomes for right donor nephrectomy compared to those of left.
Methods We retrospectively analyzed the clinical records of living donor-kidney transplant donors and evaluated operative outcomes such as operative time, ischemic time, blood loss, and surgical complications in the donor.
Results We identified 118 donor/recipient combinations (left: right = 91: 27 cases). Donor's age (left and right, median, 60.5 and 58.2 yrs), BMI (22.8 and 23.1), and sex (male, 41.8% and 51.8%) were comparable between the groups. The reasons to select right kidney for donation were 56% lower split renal function or scarred kidney (15 cases), 18% anatomical abnormality in the right side (5 cases), and 26% avoiding left kidney complicated with multiple arteries (6 cases) and with past surgical history in the left side abdominal region (1 case), respectively. In the comparison of perioperative period, operative time (left and right 196 and 223 min excluding waiting time, p=0.00023) was significantly longer in the right side. Warm ischemic time (left and right, 171 and 194 seconds, p = 0.0638) and total ischemic time (85 and 94 min, p=0.069) were comparable between the groups. There was no significant difference in blood loss (left and right, 46 and 21 ml, p=0.056). In terms of surgical complication, there was no significant difference between the groups.
Conclusions Although operation time was longer in the right side, operative outcomes were excellent and similar in both donated sides in retroperitoneoscopic donor nephrectomy. There is no reason to avoid right side for donation in this operative procedure.

MO28-2 Transarterial Chemoembolization (TACE) with Radiotherapy for Solitary HCC Bone Metastasis After Living Donor Liver Transplantation

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Hepatocelluar carcinoma (HCC) represents one of the most common causes of cancer-related deaths worldwide. Bone metastasis (BM) is a typical metastatic pattern in HCC patients. Although the treatment of HCC has improved in recent years, the prognosis of bone metastasis is poor, a median survival of HCC with bone metastasis is 1-2 months. However, the management of bone metastasis is palliative radiotherapy only. We present the cases, TACE with radiotherapy for solitary bone metastasis lesion. *Among 94 recipients who were received living donor liver transplantation due to HCC between December 2014 and July 2021, We had 3 cases of bone metastasis from HCC. They had solitary lesion and we performed the TACE with radiotherapy for curative treatment.* Metastatic lesion was decreased or disappeared in radiologic finding after TACE, tumor marker was decreased in all cases. In spite of extremely poor prognosis of bone metastasis from HCC, patients have survived more than six months after the first recurrence event. There is no recurrence in other organ, except primary bone metastasis lesion. *Bone metastasis in HCC is typical metastatic pattern, but the prognosis is poor. TACE with radiotherapy for solitary bone metastasis lesion could be a treatment option for the purpose of curative intend, compared to palliative radiotherapy.*

MO28-3 Our First Experience of Simultaneous Liver and Kidney Transplantation

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It has been reported that simultaneous liver and kidney transplantation(SLK)has fewer chronic rejections than kidney after liver transplantation. SLK is a good procedure for patients with liver failure and irreversible renal dysfunction. However, few cases of SLK have been attempted in Japan. We report the first experience of SLK in our hospital.
The patient was a 41-year-old Japanese man. He was diagnosed to have liver failure for cirrhosis due to nonalcoholic steatohepatitis (NASH) and hepatocellular carcinoma within the Milan Criteria. 3 years later, his kidney function declined. The kidney biopsy showed secondary IgA nephropathy. He was treated with steroid, but his kidney function turned worse. He had to begin hemodialysis and was listed as a candidate for SLK.
After 5months, he underwent deceased donor SLK. The kidney transplantation was performed after the liver transplantation with standard procedure. The induction immunosuppression regimen consisted of tacrolimus, mycophenolate mofetil, prednisolone, and basiliximab. He had hemodialysis twice. The postoperative course was uneventful except hepatorrhea, He was discharged from the hospital on POD47. The serum creatinine levels were stable around 1.5 mg/dl.
According to our protocol, a graft kidney biopsy was performed at 3 months after SLK, showing interstitial fibrosis and tubular atrophy with mild tubulitis. The pathological diagnosis was nomal(Banff ´ 19 diagnostic categories).

MO28-4 Investigation of Physical Conditions Affecting Visit Intervals in Outpatient Consultations

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(Background) There is no clear standard for the frequency of outpatient visits for kidney transplant recipients. In our hospital, the interval between outpatient visits varies from about once a month within the first year after transplantation to once every three months at the maximum during the maintenance phase after one year. Due to the COVID-19 pandemic since April 2020, it was necessary to avoid close in the kidney transplant recipients. From the viewpoint of infection prevention, the interval between outpatient visits for maintenance recipients was changed to once every three months whenever possible, based on the judgment of the physician and with explanation. However, some recipients experienced problems when the visit interval was changed to once every three months. In this study, we investigated the physical condition of recipients who could be seen once every three months.
(Methods)The subjects in this study were kidney transplant outpatient recipients, excluding recipients within one year of transplantation, who were divided into two groups: those who had visit during the year from April 2020 to March 2021 and who were able to maintain the once-every-three-months visit interval one year (Group A), and those who were unable to continue (Group B).
(Results)There were 124 patients in Group A, while 132 patients in Group B. The frequency of post-transplant anemia in Group B was higher than that in Group A.
(Discussion)Post-transplant anemia may be an important factor to maintain the once-every-three-months visit interval after one year after kidney transplantation.

MO28-5 Effects of Whole-body Vibration on Gait Ability and Balance Among Older Adult Hemodialysis Patients: A Randomized Controlled Trial

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Background and objectives: Gait disturbance is a serious problem in patients undergoing hemodialysis, which leads to falls and functional limitations. Whole-body vibration (WBV) is a simple exercise that improves gait ability and may reduce the risk of falls. This study aimed to investigate the feasibility of WBV and its impact on balance and gait capacity in older adult hemodialysis patients.

Design, setting, participants, and measurements: This 12-week, open-label, multicenter, randomized controlled trial included 98 hemodialysis patients aged ≥ 65 years. Patients were randomly assigned to the WBV or control groups. Timed Up and Go (TUG) test, single-leg stand (SLS) test, and 30-second chair stand (CS-30) test were conducted at baseline and the end of the study.

Results: In the WBV group, 42 of 49 randomized patients (86%) completed the training according to the protocol. The changes in TUG and CS-30 scores from baseline to week 12 did not differ significantly between the groups. In contrast, SLS was significantly improved by WBV; the median [25th, 75th percentile] change from baseline to week 12 was 0.6 [-0.8, 2.8] and -0.8 [-2.8, 1.2] seconds in the WBV and control groups, respectively (P=0.04). The improvement in SLS by WBV was remarkable among those aged ≥75 years; the median [25th, 75th percentile] change from baseline to week 12 was 1.4 [0.4, 4.5] and -1.0 [-2.5, -0.2] seconds in the WBV and control groups, respectively (P<0.001).

Conclusions: WBV was safely implemented with high adherence among older adult patients undergoing hemodialysis. WBV improved balance ability, as assessed by SLS, especially among those aged ≥75 years.

MO29-1 Discrepancy Between Estimated Graft Volume and Actual Graft Weight in Living Donor Graftectomy

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Background: The discrepancy between estimated graft volume (EGV) and actual graft weight (AGW) differs from each living donor, but the cause of this difference remains unclear.
Methods: A total of 140 cases of living donor hepatectomy using three-dimensional computed tomography volumetry were analyzed. In each graft type, living donor-related physical factors which had an influence on AGW were determined by multiple regression analysis.
Results: Left lobe graftectomy was performed in 55 cases, left lateral segment in 32 cases, right lobe in 51 cases, and right posterior segment in 2 cases. While left and right lobe graft groups had a strong coefficient of determination (Left, $R^2 = 0.707$ and $p < 0.001$; Right, $R^2 = 0.780$ and $p < 0.001$), left lateral graft groups had a weak coefficient of determination ($R^2 = 0.263$, $p < 0.003$). Multiple linear regression analysis revealed that body mass index (BMI) was a significant factor impacting AGW in whole graft types, and the BMI-adjusted formula (AGW = 0.87*EGV + 3.49*BMI - 26.2) was established.
Conclusion: Physical factors such as BMI may have to be considered to estimate AGW in living donor graft volumetry.

MO29-2 Daytime Living Donor Liver Transplantation; Surgical Tips with Outcomes

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Introduction: Surgical techniques in living donor liver transplantation (LDLT) surgery have been refined and standardized worldwide. We changed surgical plan and performed LDLTs with the right lobe grafts using efficient techniques.
Methods: The study comprised 31 patients who had undergone LDLT for end-stage liver disease between 2007 and 2022. The study period was divided into era 1 (2007-2019, n=24) and era 2 (2020-2022, n=7) and we changed surgical techniques from era 2. As for donor surgery, 1) subtraction method for hilar dissection, 2) design for a straight line of liver parenchymal resection to inferior vena cava were introduced and right lobe graft was selected if graft-recipient weight ratio was more than 0.8. As for recipient surgery, the en-bloc sharp division of the arterial-biliary bundle at the high-hilar level was introduced and splenectomy was not performed in era 2. Surgical outcomes were compared between the era 1 and 2.
Results: In the era 2, right robe graft was used for all cases and estimated graft volume and graft-recipient weight ratio were greater compared with that of era 1 (482 vs. 805 ml, $p < 0.001$ and 0.98 vs. 1.20, $p = 0.002$, respectively). In the era 2, donor and recipient operative time was shorter (481 vs. 237 min, $p < 0.001$ and 820 vs. 457 min, $p < 0.001$, respectively) and no splenectomy was performed. There was no short-term mortality in both era 1 and 2.
Conclusion: We stably shortened the surgical time with zero short-term mortality and the procedure is recognized as a daytime LDLT.

MO29-3 Minimally Invasive Surgery for Living Liver Donor; Hybrid Technique and Full-Laparoscopic Surgery

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Background: Live donor liver transplantation not only has a risk for surgery but also complain about the following wound scar and pain. We conducted hybrid technique with mini-laparotomy for liver resection and laparoscopy for mobilization between 2009 and 2015 as clinical study and full laparoscopic technique from 2022 as practice, as minimally invasive surgery (MIS) for donor.
Methods: We evaluate total profiles of MIS and compared two MIS procedures for left-lateral liver graft. In hybrid technique, after informed consent, all 41 donors chose it, and 25 underwent donor surgery for left-lateral liver graft. In full laparoscopic surgery, after informed consent, all 3 donors chose it for left-lateral liver graft.
Results: Ages were 36.4 +/- 8.5 in the hybrid group and 29.3 +/- 3.5 in the full group (P=0.040). The hybrid group needed 5 cases of inferior mesenteric vein graft (IMV, 20%) and the full group combined one case of IMV graft (33.3%). Thus, with 8.1 +/- 1.1 cm vs 6.3 +/- 0.6 cm (P=0.011) skin incision, operation time was 402 +/- 79.3 vs 372 +/- 39.0 (P=0.32), and blood losses was 208 +/- 154.8 vs 50.0 +/- 70.0, respectively (P=0.027). The donors did not undergo any severe complications, which were confirmed by blood test and routine enhanced CT at POD 7. Finally, hospital stay after donation was 11.8 +/- 5.5 vs 8.7 +/- 1.2 days (P=0.024).
Conclusion: We safely conducted MIS in live donor. Compared with hybrid technique, which is indeed one of the MIS procedures, full laparoscopic donor surgery may contribute much less invasiveness.

MO29-4 The Impact of Multiple Bile Ducts on Biliary Complications in Living Donor Liver Transplantation

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Background: The multiple bile ducts in a living donor graft are a long standing troublesome. This study aimed to investigate correlations between the number of bile duct and biliary complications in patients undergoing living donor liver transplantation (LDLT).
Methods: We reviewed all LDLT patients in our hospital between July 2008 and December 2020. The patients were divided into 2 groups according to the number of bile duct in living donor graft (single duct=SD, multiple duct=MD). Biliary complications were defined by endoscopic, interventional or surgical treatment. Collected data included demographics of donor and recipient, surgical data about to biliary anastomosis (duct-to-duct, hepaticojejunostomy, and conjoined), perioperative and postoperative outcomes.
Results: All 70 patients were represented SD (n=48) and MD (n=22). Biliary complications occurred in 27 (38.6%) patient and were more common in MD group (54.5% vs 31.3%, Odds ratio 2.4). MD patients revealed longer operation time (1052 ± 251 vs 910 ± 215 minutes, p=0.019) and higher percentage of hepaticojejunostomy (31.8% vs 8.3%, p=0.012). Donor age, graft-recipient weight ratio, cold ischemic time and amount of transfusion were not different between the two groups. Twenty-one patients (77.7%) were fully recovered from biliary complications but three patients (4.3%) resulted in graft failure.
Conclusions: Biliary complications were common problems in LDLT despite overall good result. Multiple bile ducts can be a potent risk factor of biliary complications among other predisposing factors.

MO29-5 Impact of Graft Congestion on Short-Term Outcomes for Pediatric Living Donor Liver Recipients

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Purpose: Liver function of congestive areas of graft liver in pediatric liver transplantation is unclear.
Methods: Among 181 pediatric patients after biliary atresia surgery who underwent the first living donor liver transplantation at Kyoto University between 2006 and 2021, 53 recipients with graft to recipient weight ratio (GRWR) < 2% were analyzed. Fifteen recipients of left lobe graft without MHV were categorized as Congestion group, and 38 recipients of left lobe graft with MHV and left lateral graft were categorized as non-Congestion group. We compared the postoperative course between the two groups (Study 1). And as further study, non-congestive graft to recipient weight ratio (ncGRWR) in Congestion group was calculated from preoperative CT images of the donor. 18 recipients who had GRWR < 1.4% in non-Congestion group (small non-Congestion group) were selected to match GRWR with ncGRWR in Congestion Group. We compared the postoperative course between the two groups (Study 2).
Results: Study 1: In Congestion group, PT-INR was significantly worse, and the amount of ascites was significantly larger. Study 2: Although patients in Congestion group had similar ncGRWR and significantly higher GRWR, the amount of ascites was significantly larger up to 2 months postoperatively, and the amount of albumin required during hospitalization were also significantly larger than in small non-Congestion group.
Conclusions: Addition of congestive areas to a small graft to simply increase GRWR may have a negative impact on short term postoperative course in pediatric recipients.

MO30-1 Decompression Tube Placement for Preventing Duodenal Graft Perforation at Pancreas Transplantation

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PURPOSE: We have placed a decompression tube to prevent duodenal graft perforation at pancreas transplantation (PTx). The aim of this study is to investigate impact of the tube placement for the prevention in patients undergoing PTx.
METHODS: 54 patients, who received deceased donor PTx for type 1 diabetes in our institution between 2000 and 2019, were included in this study. The patients were divided into two groups based on the tube placement; non-decompression group (n=26) and decompression group (n=28). Duodenal graft perforation and complications potentially related to the tube placement were examined in the groups.
RESULTS: Duodenal graft perforation developed at 4 cases (15.4%) in non-decompression group and 3 case (10.7%) in decompression group; there was no significant difference between the two groups. In non-decompression group, while the perforation developed more than 1 year after PTx in 3 cases, it developed 8 days after PTx in 1 case. In contrast, in decompression group, while it developed more than 5 years in 1 case, it developed less than 2 months after PTx 2 cases. Among the 2 cases, the perforation was due to acute rejection in 1 case and was due to the tube placement itself in 1 case. As the tube placement-related complications, intestinal bleeding, enterocutaneous fistula, and intraabdominal abscess were found.
CONCLUSIONS: These results suggested no significant impact of the tube placement for the prevention of the duodenal graft perforation development, and a possible existence of complications potentially related to tube placement.

MO30-2 Impact of Total Ischemic Time on Simultaneous Pancreas-kidney Transplantation

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Background: Total ischemic time (TIT) is considered to be a factor affecting graft survival in organ transplantation (Tx). However, the impact of TIT of pancreas and kidney graft on postoperative outcome remains unclear in patients after receiving simultaneous pancreas-kidney transplantation (SPK).
Patients and Methods: This study included 52 patients who underwent SPK at our hospital from April 2000 to March 2022. Patients were divided in groups based on the median TIT in the Japan Pancreas Transplant Registry data [pancreas TIT (P-TIT): 718 min, kidney TIT (K-TIT): 611 min] ; short P-TIT group (n=25)/long P-TIT group (n=27) and short K-TIT group (n=42)/long K-TIT group (n=10). Short- and long-term postoperative outcomes were compared among the groups.
Results: In the long K-TIT group, there were significantly more cases with no intraoperative diuresis (50% vs. 7%; p=0.0007) and those requiring postoperative hemodialysis (78% vs. 40%; p=0.0402). Death- censored pancreas or kidney graft survival was not significantly different in the cases without primary non-function between the short and long K-TIT groups. On the other hand, there was no significant difference in short- or long-term outcomes at the comparison between the short and long P-TIT groups.
Conclusion: In SPK, K-TIT affected poor short-term outcomes, while no influence of K-TIT was identified on long-term outcomes. In contrast, P-TIT did not affect any outcomes. These results indicated that shortening K-TIT may improve short-term outcomes, which would in turn recommend the kidney Tx prior to the pancreas Tx.

MO30-3 The Comparative Data Between SPK and Kidney Transplant Alone from the Same Brain-Dead Donor

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Background
The present study compared the outcomes of simultaneous pancreas and kidney transplantation (SPK) and contralateral kidney transplantation alone (KTA) from the same brain-dead donor to verify the allocation rules when at least one HLA-DR-matched kidney graft is allocated for SPK prior to KTA in Japan.
Methods
Of 295 cases of SPK from BDDs performed from 2000 to 2018, 257 cases (SPK group), including a subset with contralateral KTA (KTA group), involving the same donors for both procedures were eligible for this study. The outcomes of kidney transplantation, such as the patient and kidney graft survival, were compared between the groups as transplantation outcomes.
Results
Although the groups had some significant difference in recipient backgrounds, the respective 1-, 5-, and 10-year patient survival rates were 98.3%, 93.8%, and 84.4% in the KTA group and 94.7%, 93.7%, and 89.4% in the SPK group, showing no marked differences between the groups (P=0.973). The respective 1-, 5-, and 10-year kidney graft survival rates after transplantation were 97.7%, 90.6%, and 80.3% in the KTA group and 95.5%, 91.5%, and 82.3% in the SPK group, showing no marked differences between the groups (P=0.913).
Conclusion
The current allocation rule in Japan, wherein SPK has priority for kidney grafts in cases with at least one HLA-DR match, should be considered acceptable, as the outcomes of SPK are comparable to those of contralateral KTA from the same donor.

MO30-4 The Outcomes of Pancreas Transplantation for Lower-Ranked Candidates

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Backgrounds
Our center sometimes performs pancreas transplantation (PTx) for candidates who are ranked 6th place or lower. Our research question was whether or not the outcomes of PTx performed with lower-ranked candidates were acceptable compared with those for higher-ranked candidates.
Methods
Seventy-two cases in which PTx was performed at our center were divided into two groups according to the candidate's rank. Cases in which PTx was performed for candidates up to the fifth place were classified into the higher rank candidate group (n=48), while PTx for candidates who were ranked sixth place or lower were classified into the lower rank candidate group (n=24).
Results
Although the lower rank candidate group included a greater number of older donors (age ≥60 years) and donors with a deteriorated renal function, and a greater number of HLA mismatches, the 1- and 5-year patient survival rates in the higher rank candidate group were 91.6% and 91.6%, respectively, while they were 95.8% and 87.0% in the lower rank candidate group (p=0.755). In terms of both pancreas and kidney graft survival, there were no significant differences between the two groups. Additionally, there were no significant differences between the two groups in the glucagon stimulation test and 75g-OGTT results, the insulin independence rate, HbA1c, or the creatinine level after transplantation.
Conclusion
In Japan, where there is a severe donor shortage, the performance of transplantation for lower-ranked candidates would increase the opportunities for patients to receive PTx.

MO30-5 Significance of The Interposition Graft for the Artery Reconstruction in Pancreas Transplantation

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Background: In deceased-donor pancreas transplantation, the gastroduodenal artery (GDA) of the pancreatic graft is dissected from the common hepatic artery when the liver transplant team obtains the common hepatic artery together with the liver graft. Therefore, the GDA reconstruction using an interposition graft (I-graft) has been frequently performed in bench surgery to maintain blood flow to the pancreatic head. However, the significance of this procedure remains unclear.
Methods: 24 cases in which GDA reconstruction was performed using the graft at pancreas transplantation and whose blood flow was postoperatively evaluated by contrast-enhanced CT were included in this study. In these patients, the significance of the graft was investigated.
Results: The I-graft was reconstructed using the iliac artery in 21 cases, the jejunal artery in 2, and the renal artery in 1. Postoperative thrombus in graft artery was observed in five cases (20.8%). Among them, only one case had the thrombus at the I-graft. In this case, the thrombus was also identified at the portal vein and superior mesenteric artery (SMA), resulting in graft removal. The thrombus occurred in the SMA in four other cases, but the I-grafts remained open. One patient underwent thrombolytic therapy, three were followed up, and the graft was maintained in these cases.
Conclusion: The patency of the I-graft was favorable. Based on the existence of several cases where the pancreas graft was maintained even with the thrombus in the SMA, the significance of the GDA reconstruction with the I-graft may be suggested.

Day 2 November 26 (Sat), 2022 Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

MO31-1 Study of Acquisition of COVID-19 Neutralizing Antibody in Organ Transplant Patients

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Aim and Method, The infection with the new coronavirus (COVID-19) has not yet converged. We targeted organ transplant patients who received COVID-19 vaccination 2-3 times for 21 organ transplant patients and 14 non-transplant patients, 6 months after the second vaccination, 1 month and 6 months after the third vaccination. The COVID-19 neutralizing antibody (NAbs) titer was measured, and the movement of the acquired amount was confirmed and examined.
Result, The number of NAbs acquisition cases 6 months after the second vaccination was 11 cases in the transplanted group and 14 cases in the non-transplanted group, which was significantly smaller in the transplanted group. In addition, the NAbs titer 1 month after the third vaccination was significantly lower in the transplanted group, and the number of NAbs acquisition cases was also significantly lower in the transplanted group. Next, the NAbs titers 6 months after the second vaccination were examined separately for transplant patients, divided into 11 cases in the NAbs acquisition group and 10 cases in the non-acquisition group. As a result, the non-acquired group had significantly shorter years after transplantation, had high immunosuppressant trough levels, and had many steroid-administered cases.
Discussion, It was difficult for transplanted patients to obtain NAbs by vaccine, which was remarkable in the early term after transplantation. It is considered that NAbs were obtained because the doses of immunosuppressive agents and steroids could be reduced in the long term after transplantation.

MO31-2 Drug Interaction Between Paxlovid and Tacrolimus in a Kidney Transplant Patient with COVID-19

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Kidney transplant recipients are at a high risk of coronavirus disease 2019 (COVID-19) morbidity and mortality. Paxlovid, a novel antiviral agent approved for emergency use in December 2021 to treat COVID-19, is a combination of nirmatrelvir and ritonavir. Ritonavir is a strong cytochrome P450 3A4 inhibitor and pharmacokinetic enhancer to increases exposure of nirmatrelvir. However, ritonavir inhibits CYP3A that also metabolizes calcineurin inhibitors, such as tacrolimus, a key immunosuppressant after organ transplant. We present the case of a 38 year-old kidney-transplanted woman receiving tacrolimus (3mg twice a day) diagnosed with COVID-19 in May 2022. She was admitted on the first day of COVID-19 reverse-transcription polymerase chain reaction (RT-PCR) positive and Paxlovid (nirmatrelvir 300 mg combined with ritonavir 100mg twice a day) was prescribed. The tacrolimus trough level increased up to 48 ng/mL on the third day after the first Paxlovid dose and tacrolimus was stopped. This patient overall took four dose of Paxlovid with tacrolimus. Paxlovid was also stopped on the fourth day. Her tacrolimus trough level slight decreased to 40.2 ng/mL on the third day of Paxlovid stopped and returned to the baseline level (goal level range 4-6 ng/mL) on the fifth day. Her tacrolimus dose was resumed from 2mg twice a day on the same day. The patient was discharged from hospital on the twelfth day. To avoid supratherapeutic levels, tacrolimus should be held immediately after initiation of Paxlovid and should carefully re-introduced after the Paxlovid course is completed.

MO31-3 Humoral Response to SARS-CoV-2 mRNA Vaccine in Kidney Transplant Recipients

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We aimed to evaluate the humoral response after the second and third dose of SARS-CoV-2 mRNA vaccine and the impact of pretransplant vaccination on seropositivity in kidney transplant (KT) recipients. This retrospective multicenter observational study conducted between June 2021 to June 2022 included 131 KT recipients and 154 healthy controls who received mRNA vaccines. The antibody titer against the receptor-binding domain of SARS-CoV-2 spike (S) protein was determined. We compared seropositivity after the second and third dose SARS-CoV-2 mRNA vaccination in KT recipients. Furthermore, we evaluated the impact of pretransplant vaccination for seropositivity. The seropositive was defined as an immunoglobulin G [IgG] level of ≥0.8 U/mL. Of 131, 50 recipients received third dose of mRNA vaccine. The anti-SARS-CoV2 S antibody titers was significantly increased after the third dose of mRNA vaccine. The seropositive rate (≥0.8 U/mL) increased from 36% (n = 18) to 70% (n = 35), while 30% (n =15) remain seronegative. Of 9 recipients who administrated mRNA vaccine before KT, 8 recipients after the second or third dose of mRNA vaccine showed seropositive before and after KT. However, 1 recipient with single dose before KT showed seronegative after KT even if the recipient was vaccinated later. Seropositivity after the third dose of mRNA vaccine was increased from 36% to 70%. However, the remaining 30% remained seronegative. Our results suggested two or more doses of vaccine prior to immunosuppressive therapy plays key roles in seroconversion.

MO31-4 Comparison of COVID-19 After Kidney Transplantation in First to Fifth Waves and Sixth Wave in Japan

Kenta Futamurta, Norihiko Goto, Yuki Hasegawa, Kei Tanaka, Hiroaki Yonishi, Keitarou Nishizawa, Manabu Okada, Takahisa Hiramitsu, Syunji Narumi, Yoshihiko Watarai

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[Background] With the emergence of the Omicron variant, the novel coronavirus infection (COVID-19) has evolved into the largest epidemic wave both domestically and internationally. The Omicron variant has been reported as more infectious and less severe in the general population, but its characteristics and clinical course in Japanese kidney transplant recipients are not clear.

[Subjects] Patients who developed COVID-19 in the first to fifth domestic waves (April 2020 to December 2021: predominantly wild-type, alpha, and delta variants, n=27) and the sixth domestic wave (January to April 2022: predominantly omicron variant, n=31) among the 1,467 kidney transplant recipients who were receiving care at our hospital as of April 2022.

[Results] The incidence in the sixth wave was 4.2 times higher than in the first to fifth waves (1.5% vs. 6.3%, $p<0.01$). The sixth wave had significantly fewer patients who needed oxygen therapy (48.2% vs. 9.7%, $p<0.01$) and more patients who received two or more doses of the vaccine (18.5% vs. 83.9%, $p<0.01$). In a multivariate analysis, age 60 years or older and infection with non-Omicron variants were independent factors for the severity of illness.

[Conclusion] In the sixth domestic wave of Omicron variants in Japan, the severity of COVID-19 after kidney transplantation has decreased.

MO31-5 Humoral Immunogenicity of Two Doses of BNT162b2 in Pediatric Solid Organ Transplant Recipients

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Background
Pediatric solid organ transplant recipients (SOTRs) are at high risk of severe COVID-19, but studies on their COVID-19 vaccine immunogenicity are lacking. We investigated the humoral immunogenicity of pediatric SOTRs after two doses of BNT162b2 (BNT).
Methods
This prospective study was conducted at Severance Hospital in Seoul from October 2021 to March 2022. Pediatric SOTRs received BNT/BNT were included as participants. Serum samples were collected 14-150 days after vaccination. We evaluated SARS-CoV-2 anti-S IgG titers and neutralization inhibition against wild-type (WT), Delta and Omicron. For comparison, serum samples from adult SOTRs (n=15) and healthcare workers (HCWs, n=12) were used.
Result
Twelve pediatric SOTRs were included. The median age at SOT was 10 years (7-12 years), and the male to female ratio was 1:1. The median time from SOT to vaccination was 49 months (33-98 months), and 50% of them were taking two or more immunosuppressants. Pediatric SOTRs (92%) was significantly higher anti-S IgG positivity than adult SOTRs (67%, P=0.002) and was similar to HCWs (100%, P=0.59). In the neutralization assay, the median inhibition of WT in pediatric SOTR was 98%, Delta was 97%, and Omicron was 12%, which was significantly lower for Omicron than the others (P<0.001).
Conclusion
After BNT/BNT, pediatric SOTRs showed higher humoral immunogenicity than adult SOTRs, and compatible with HCWs. However, immunogenicity against Omicron was lower than those of WT and Delta, that it can support the need for additional preventions in pediatric SOTRs.

MO31-6 A Case Report of A Renal Transplant Patient with Left Abducens Nerve Palsy Following COVID-19 Vaccination

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(Introduction) While it is apparent that the COVID-19 vaccine is effective in patients under immunosuppressive therapy, including renal transplantation, we do not have sufficient knowledge of the occurrence of adverse reactions associated with this novel mRNA vaccine.
(Case presentation) 53-year-old female underwent renal transplantation from her husband as a donor due to chronic kidney disease caused by rheumatoid arthritis. Her maintenance immunosuppressive drugs were tacrolimus, mycophenolate mofetil, prednisolone, and everolimus, and she was doing well after transplantation. One year and 6 months after renal transplantation, she received the first vaccination against COVID-19 (mRNA-1273). Two days later, left neck pain, diplopia, and left orbital pain appeared. Four weeks later, after the second vaccination, her symptoms worsened and right eyelid drooping also appeared, so she was referred to the neurology department of a nearby physician. A cerebrospinal fluid examination revealed increased spinal pressure and elevated protein levels, and a head MRI scan revealed no obvious abnormalities. We diagnosed inflammatory abducens nerve palsy. The patient was treated with steroid half-pulse therapy, and his symptoms gradually improved and went into remission on the fifth day. Three months after the second vaccination, she acquired seroconversion of COVID-19, and the antibody remained positive 6 months later.
(Conclusion) Neuropathy is considered to be a rare adverse event by mRNA vaccine, but further analysis is needed to accumulate more cases.

MO32-1 Liver Only Living Donor Transplantation for Polycystic Disease on Chronic Hemodialysis

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Background: Polycystic disease (PD) is a disease entity characterized by progressive development of polycystic lesions not only in kidney but also liver, possibly resulting in dual organ failure. We indicated liver only living donor transplantation (LOLDT) for a case with end-stage liver and kidney disease (ESLKD) due to PD on uncomplicated chronic hemodialysis.
Case presentation: A 63 years old man with ESLKD due to PD and hepatitis B on uncomplicated chronic hemodialysis, with uncontrolled massive ascites, was referred to us with a single possible 47 years old female living donor. Because of the necessity of right lobe liver procurement from this middle-aged small donor and uncomplicated hemodialysis on this recipient, we considered LOLDT, not dual organ transplantation, could be the most well-balanced option for lifesaving of this recipient and acceptable risk limit for this donor. Right lobe graft with 0.91 for graft recipient weight ratio was implanted with uneventful operative procedure, under intra-and post-operative continuous hemodiafiltration. The recipient was re-scheduled on routine hemodialysis on day 6 after transplantation, and recovered with gradual decrease of ascites output, and was discharged on day 56. He remains very good liver function with good quality of life without ascites and uncomplicated routine hemodialysis 10 months after transplantation. The living donor was discharged 3 weeks after surgery and is also doing well.
Conclusions: Although combined liver-kidney transplantation from a deceased donor could be the best option for ESLKD due to PD, LOLDT could also be an acceptable option for ESLKD with uncomplicated hemodialysis, considering double equipoise theory for both life-saving of recipient and acceptable donor risk.

MO32-2 Long Jumping Graft with Superficial Femoral Vein for Portal Vein Thrombosis After Living Liver Transplantation

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Introduction: Portal vein thrombosis after living donor liver transplantation(LDLT) is a serious complication leading to graft failure. Early detection and early revascularization are necessary. There are some options for revascularization, including surgical treatment and endovascular treatment. We report a case of portal vein thrombosis after LDLT revascularization with a jumping graft using the right superficial femoral vein.
Case: 38-year-old male. He underwent LDLT using a left lobe graft for non-compensated cirrhosis and hepatocellular carcinoma with idiopathic portal hypertension. On the evening of the first postoperative day, portal vein thrombosis was observed, and emergency surgery was performed. Extensive thrombus was observed from the suprapancreatic margin to the portal vein anastomosis area. Because thrombosis was extensive, the splenic vein was difficult to dissect from SMV, and thrombosis was suspected to be caused by an abnormality in the recipient's vascular endothelium, we decided to perform a jumping graft from the inferior pancreatic margin to the graft portal vein. A large area of superficial femoral vein was harvested and revascularization was performed with a jumping graft from the inferior pancreatic margin through the anterior pancreas and dorsal stomach, resulting in good portal vein blood flow.
Discussion: In the case of long venous grafts, the superficial femoral vein is a good candidate. For the long vein graft, it is important that the shaft not twist and proper handling of the vein valves for good blood flow. Conclusion: Jumping graft using the superficial femoral vein is a useful treatment option for portal vein thrombosis requiring extensive portal vein replacement.

MO32-3 Single Center Experience of Using Right Liver Graft with Dual Portal Veins in Living Donor Liver Transplantation

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Purpose:
The right liver lobe with dual portal veins (RDPV) has not been seldom. Reconstruction of the RDPV remains a challenge according to the types of RDPV. Many published studies showed various techniques to overcome this problem, such as simple unification venoplasty (SUV), autologous portal vein Y-graft, and conjointed unification venoplasty (CUV) with a circumferential fence or potbelly-shaped conduit. This study reviewed our experience managing RDPV in living donor liver transplantation (LDLT).
Methods:
We enrolled the study population who underwent LDLT using the graft with RDPV at our institute from October 2004 to September 2021. We analyzed the reconstruction methods for RDPV grafts and postoperative portal vein complications in recipients.
Results:
During the study period, we identified 15 procured grafts with RDPV underwent reconstruction, including SUV (n = 12), recipient right and left portal veins to RDPV (n = 1), autologous Y-graft (n = 1) and CUV with potbelly-shaped conduit (n = 1). The posterior portal branch thrombus only happened in the cases with Y-graft and recipient right and left portal veins to RDPV. In addition, the CUV was replicable although its complex procedures (with video).
Conclusions:
From our experience, we could manage most grafts with RDPV by SUV without any portal vein complications. However, if the distance between RDPV is the primary preoperative concern, CUV is the alternative for reconstruction.

MO32-4 Portal Venous Bypass Is Not Associated with Prevention of Acute Reperfusion Syndrome in Liver Transplantation

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Introduction:
Acute Reperfusion Syndrome is clinically defined as a decrease in mean arterial pressure (MAP) greater than 30% below the baseline MAP at the time of hepatic hilum unclamping, lasting for at least one minute, and occurring during the first five minutes after graft reperfusion. The use of portal venous bypass (PVB) allows blood within the portal system to be rerouted below caval clamps to the systemic circulation and has been shown to improve hemodynamic instability, short-term outcomes, and allow more time for the transplant procedure. In this single institution series we investigated if PVB during liver transplantation has an effect on the development of ARS.
Methods:
Patients were retrospectively identified via an institutional wide database as those having liver transplant between January 2010, and March 2022. Patients were then split as Y/N having received PVB and the respective variables (Table 1) were analyzed in a bivariate model. Categorical variables were assessed via chi-squared analysis and continuous variables were compared using student's t-tests. For main outcomes (Table 2), Unadjusted Logistic regression models with PVB as a predictor were built to assess any impact on the binary outcome variables.
Results:
Demographic comparisons between groups were n.s. while the only significant intraoperative difference between groups was the requirement for vasopressors, p=0.011. Preoperative baseline LFTs did not differ between groups, yet for patients who developed ARS a smaller percent 22.8% p=0.004 had elevated post-operative AST within 7-days. When further stratified (not pictured) by PVB Y/N an even smaller 14.6% p=0.001 had AST > 2000. Primary outcomes (Table 2) did not vary by PVB stratification.
Conclusion:
Although PVB does not impact developing ARS, it may dampen the degree of liver injury in those who develop ARS.

MO32-5 Portal Venous Bypass Is Not Associated with Prevention of Early Allograft Dysfunction in Liver Transplantation

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Introduction:
Early Allograft Dysfunction (EAD) is defined as the presence of 1 or more of 3 variables, including an AST/ALT higher than 2000 within the first 7postoperative days (POD), a bilirubin level of 10 or more on POD 7, and an INR of 1.6 or higher on POD 7. The use of portal venous bypass (PVB) during liver transplant has never been investigated as a predictor for the development of EAD. We investigated if PVB impacts the development of EAD during liver transplant.
Methods:
Patients were retrospectively identified via an institutional wide database as those having liver transplant between January 2010, and March 2022. Patients were then split as Y/N having received PVB and the respective variables (Table 1) were analyzed in a bivariate model. Categorical variables were assessed via chi-squared analysis and continuous variables were compared using student's t-tests. For main outcomes (Table 2), Unadjusted Logistic regression models with PVB as a predictor were built to assess any impact on the binary outcome variables.
Results:
Demographic comparisons between groups were mostly n.s. except for select pre-operative LFTs, transplant characteristics, and patient comorbidities including pre-operative INR and PT for patients not receiving PVB, $p = 0.001$, preoperative total and direct bilirubin for patients not receiving PVB $p = 0.026$, liver cancer in patients not receiving PVB, $p = 0.034$ and pre-operative aPTT, and cold ischemia time in those who did receive PVB $p = 0.021$, and $p = 0.022$, respectively. The development of EAD when sub-stratified by the use of PVB was also n.s. $p = 0.281$, and $p = 0.834$ respectively (Table 1). The primary outcome for EAD development as predicted by the use PVB was n.s. $p = 0.236$, OR = 0.68 [0.37-1.29].
Conclusion:
PVB during liver transplant is not protective in the development of EAD in this single institution retrospective series.

Day 2 November 26 (Sat), 2022 Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

MO33-1 Case-Series of Post-Transplant Lymphoproliferative Disorders After Pancreas Transplantation

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Background: Post-transplant lymphoproliferative disorders (PTLD) is a disease arising in immunocompromised patients after organ transplantations and it accounts for considerable percentage of malignancies in the post-transplant settings. Although it is reported that PTLD has a significant impact on the patients' prognosis, the clinical characteristics of PTLD after pancreas transplant (PTx) largely remain unknown. We report our cases of PTLD after PTx from a single hospital.
Patients: 58 cases of PTx performed in Osaka University Hospital until 2021 were retrospectively reviewed for PTLD.
Results: PTLD was observed in 3 cases (5.2%). The patient's age at PTx was 40, 53 and 54. Two of the 3 cases were symptomatic. The diagnosis of PTLD was made at 88, 14 and 17 months after PTx. The treatment performed was R-CHOP, radiation, rituximab, respectively, which showed tumor disappearance or regression. All cases underwent a reduced dosage of immunosuppressive agents after treatment, among which everolimus was added in one case. The prognosis after the diagnosis of PTLD was alive for 75 months without recurrence, death at 21 months due to an unrelated cause, alive for 170 months without recurrence.
Conclusion: PTLD after PTx was observed in 5.2% of cases in our review from a single hospital. Although this is a case-series consisting of 3 patients, PTLD was manageable in all the cases. Thus, PTLD after PTx was considered a manageable disease if curative interventions were performed appropriately.

MO33-2 Impact of CMV Infection Graft Loss After PTx: A Single Institution Study in Japan

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[Background] Cytomegalovirus (CMV) is one of the most frequent infections after pancreas transplantation. Whether CMV infection is associated with the graft loss remains controversial worldwide, and there have not been reported from Japan. We herein analyzed the impact of the CMV infection on graft loss after pancreas transplantation in our institution.
[Patients and Methods] 58 patients undergone pancreas transplantation from deceased donors until December 2021 were included. We analyzed the donors and recipients CMV-serostatus before transplantation, CMV infection, CMV disease and pancreas graft loss after transplantation. CMV infection was examined based on CMV antigenemia assay (C7-HRP), and CMV disease was defined as the cases with CMV infection and clinical symptoms. Prophylaxis therapy was not indicated, and preemptive therapy was administered once the CMV antigenemia was positive.
[Results] CMV-serostatus for 48 of donors (82.8%) and 40 of recipients (40.0%) were positive. The percentages of cases with CMV infection or CMV disease were 74.1% and 41.4%. We assessed the relationships between CMV infection/CMV disease and graft survival, and there were no significant differences in both groups (p=0.1915/0.2804). There were no relationships between the time on CMV infection/CMV disease and that on graft loss.
[Conclusion] This study showed no significant impact of the CMV infection and disease on the graft loss based on a Japanese single institution experience.

MO33-3 Estimation of Pancreas Graft Rejection by Donor-derived Cell-free DNA

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Background: Controlling rejection is important for improving the prognosis of pancreas transplantation. Although pancreatic biopsy is useful for the diagnosis of rejection, it is not widely used in Japan due to concerns about complications. Therefore, we examined the efficacy of donor-derived cell-free DNA (dd-cfDNA) as an alternative to pancreatic biopsy.
Methods: dd-cfDNA (Natera, Inc.) was measured at the time of clinical pancreas graft rejection, as judged by elevated pancreatic enzymes. After measurement, kidney graft biopsies were performed, and anti-HLA antibodies were analyzed.
Results: Four patients were included in the study. All patients underwent simultaneous pancreas kidney transplantation. Two were female, the mean age was 52.3 years, and the mean time since transplantation was 1098.3 days. The dd-cfDNA results are expressed as a fraction of the total cfDNA (%), and a cutoff value of ≥1% is considered an increased risk for rejection. One of the four cases was 5.64% (above the cutoff value), and the result of the kidney graft biopsy performed at the same time was acute T-cell mediated rejection (grade IA). No anti-HLA donor-specific antibodies (DSA) were detected. Based on the comprehensive judgment of these examination results, pancreas graft was diagnosed as acute cellular rejection and anti-thymocyte globulin was administered. Of the four cases, three were below the cutoff value, and the kidney graft biopsy results in these three cases were all normal. All three cases were also negative for anti-HLA DSA, and pancreas grafts were diagnosed as normal. The concordance rate between the results of dd-cfDNA and kidney biopsy was 100%.
Conclusion: dd-cfDNA is minimally invasive and can be an effective tool to aid in the diagnosis of pancreatic allograft rejection.

MO33-4 Feasibility of Islet Transplantation for Recurrent Type 1 DM After Pancreas Transplantation

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Type 1 diabetes mellitus recurrence (T1DR) after pancreas transplantation is rare. Treatment for T1DR has not been established, including retransplantation . We experienced two cases of T1DR after pancreas transplantation, and one case underwent islet retransplantation with favorable outcome. Case 1: A woman in her 50s, diagnosed with T1DM in her 30s, underwent PTA 6 years ago due to glycemic instability and repeated severe hypoglycemic attacks. Blood tests showed elevated islet autoantibodies and a rapid rise in blood glucose levels 2 years after the transplantation. She was diagnosed with T1DR. She was started on insulin pump therapy. She was chosen to be a candidate for islet transplantation and is currently on the islet transplantation waiting list. Case 2: A woman in her 50s, diagnosed with T1DM in her teens, introduced to dialysis in her 20s, underwent living donor kidney transplantation in her 30s and PAK in her 40s. She successfully got off dialysis and achieved insulin independence, but suffered pancreatic graft dysfunction due to T1DR 7 years ago. She underwent islet transplantation 4 years ago and second islet transplantation 3 years ago because of frequent hypoglycemic attacks. HbA1c decreased and hypoglycemic attacks have not occurred after the islet transplantation. Conclusion: T1DR after pancreas transplantation is a good indication for islet transplantation and is more convenient because of its minimally invasive nature.

MO33-5 Prevascularized Subcutaneous Islet Transplantation Using a Bioabsorbable Medical Device

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Purpose: Subcutaneous islet transplantation has recently been developed as a safe procedure that replaces the need for exogenous insulin; however, the lack of blood flow and scaffolding for cell adhesion have considerably limited the viability and function of transplanted cells. Accordingly, we investigated the utility of a commercially available bioabsorbable device for the creation of subcutaneous graft sites that provides a scaffold and increased blood flow prior to islet transplantation.
Methods: Collagen-containing bioabsorbable devices comprising basic fibroblast growth factor at a concentration of 16 μg/cm2 were subcutaneously implanted into a drug-induced C57BL/6 mouse model of diabetes to induce the formation of vascular beds. At 14 days after implantation, 200 syngeneic islets were transplanted and cell viability and function were evaluated. As a comparison, the same number of islets were subcutaneously transplanted into mice with transplantation sites prepared using agarose as a nonbioabsorbable comparator.
Result: The bioabsorbable device group did not require device removal at the time of transplantation, which could be performed using a simpler technique. In the bioabsorbable device group (n = 10), the proportions of mice with normalization of serum glucose levels were 30% at 30 days, 80% at 60 days, and 90% at 100 days after transplantation. The median time to normalization of glucose levels was 38 days (19–73 days). Elevation of serum glucose levels were repeated at the time of graft removal in all mice. The proportions of mice with normalization of serum glucose levels are comparable between the bioabsorbable and nonbioabsorbable device groups.
Conclusion: We demonstrate the utility of a bioabsorbable device that provides a scaffold and vascular bed formation prior to subcutaneous islet transplantation in a mouse model of drug-induced diabetes.

MO34-1 Rapid Deterioration of Renal Function Following COVID-19 in the Renal Transplant Recipient

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Coronavirus disease 2019 (COVD-19) emerged as a pandemic in December 2019. Renal transplant recipients receiving chronic immunosuppression have been considered a population at high risk of infection. Furthermore, COVID-19 is reported to cause acute kidney injury (AKI) in 20-50% of cases.

A 62-year-old male renal transplant recipient manifested high fever, diarrhea, and cough along with the rapid deterioration of graft function. He was found to be positive for COVID-19. Pathological findings of the graft biopsy presented diffuse flattening of the tubular epithelial cells and extensive loss of brush border in proximal tubular cells. Mycophenolate mofetil was discontinued, and sotrovimab, remdesivir, intravenous immunoglobulin, and intravenous methylprednisolone were administered. Subsequently, clinical symptoms and renal function gradually improved.

Herein, we described a case of a COVID-19-infected kidney transplant recipient who manifested a severe AKI. Pathologically severe acute tubular necrosis was the cause of AKI.

MO34-2 Short-Term Renal Outcomes After SARS-CoV-2 Infection in Kidney Transplant Recipients in Taiwan

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Background

Coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) led to a worldwide pandemic outbreak at the end of 2019. Kidney transplant recipients (KTRs) are at risk for developing acute kidney injury (AKI) if they were infectious with SARS-CoV-2 compared to the general population. Short-term or long-term renal outcome is limited for COVID-19 infected KTRs. Therefore, we aim to identify the renal outcomes of KTRs after infected with SARS-CoV-2 from a district hospital.

Methods

We performed the retrospective chart review study of COVID-19 infected renal transplant patients who were actively followed up in a district hospital. The primary endpoint in this study is biopsy-proven acute rejection (BPAR) or detection of donor-specific antibodies (DSA). The secondary endpoints are initiation of renal replacement therapy (RRT), AKI, proteinuria, and hematuria.

Results

A total of 69 KTRs were included in this study. There were 11 KTRs infected with SARS-CoV-2. No one experienced BPAR and 2 KTRs were observed newly onset proteinuria. Three KTRs experienced AKI and two of them were detecting DSA after AKI episode. Plasmapheresis was then arranged for suspected antibody-mediated rejection (AMR). The serum creatinine was then declined after medical management in two of the three KTRs, and another one KTR remains medical treatment for COVID-19 complications.

Conclusions

AKI and AMR were observed in KTRs post COVID-19 infection. Further analysis is required to evaluate the long-term renal effect following COVID-19 infection in KTRs.

MO34-3 Single Center Experience of COVID-19 Management Among Kidney Transplant Recipient in Omicron Pandemic

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Kidney transplant recipients have a lower response rate to the vaccine and are considered a high-risk group for mortality and complications from COVID-19 infection. This study aimed to investigate the outcome of COVID-19 in kidney transplant patients in which omicron variants were prevalent. This retrospective study included kidney transplant recipients with COVID-19 from a single center in Korea from March 2022 to May 2022.We investigated all-cause mortality and graft outcome in kidney transplant recipients with COVID-19. A total of 106 recipients were enrolled. The mean age of the patients was 54.6±11.2 years, and 51.9% were female. The median time from transplant to a diagnosis of COVID-19 was 112 months. The prevalence of hypertension, diabetes and cardiovascular disease were 63.2%, 42.5%, and 19.8%, respectively. 94 patients were a mild disease, pneumonia and severe disease occurred in 10 patients at diagnosis. Of 94 patients that had mild disease, 19 patients (20.2%) developed pneumonia at end of quarantine and were hospitalized. The median time from diagnosis of COVID-19 to antiviral agent (34%) and high dose steroid (25%) treatment was median 10 days. The all-cause mortality rate was 2.8%. 4.7% had decreased graft function, 2.8% required hemodialysis. Unlike previous studies, COVID-19-related mortality was low. This could reflect the characteristics of the omicron variants and the effect of vaccination. However, there is a possibility that active surveillance and treatment of pneumonia regardless of the severity reduced mortality.

MO34-4 The Impact of Covid-19 Infection on Renal Function in Kidney Transplant Recipients

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The effect of COVID-19 infection on renal function in post-transplant patients have not been fully studied.
We studied 18 post-transplant patients who were infected with COVID-19 (from March 2021 to August 2022): 12 patients were male and 6 patients were female with a median age of 53 (30-78)years old, and the median time from transplant to diagnosis of COVID-19 was 3857.5 (420-10611) days. In terms of clinical classification,13 cases were classified as mild, 3 cases were moderate , 1 case was severe , and 1 case was not detailed. Whereas 17 cases had no significant renal dysfunction, only 1 severe case that required intubation resulted in graft loss. The case of graft loss has been managed on dialysis. Of the 13 cases with mild disease, only MMF was reduced or discontinued in 5 cases, MMF and RAD were discontinued in 1 case, and no adjustment was made in 7 cases. In 3 cases with moderate disease, only MMF was reduced in 1 case, and no adjustment was made in 2 cases. In the severe case, all immunosuppressive drugs (FK506, MMF, RAD, and PSL) were discontinued from the time of admission. A comparison of renal function before and after COVID-19 infection showed that the eGFR in the severe case decreased from 10.2 to 4.8, resulting in graft loss, while the mean eGFR before infection in mild and moderate cases was 37.317 and the post-infection eGFR was 38.647, an increase of 1.33.
As a result, there was no obvious deterioration of renal function due to infection with COVID-19, except in one case that resulted in graft loss. In addition, the one case with severe renal failure, renal dysfunction due to nephrosclerosis in the donor kidney had been diagnoted before the infection, and the low eGFR of 10.2 suggested a factor other than COVID-19. Since there was only one case of graft loss at our institution, further investigation of cases of renal graft loss is needed.

MO34-5 COVID-19 in Kidney Transplant Recipients: A Single Center Experience

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Introduction: In the coronavirus disease 2019 (COVID-19) pandemic era, patients with kidney transplant requiring maintenance immunosuppressive therapy are at a high risk of COVID-19 infection. We retrospectively reviewed the COVID-19 infection rates and outcomes in patients with kidney transplant undergoing management at our hospital.
Objective and Methods: The study included 232 patients who received a kidney transplant between January 2020 and December 2021 at our hospital and are currently attending the hospital. We investigated the COVID-19 infection rates and outcomes, as well as the characteristics and renal function of patients with COVID-19.
Results: Thirty-five patients (15.1%) had COVID-19 infection; 28 were infected since January 2022. Twenty-seven patients were mildly, three were moderately, and five were severely ill. Two patients infected in February and April 2021 died; all other patients survived. The median age of the patients with COVID-19 was 49 (29–74) years; 22 males and 13 females. The median years after kidney transplantation was 58 (2–320) months; 26 patients received ABO-compatible kidney transplants, and nine patients received ABO-incompatible transplants. There were no cases of acute kidney injury due to COVID-19 infection, and renal function remained stable before and after infection.
Conclusion: Although the number of infected patients has been increasing since the COVID-19 Omicron variant became mainstream, patients with kidney transplant have been doing well after COVID-19 with appropriate management.

MO34-6 A Case of Acute Kidney Injury Caused by Myoglobin Cast Nephropathy with SARS-CoV-2 Infection

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A 50-year-old man was admitted to the hospital with chief complaints of fever and dyspnea. At the age of 35, he developed end-stage kidney disease due to hypertensive nephrosclerosis and started hemodialysis (HD). At the age of 36, he underwent an ABO-compatible living-donor kidney transplant from his father. On admission, he was diagnosed with SARS-CoV-2 infection (COVID-19) by PCR test. The chest CT scan revealed a diffuse ground-glass opacity and his percutaneous oxygen saturation was 88% with 6l oxygen. He was artificially ventilated and treated with remdesivir and dexamethasone for COVID-19 pneumonia. Around the same time, he developed methicillin susceptible Staphylococcus aureus bacteremia and he was treated with meropenem and vancomycin. Serum creatinine (sCr) level increased rapidly from 2.3mg/dl to 10.49mg/dl, resulting in oliguria and initiating HD. He was weaned off the ventilator after 10days and weaned off HD with diuresis on day29. SCr level spontaneously returned to 2.3mg/dl on day98. A renal biopsy was performed on day49. The pathological findings showed segmental and global sclerosis in more than half of the glomeruli, which was due to hypertension and diabetic mellitus. In renal tubules, not only the toxicity of calcineurin inhibitor but also myoglobin cast was observed. Recently there have been some reports about acute kidney injury (AKI) associated with COVID-19 and myoglobin cast nephropathy was as one of the causes. In this case, although the CK level was up to 465U/l during the course, myoglobin cast was thought to be involved in AKI with COVID-19.

Day 2 November 26 (Sat), 2022 Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

MO35-1 Graft HuR Expression Is Associated with HO-1 Level, Local Inflammation and Recipient Outcome in Liver Transplantation

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Liver ischemia reperfusion injury, an innate-immune driven inflammatory hepatic damage, represents a major risk factor of early graft dysfunction and rejection in liver transplantation (LT). Several animal studies have indicated the anti-inflammatory function of HuR, a ubiquitously expressed member of the Hu family proteins, whereas its contribution in LT remains to be examined. Hepatic biopsy (Bx) obtained at 2 hours after reperfusion from fifty-one human LT recipients were retrospectively analyzed by RT-PCR and WB, while 51 human recipients were split evenly into low-HuR (n=26) and high-HuR (n=25) groups. In 51 LT Bx, HuR levels negatively correlated with sALT levels at POD1. HuR levels also negatively correlated with mRNA coding for CD80, CD86, macrophage markers; Cathepsin G, a neutrophil marker; CD4, CD28, T-cell markers. HO-1 protein expressions positively correlated with HuR protein levels. Compared with low-HuR expression group, high-HuR cases experienced lower incidence of early allograft dysfunction (4.0% vs 11.5%), shorter post-LT hospital stay and improved post-LT graft survival (2-years: 97.0 vs 80.7%). This translational study documentes the association of high HuR expression with reduced inflammatory gene expressions, enhanced HO-1 protein levels and favorable recipient outcomes. Our data imply HuR plays an important role in the regulation of innate/adaptive inflammatory liver damage in LT as well as the possibility that HO-1 upregulation might be a part of its cytoprotective functions.

MO35-2 NGFR+ HSC1 and α-SMA+ HSC2 Infiltration Predicted Post-Operative Graft Survival

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Background: Steatotic grafts associated with higher graft failure rate, but exact mechanism remained unclear. With single-cell sequencing revealing HSC heterogeneity, it augmented need to review their roles mediating liver regeneration. We aim to explore prognostic significance of NGFR+ HSC1 and α-SMA+ HSC2 in predicting post-operative graft survival.
Methods: HSC1 and HSC2 infiltration of 71 pairs of donor and post-IR liver grafts were quantified by immunofluorescence and correlated with clinicopathological parameters. Their composition was compared in control and high fat diet groups in murine liver IRI models. HSC1 and HSC2 were FACS isolated, with subsequent gene and cytokine profiling.
Results: Differential infiltration of NGFR+ HSC1 subpopulation and αSMA+ HSC2 subpopulation were observed in functional versus loss-of-function grafts. Multivariate survival analysis revealed NGFR (HR=0.468; p <0.01) and α-SMA (HR=2.62; p <0.05), but not steatotic grading, were independent prognostic factors for graft survival. In murine models, baseline of α-SMA+ HSC2 infiltration were elevated in high fat diet, delineating possibility of HSC phenotypic switching in steatosis. FACS-isolated HSC1 demonstrated elevated anti-inflammatory cytokines IL-10, LIF, in contrast with elevated proinflammatory cytokines CCL2, CCL5 elevated in HSC2.
Conclusion: HSC1 and HSC2 infiltration, but not donor steatotic grading, were key determinants of post-operative graft survival outcome. Targeting their phenotypic switching may represent a promising therapy to expand donor pool for liver transplantation.

MO35-3 Basic Study of Machine Perfusion for Porcine Small Intestine

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INTRO Machine perfusion has been recognized as an essential technology for the expansion of the donor for transplantation, and its clinical use is progressing for kidney, lung, heart, and liver, mainly in Europe and the United States. However, the possibility of using mechanical perfusion for the small intestine has not been fully discussed. Also, organ viability assessment procedures for the small intestine have not been established. In this report, we use the porcine small intestine to examine the availability of applying machine perfusion.
METHOD The porcine small intestine was procured by occluding both ends. The intestinal artery was treated on a back table. The graft was preserved with static cold storage(CS) or hypothermic machine perfusion(HMP) at a cold temperature(8C). After static cold storage or machine perfusion, blood perfusion was performed under body temperature conditions using diluted autologous blood, and the characteristics of the small intestine during blood perfusion were evaluated. The evaluation items were based on flow rate and pressure, and characteristics such as pH, oxygen consumption, lactate, and glucose concentration were measured. In addition, peristalsis was evaluated by image measurement. In addition, histological observations were also accosted.
RESULTS In both groups, peristalsis was observed during normothermic machine perfusion with diluted autologous blood at body temperature, whereas in the simply cooled group, peristalsis was not observed in some areas. On the other hand, the machine perfusion group showed peristalsis in all regions. The final blood flow rates during normothermic machine perfusion are 67ml/min(CS) and 95 ml/min (HMP) and the consumptions of glucose are 38mg/dL(CS) and 120 mg/dL(HMP).
CONCLUSION We investigated the availabilities of porcine small intestine machine perfusion. Furthermore, basic characteristics of the evaluation method for the small intestine during machine perfusion were examined.

MO35-4 Recoverability of Diabetic Nephropathy of Donor Kidney After Kidney Transplantation

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Some kidney donors have diabetes, and little of their natural course of diabetic nephropathy (DN) is known. The aim of this study was to analyze the changes in pathologic lesions in the diabetic donor kidney after KT by performing protocol biopsy two weeks and one year after KT. This retrospective study included 103 patients who underwent KT, with kidneys from donors with a history of diabetes mellitus (DM). Among these, 37 underwent biopsy two weeks and one year after KT, of which, data of 34 patients were reviewed. Biopsy specimens were reviewed using light microscopy and electron microscopy. Glomerular basement membrane (GBM) thickness at two weeks and one year was compared. Biopsy showed that DN occurred in 29 of the 34 patients. However, 17 of them (50%) were classified as having class I, a mild case with an increase in GBM thickness. Only trivial histological changes were observed in 22 patients (64.7%), including 5 patients who did not show DN. At one year after transplantation, there was no change in the DN histologic class in 26 patients (76.5%), and there was no statistically significant difference in the change in GBM thickness. This pattern was observed regardless of the recipient's DM or glycemic control. Donor DN was mostly stable for one year after KT, and this pattern did not depend on the recipient's DM or glycemic control status. With this understanding, clinicians can use kidneys from DM donors with more comfort, thereby reducing the kidney discard rate.

MO35-5 Clinicopathological Analyses of Chronic Vascular Rejection After Kidney Transplantation

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Aim: Herein, we discuss clinicopathological analyses of cases of chronic vascular rejection (CVR) after renal transplantation and clarify the mechanisms underlying the development and prognostic significance of CVR.
Patients: CVR was diagnosed in 34 renal allograft biopsy specimens (BS) obtained from 27 renal transplant patients who were followed up at the Department of Urology and Transplant Surgery, Toda Chuo General Hospital, between January 2010 and December 2020.
Results: CVR was diagnosed at a median 33.4 months post-transplantation. Of the 27 patients, 16 had a history of rejection. Among the 34 BS showing evidence of CVR, the CVR was mild (cv1 in Banff's classification) in 22, moderate (cv2) in 7, and severe (cv3) in 5 patients. We then classified the 34 BS showing evidence of CVR based on their overall histopatological features as follows: cv alone seen in 11 (32%) BS, cv + antibody-mediated rejection (ABMR) in 12 (35%), and cv + T-cell-mediated rejection (TCMR) in 8 (24%). Loss of the renal allograft occurred during the observation period in three patients (11%). Of the remaining patients with functioning grafts, deterioration of renal allograft function after biopsies occurred in seven cases (26%).
Conclusions: Our study results suggest that ABMR contributes to CVR in 30%-40% of cases, TCMR in 20%-30% of cases, isolated v lesions in 15% of cases, and cv lesion alone in 30%. The prognosis of grafts exhibiting CVR was not poor, even under the present immunosuppressive protocol.

MO35-6 Impact of De Novo Focal Segmental Glomerulosclerosis in Renal Allografts on Graft Survival

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Objective: De novo focal segmental glomerular sclerosis (FSGS) is found in renal allografts due to various causes such as transplant glomerulopathy and calcineurin inhibitor-induced toxicity. We assessed the relationship between de novo FSGS and the survival of renal grafts.
Methods: Forty-seven renal transplant patients were confirmed to have FSGS lesions by graft biopsy at Hyogo Prefectural Nishinomiya Hospital and Osaka University Hospital. Of these 47 patients, 13 with recurrent nephritis and 1 without outcome information were excluded from the analysis.
Results: The median age of the recipients at transplantation was 39 (range 19-67) years, and the male-to-female ratio was 20:13. The median age of the donors was 64 (23-79) years, and the male-to-female ratio was 10:23. The median period from transplantation to graft biopsy was 64 (3-365) months. The variants of FSGS in these cases included Tip variant in three cases, perihilar type in two cases, collapse type in one case, and not specified otherwise in the others according to the Colombia classification. Twelve of the 33 patients suffered graft loss. The graft survival rates after the detection of FSGS lesions were 97.0, 73.6, and 60.2% at 1, 3, and 5 years, respectively. The median time to graft loss was 86 months. The ratio of glomeruli with FSGS lesions to all glomeruli was not a statistically significant factor to predict renal allograft prognosis.
Conclusions: Despite the detection of FSGS lesions, over half of patients can expect graft survival of more than 5 years.

MO36-1 Obesity Affected the Renal Function After Kidney Transplantation

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Obesity is a major risk factor of cardiovascular disease and diabetes, which in turn affect the progression of chronic kidney disease. As a result, the prevalence of obesity is increasing also in the end-stage kidney disease (ESRD) population. It is clearly affirmed that obese patients present technical difficulties and are at increased risk of perioperative complications. In this review, the authors found a higher risk of both patient and graft loss at 1, 2 and 3 years after transplantation in obese compared to non-obese recipients. We including the 200 consecutive renal transplant patients. The mean age was 44.4 years (range 6 to 68 years). Patient follow-up was 2 years. Initial immunosuppression consisted of prednisone in 200 recipients, cyclosporine (CsA)-based immunosuppression in 7 recipients, and tacrolimus (Tac)-based immunosuppression in 193 recipients. Overweight group had less time of dialysis (62.9+-53.3months vs 111.5+-194.2 months), male predominance, more diabetes and dyslipidemia. There were not significant difference in donor's condition including body weight, body height, hypertension, diabetes, dyslipidemia, history of stroke and terminal serum creatinine. We divided Obesity group(BMI>30) and Non-Obesity group, the biopsy-proven acute rejection(BPAR), acute tubular necrosis(ATN) and delay graft function(DGF) showed no difference over theses two groups (p-value: 0.293, 0.787, and 0.304 separately). Even we divided overweight group and non-overweight group, the BPAR, ATN and DGF revealed no significant difference (p-value: 1, 0.604, and 0.401 separately). The one month eGFR was influenced by overweight group as table 2(overweight vs non-overweight p=value:0.009), but wasn't affected by overweight group while more than one month. However, there was not significant difference in the short-term eGFR of obesity group. The graft loss and patient survival were didn't related to obesity and overweight groups (p-value: 0.249 and 0.062). The hypertension, dyslipidemia, gout, diabetes and coronary artery disease(CAD) of patient had no effect on graft loss and patient survival, but only the CAD had mild effect on graft loss (p= 0.024). According the WHO Body mass index classification, the patient was divided into four groups including underweight (BMI<18.5), normal range(18.5<=BMI<25), overweight(25<=BMI<30) and Obesity(BMI>=30). The one-month eGFR and three month eGFR were correlated with BMI (p=0.012 and p=0.008), especially in underweight and overweight group. We concluded the only the history of coronary artery disease affected the outcome of graft kidney. The donor's comorbidity was unrelated with graft function and graft loss. The short-term eGFR was influenced by overweight patients, but the effect of body weight decreased by time.

MO36-2 Efficacy and Safety of 12-Month Daprodustat Administration in Post-Renal Transplant Patients

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Background
Since 2019, hypoxia-inducible factor prolyl hydroxylase (HIF-PH) inhibitors, which have a different mechanism of action than conventional erythropoiesis stimulating agents (ESAs), have become available for the treatment of renal anemia. In this study, we report a 12-month follow-up of post renal transplant patients who received HIF-PH inhibitors.
Methods
Among post renal transplant patients attending our outpatient clinic, those who switched from ESAs or were newly initiated on daprodustat were included, and their laboratory values were compared before and after introduction of the drug. The mean age at induction was 44.2 ± 15.1 years, the mean number of months post-transplant was 109 ± 69 months, and the mean post-transplant renal function was serum creatinine 2.12 ± 1.16 mg/dL. Seven of the 18 patients were on ESAs.
Results
Hemoglobin levels improved significantly from 10.5 ± 0.07 g/dL to 12.2 ± 0.14 g/dL at 6 months after induction. Iron utilization and lipid metabolism also showed a trend toward improvement.
Conclusion
HIF-PH inhibitor, daprodustat is a safe and effective treatment option for the post renal transplant renal anemia. Our data also suggested the improvement of iron utilization and lipid metabolism in the post renal transplant patients. Further improvement of the renal transplant outcomes are expected utilizing HIFPH inhibitors.

MO36-3 Usage of Metformin in Kidney Transplant Recipients with Post-Transplantation Diabetes Mellitus

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Background: Post-transplantation diabetes mellitus (PTDM) is an important risk factor for cardiovascular disease and mortality. We aimed to determine the influence of metformin on cardiovascular and graft outcome in PTDM.
Methods: We included 1663 kidney transplant recipients without preexisting diabetes mellitus. PTDM was defined as maintained hypoglycemic treatment, three months or more after transplantation. We conducted the propensity score matching (PSM) in metformin and non-metformin group and estimated the effects of the metformin usage on percutaneous coronary intervention (PCI), major adverse cardiovascular events (MACE), acute rejection, and graft failure.
Results: Before matching, 406 patients prescribed metformin, and the average eGFR (74.8 mL/min/1.73m^2) and HbA1c (7.5%) in metformin group was higher than non-metformin group (65.3 mL/min/1.73m^2 for eGFR; 7.2 % for HbA1c). After 1:1 matching in PSM, no group differences in eGFR and HbA1c were observed. In Kaplan-Meier plot, metformin usage was associated with higher survival probability on PCI (p=0.026) and graft failure (p=0.051). In Cox proportional hazard model, metformin usage was associated with lower risk of PCI (hazard ratio [HR] : 0.24; 95% confidence interval [CI] : 0.08-0.73; p=0.013).
Conclusion: This study demonstrates that the use of metformin was associated with a decreased risk of coronary artery disease in kidney transplant recipients with PTDM. Metformin would be considered as one of feasible treatment options for PTDM.

MO36-4 Total Cell Free DNA as Noninvasive Biomarker of DGF After Kidney Transplantation from DCD

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Because of the organ shortage, kidney transplantation (KTx) from DCDs is an alternative way of obtaining KTx from BDs. Although the prognosis of DCD KTx is improving, the graft suffers from DGF; managing DGF is essential for post-KTx. Owing to the progress in understanding of the characteristics of cell-free DNA (CF-DNA), we consider the plasma total CF-DNA (tCF-DNA) to be a useful biomarker for predicting the functional recovery of KTx from DCDs. Consecutive patients from living donors (LDs; n=9), brain-dead (BDs; n=9) or DCDs (n=13) were enrolled. Plasma samples were collected after KTx and POD5. CF-DNA was isolated using the MagMAX Cell-Free DNA isolation Kit. tCF-DNA were quantified using the TapeStation 2200 software. The tCF-DNA was higher in BDs and significantly higher in DCDs plasma after KTx than in LDs (LD: 78 ± 27 (ng/ml) vs. BD: 99 ± 20 and DCD: 150 ±23; $p<0.05$ vs. LD) and declined at POD 5(LD: 45 ± 10 vs. BD: 51 ± 11 and DCD: 66 ± 13). Furthermore, the tCF-DNA was significantly increased in plasma from DGF patients after KTx (DGF: 139 ± 22 vs. immediate function 91 ± 18; $p<0.05$). tCF-DNA also correlated the duration of DGF ($r=0.5825$, $p<0.05$). Although the mechanism underlying the release of DNA from transplanted grafts into the recipient circulation remains unclear, cell death by apoptosis or necrosis (from damaged grafts) as well as active secretion by different types of activated cells of the immune system (from recipient reaction) may play an important role in DGF. These data suggest that monitoring the tCF-DNA may help predict graft recovery from DCDs.

MO36-5 Therapeutic Effects of ADSCs on Experimental Chronic renal Failure/Uremia and Implications in Prevention from Renal Loss After Transplantation

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Chronic kidney disease (CKD) has been a leading health and social-economical issue in the world. In Taiwan, uremia, CKD and their morbidities are reported as one of the top ten leading causes of mortality. Renal inflammation and fibrosis are the major cause underlying the progression of CKD into chronic renal failure/uremia. However, there is no disease-specific treatment for most of the CKD and their later stages of renal conditions – chronic renal failure/ uremia. In recent years, multipotent mesenchymal stem cells (MSCs) have drawn great interests on cell-based therapy approaches for their beneficial function of tissue regeneration and repair. Among them, adipose tissue-derived stem cells (ADSCs) have been shown to exert better anti-inflammatory and immunomodulating effects. However, its effect on the progression of CKD into the stages of chronic renal failure/uremia remains and mode of action remain largely unknown. For this purpose, a rodent model of advanced focal segmental glomerulosclerosis (adFSGS) induced by adriamycin has been used throughout the study. The ADSCs provided by Gwoxi Stem Cell Applied Technology Co., Ltd. were used to treat the mouse model, followed by a panel of clinical, pathological and molecular assessments. Grouping of the animals includes: group 1. adFSGS mice + buffer; group 2. adFSGS mice + ADSCs (low dose); group 3. adFSGS mice + ADSCs (middle dose); group 4. adFSGS mice + ADSCs (high dose). The ADSCs were given intravenously 2 days before the induction of disease and all of the mice were sacrificed on day 28 after the induction of disease. The results show that greatly improved renal function as demonstrated by reduced serum levels of creatinine and BUN, as well as proteinuria in adFSGS mice, in comparison with those that received saline only. The potential mechanism action includes the following: (1) an anti-inflammatory reaction; (2) anti-fibrotic effect; (3) reduced reactive oxygen species, and (4) inhibited T cell activation. Our study suggests a convincing therapeutic approach with ADSCs for their function on chronic renal failure/uremia and provide a novel, promising therapeutic intervention for the full spectrum of progressive renal conditions. Further investigation in the prevention from rejection and renal loss after kidney transplantation will be discussed.

MO36-6 Impact of Nocturnal Polyuria and Sleep Quality in Kidney Transplant Recipients with Nocturia

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Introduction: To investigate the quality of life of patients with nocturia after kidney transplantation and the association between nocturnal polyuria and sleep quality.
Method: In a cross-sectional study, patient who consented were evaluated using the following items: international prostate symptom quality of life score, nocturia-quality of life score, overactive bladder symptom score, Pittsburgh sleep quality index, bladder diary, uroflowmetry, and bioimpedance analysis. Clinical and laboratory data were obtained from medical charts.
Results: Forty-three patients were included in the analysis. Approximately 25% of patients urinated once at night and 58.1% had nocturia twice. Nocturnal polyuria was observed in 86.0% of patients. According to the Pittsburgh sleep quality Index, 34.9% of patients were classified as having poor sleep quality. Multivariate analysis revealed that patients with nocturnal polyuria tended to have a high estimated glomerular filtration rate (P=0.058). On the other hand, multivariate analysis for poor sleep quality revealed that high body fat percentage and low nocturia-quality of life total score were independently correlated factors (P=0.008 and P=0.012, respectively).
Conclusion: Nocturnal polyuria, poor sleep quality, and aging may decrease the quality of life of patients with nocturia after kidney transplantation. Further investigations including the optimal amount of water intake and interventions can lead to better management after kidney transplantation.

Day 2 November 26 (Sat), 2022 Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

MO37-1 The Impact of Propionic Acid Induced by Dietary Fiber on Mice Liver Ischemia and Reperfusion Injury

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Background: Water-soluble dietary fiber (WSDF) has a potential impact on surgical outcome through the regulation of gut microbial composition and short-chain fatty acid (SCFA) production. Although butyric acid among SCFAs has been reported to ameliorate liver ischemia and reperfusion (IR) injury to date, the impact of propionic acid has not been elucidated.
Methods: Mice were fed either a control ordinary diet (CD) or an inulin diet (ID) containing 5% inulin (one of the WSDFs) for two weeks before the IR maneuver. The concentrations of SCFAs in the portal vein and the composition of the gut microbiota were investigated. The effect of SCFAs on IR injury was also evaluated in vivo and in vitro.
Results: IR induced-liver damage was significantly ameliorated in the ID group, and *Bacteroides acidifaciens* was increased in feces, which resulted in the significant elevation of propionic acid in the portal vein. Direct intraperitoneal administration of propionic acid prior to the IR maneuver strongly suppressed IR damage and inflammatory responses in vivo. Propionic acid also suppressed the inflammatory cytokines secretion from peritoneal macrophages which were stimulated in vitro through the Toll-like receptor-4/high-mobility group box 1 protein pathway.
Conclusion: Inulin diet or inulin-induced propionic acid were potential nutritional interventions for the improvement of liver IR injury. Our new proposal of prebiotics is fully expected for clinical application in liver surgery.

MO37-2 Effects of Periodontal Pathogen-Induced Intestinal Dysbiosis on Transplant Immunity in an Allogenic Skin Graft Model

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Introduction: Periodontal disease can directly or indirectly alter the intestinal microbiota; this causes intestinal dysbiosis and may lead to various systemic diseases. However, the effect of periodontal disease-related intestinal dysbiosis on transplant immunity remains unclear. We examined the effects of periodontal disease-related intestinal dysbiosis on transplant immunity using an allogenic skin graft model in mice treated with the periodontal pathogen Porphyromonas gingivalis (Pg).
Methods: We divided mice into two groups: Pg and control. Mice in the Pg group were orally administered Pg twice per week for 6 weeks; mice in the control group were orally administered phosphate-buffered saline solution twice per week for 6 weeks. Both groups received allogenic skin grafts (donor strain: B6D2F1, recipient strain: C57/BL6). Before transplantation, we compared the proportion of regulatory T cells (Tregs) among CD4+ T cells in the blood and spleens between groups by flow cytometry. We measured levels of short-chain fatty acids (SCFAs; fecal microbiome metabolites) by gas chromatography. We also compared skin graft survival between groups.
Results: The proportion of Tregs among CD4+ T cells in the blood and spleens were significantly greater in the Pg group than in the control group ($p=.002$ and $p<.001$). The levels of SCFAs (acetic acid and propionic acid) were also significantly greater in the Pg group ($p=.040$ and $p=.005$). Furthermore, median skin graft survival was significantly longer in the Pg group (Pg group: 11 days, control group: 7 days; $p<.001$).
Conclusion: Periodontal pathogen-induced intestinal dysbiosis may affect transplant immunity.

MO37-3 Gut Microbiota in Immunoglobulin a Nephropathy

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The alteration of the gut microbiome in the gut-kidney axis has been associated with a pro-inflammatory state and chronic kidney disease (CKD). A small-scaled Italian study has shown an association between the gut microbiome and Immunoglobulin A Nephropathy (IgAN). However, there is little data on gut microbiota in IgAN in the Japanese population. This study compares the gut microbial abundance and diversity between healthy kidney donors and other kidney diseases renal transplant recipients.
A comparative cross-sectional study was conducted involving biopsy-proven IgAN renal transplant recipients.
Stool samples were collected, and their DNA was extracted by 16S rRNA gene sequencing to profile their gut microbiota.
13 IgAN renal transplant recipients. (8 male; 5 female) with a mean age of 48 years were analyzed and compared with 38 healthy controls (13 male; 25 female) with a mean age of 56 years and 20 other kidney disease recipients (12 male; 8 female). There were significant differences seen in the Operational Taxonomic Unit (OTU) and alpha diversity (Shannon index) between IgAN and other groups. Bifidobacterium phylum was significantly reduced in the IgAN group as compared to the control cohort.

MO37-4 Discovery of Cellular and Molecular Pathways Involved in the Development of Anti HLA Antibody Through Single Cell RNA Sequencing in Highly Sensitized Mouse Model

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Presence of allo-antibody to HLA, so called "sensitization" is an important obstacle for successful kidney transplantation. It is well known that B cell lineage including antibody producing plasma cells have a major role for the induction of sensitization. However, the specific molecular pathway involved in "sensizitation" has not been fully investigated yet. In this regard, we proposed to observe the specific pathway involved in the sensitization to HLA using allosensitized mouse model using HLA.A2 transgenic mice. Wild-type C57BL/6 mice were sensitized with two times of skin allografts from C57BL/6-Tg (HLA-A2.1)1Enge/J mice. We performed single-cell RNA sequencing analysis using splenocytes isolated from allogenic mice (C57BL/6-Tg (HLA-A2.1)1Enge/J mice to C57BL/6) and syngenic control (C57BL/6 to C57BL/6) and compared the gene expression in single cell level to characterize the HLA sensitization. We generated 10,705 and 17,411 single-cell transcriptomes from allogenic and syngenic control mouse, respectively. Five major cell types (B-cells, T-cells, NK cells, macrophages, and neutrophils) and their transcriptome data were annotated according to the representative differentially expressed genes (DEGs) of each cell cluster. The percentage of B-cells and T-cells were significantly increased in allogenic mouse, while that of NK cells, macrophages, and neutrophils were decreased. Hsp90aa1 and genes encoding histocompatibility antigen such as H2-Eb1, H2-Ab1, H2-Aa, H2-Oa, H2-DMA, H2-Ob, H2-Q4 were upregulated in B-cells. In addition, GO and KEGG enrichment anlyses indicated that the upregulated genes in B-cells were mainly enriched in antigen processing and presentation pathways. This study indentified the comprehensive profiles of complex immune response after transplantation using single-cell RNA sequencing analysis. The results indicated that overexpressed genes in B-cells after allosensitization were mainly involved in antigen processing and presentation pathways. It may offer detailed understanding of pathogenesis of HLA sensitization after transplantation and may have inmplications for the identification of potential therapeutic targets for desensitization.

MO37-5 IL-2 Receptor Engineering Enhances Regulatory T Cell Function Suppressed by Calcineurin Inhibitor

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Clinical trials utilizing regulatory T cell (Treg) therapy in organ transplantation have shown promising results, however, the choice of a standard immunosuppressive regimen is still controversial. Calcineurin inhibitors (CNIs) are one of the most common immunosuppressants for organ transplantation, although they may negatively affect Tregs by inhibiting IL-2 production by conventional T cells. As a strategy to replace IL-2 signaling selectively in Tregs, we have introduced an engineered orthogonal IL-2 (ortho IL-2) cytokine/cytokine receptor (R) pair that specifically binds with each other but does not bind with their wild type counterparts. Murine Tregs were isolated from recipients and retrovirally transduced with ortho IL-2Rb during ex vivo expansion. Transduced Tregs (ortho Tregs) were transferred into recipient mice in a mixed hematopoietic chimerism model with tacrolimus administration. Ortho IL-2 treatment significantly increased the ortho IL-2Rb(+) Treg population in the presence of tacrolimus without stimulating other T cell subsets. All the mice treated with tacrolimus plus ortho IL-2 achieved heart allograft tolerance, even after tacrolimus cessation, whereas those receiving tacrolimus treatment alone did not. These data demonstrate that Treg therapy can be adopted into a CNI-based regimen by utilizing cytokine receptor engineering.

MO37-6 Ferroposis Related Gene Signature in TCMR After Kidney Transplantation

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Benefiting from the development of immunosuppressants, the graft survival rate after kidney transplantation has been significantly improved. However, deceleration of improvement in short-term graft survival appeared in last 20 years. T cell-mediated rejection (TCMR) plays an important role in the early stage of allograft rejection, and the mechanisms underlying the occurrence and development of TCMR have not been well elucidated. Few studies discuss the relationship between ferroptosis and TCMR. In this study, we obtained RNA-seq data of kidney transplantation from GEO database. After screening of 397 validated ferroptosis-related genes, a ferroptosis gene related diagnostic and prognostic model for TCMR was established, based on consistent clustering. TCMR samples were well differentiated from normal samples by ferroptosis scores (area under the ROC curve [AUC] =0.843), and ferroptosis-related scores were significantly elevated in TCMR patients. Of validations in external datasets, AUC maintained at around 0.8. In particular, in blood and urine samples, the ferroptosis score showed satisfied diagnostic effect as well, with AUC around 0.7. Prognostically, our model was good at prediction in terms of 3-year allograft loss rate([AUC] =0.817). Further analysis showed that in the protein interaction network, CD44, EZH2, TLR4, and IFNG may be potential targets of ferroptosis affecting the occurrence and development of TCMR. Our model reveals the potential role of ferroptosis in TCMR, and it could be served as a reliable diagnostic and prognostic indicator.

MO38-1 CD31 & CD177 Suppress Not Only Neutrophils & Macrophages but NK Cell-mediated Xenogeneic Rejection

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Introduction:
Cellar xenogeneic rejection by the innate immune system is one of the most important immunological obstructions after the GGTA1/CMAH/b4GNT2-knocked out era. We previously demonstrated that hCD31 & hCD177 on swine endothelial cells (SECs) can suppress these xenogeneic reactions by macrophages and neutrophils. This is considered to be obtained by the inhibitory signals from ITIM via homophilic binding between hCD31s and heterophilic binding between hCD177 and hCD31. In this study, we next verified whether these molecules have a suppressive effect on NK cell-mediated xenogeneic rejection.
Materials and Methods:
SEC clones with hCD31 or hCD177 were established. The expression of these molecules on the clones, and peripheral blood mononuclear cells (PBMC)-derived NK cells was checked by flow cytometry.
SEC, SEC/hCD31, and SEC/hCD177 were then co-cultured with PBMC-derived NK cells for 4 hours, and the cytotoxicity was evaluated with WST-8 assay.
Results:
* Common counterpart ligand, CD31, was well expressed on PBMC-derived NK cells.
* hCD31 and hCD177 on SEC were significantly suppressed the cytotoxicity by PBMC-derived NK cells compared to naive SEC (45.2% vs. 36.8%, p=0.0362 <N=15> and 41.9% vs. 31.6%, p=0.0231<N=14>, respectively).
Conclusion:
hCD177 and hCD31 were effective in suppressing cytotoxicity of PBMC-derived NK cells. In the future, we will investigate combinations of molecules that can more efficiently suppress xenogeneic rejection by macrophages, neutrophils, and NK cells.

MO38-2 Comparison of Graft Survival Between Full Thickness and Lamellar Pig-to-Monkey Corneal Xenotransplantation from the Same Genetically Engineered Pig with Minimal Immunosuppression

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Introduction: Graft survival of full thickness corneal xenotransplantation with minimal immunosuppression in genetically engineered pig is not well known. In comparison, lamella corneal xenotransplantation showed good results. We compare the graft survival between full thickness and lamella with the same genetically engineered pig.
Method: With the use of 3 transgenic pigs, six pig-to-monkey corneal transplantation was done. Two corneas from one pig transpanted to two monkey with the fullthickness and lamella corneal xenotransplantations each. Transgenic type of donor pig is GTKO+CD46 in one and GTKO+CD46+TBM in two.
Results: Graft survivals of each xenotransplantation of GTKO+CD 46 are 28 days and 28 days same. With the add of TBM, survival differences between lamella and fullthickness is 98 vs. 14 days and 119+(on-going) vs. 21 days. For failed graft, many inflammatory cells exist in grafts and no inflammatory cell in recipient's stromal bed.
Conclusions: Lamella xenocorneal transplantation has the advantage of not having surgical complication such as retrocorneal membrane or anterior synechia seen in full thickness corneal xenotransplantation. In our study, graft survival of lamellar xenotransplantation is not well comparing with previous our experiments although superior survival period to fullthickness. Difference of graft survival based on the transpenic type is not definitive also. More cases and improvement of graft survival of lammella xenotransplantation will be needed to check the possibility of full thickness coreneal xenotransplantation with the use of transgenic pig and minimal immunosuppression.

MO38-3 Current Status of Genetically Engineered Pig to Monkey Kidney Xenotransplantation in Korea

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Background
For establishing the clinical xeno kidney transplantation, pig to NHP(Nonhuman Primate) preclinical experiments are very important last step to verify and prove the value of xenotransplantation. However, results of NHP preclinical experiments of solid organ xenotransplantation are not such satisfactory as to initiate the clinical trials yet. In Korea, although GalTKO pigs are developed early in the middle of 2000th, NHP trials of solid organs have been done only since 2011.
Materials & Methods
Since 2011, 24 kidney pig to NHP xenotransplantation experiments have been done in Xenotransplantation research team of Konkuk University Hospital. Donor transgenic pigs are delivered from three institutes (8 cases from National Institute of Animal Science, 15 cases from Optipharm® and one case from Cronex®) and all the transgenics are commonly GalT Knockout (GTKO) based. The kind of knock in genes are CD39, CD46, CD55, CD73 and thrombomodulin and two to four transgenic modifications with GTKO. We have used the cynomolgus monkey as recipient animal. After the general anesthesia, dissection, and cold perfusion for the left kidney of transgenic pig is done. We extract the right kidney of host monkey before intraabdominal anastomosis of pig kidney to aorta and IVC. After 2 weeks observation, second look operation is done and the remained left kidney of monkey is removed. We have used the immunosuppressants of CD154 ab, rituximab, ATG, Tacrolimus, MMF and steroid.
Results
Average survival durations are 22 days. For the exception of early failure cases less than 2 days survival due to the technical failure, 19 cases are survived more than seven days and the average survival durations for them are 34 days. The longest survival animal had lived during 86 days after transplantation and next is 84 days. And among kidney recipients, nearly 40% survive more than 3 weeks and more recently experimented cases have showed longer survivals. For the transplanted kidney survivals after the second look operation of all the removal of host kidney, functioning grafts are confirmed. There are no signs of hyper-acute rejection for the transplanted graft.
Conclusions
This survival results are relatively poor yet, but longest cases of survival are recent cases and so results are improving. Although the beginning pig to NHP xeno kidney transplantation experiment in Korea is very late comparing with the western and until 2020, our team is only group for the experiments with insufficient resources and results, with the supports of governmental fund and volunteering activities of clinical experts of clinical kidney transplantation, we expect the continuing experiments and studies to make comparative good results and contribute the beginning of clinical trials of kidney xenotransplantation.

MO38-4 Recipient Sex Hormone Affect Transplant Outcomes in an Age-specific Fashion

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In diseases outside of transplantation, sex has been shown to impact immune responses. Effects of donor/recipient sex and hormonal changes over a life-time on alloimmune responses and transplant outcomes have not been delineated. We analyzed SRTR data from 400,000 kidney transplant and determined the influence of recipient and donor sex in an age-specifically. Death-censored 5-year graft survival in in age-matched young female recipients (15-34 years) had been inferior to that of male recipients. This outcome was independent of donor-sex ($P < 0.0001$ and $P = 0.0002$ for male and female donors, respectively). In contrast, graft survival was superior in older female recipients (55-74 years) ($P = 0.0294$ and $P = 0.0032$ vs. male recipients of comparable age receiving either female or male kidneys). To delineate potential mechanisms, we made use of an experimental model that dissected the effects of recipient age and hormonal deprivation (ovariectomies). Skin transplants in young male recipients (2-3 months) was prolonged vs. female of comparable age ($P = 0.0020$). In contrast, graft survival was comparable in old (18 months) naïve, ovariectomized or sham control female recipients (P = n.s). Assessing alloimmune responses, we observed a compromised proliferation and reduced CD4+ and CD8+ T cell counts in young ovariectomized mice ($P < 0.01$ and $P < 0.001$). Moreover, ovariectomies in young females reduced the production of IFN-g+ and IL-17+ by CD4+ T cells while increasing amounts of CD4+CD25+FOXP3+ regulatory T cells ($P < 0.01$). When adding increased estradiol concentrations (17-b estradiol; 10-12 M and 10-10 M) in-vitro under Th1 polarizing conditions, naïve CD4+ T cells responded in a dose dependent manner ($P < 0.05$). In contrast, high estradiol concentrations (10-8M reflective of levels during pregnancy) reduced amounts of CD4+ T-cells ($P < 0.01$, under Th1 polarizing conditions). In line, with those in-vitro findings, we observed a prolongation of graft survival when treating female recipients with pregnancy equivalent estrogen levels ($P = 0.0035$). Those data demonstrate significant effects of sex, aging, and hormonal levels on alloimmune responses and transplant outcomes.

MO38-5 Gender Differences in MicroRNA Expressions as Related to Long-Term Graft Function in Kidney Transplant Patients

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Background and aims: In recent studies, much has been discussed about various biomarkers used in the evaluation of transplanted graft function. However, there remains a lack of research regarding the long-term effects of microRNAs (miRNAs) on the different genders for kidney transplant (KTx) patients. In this study, we aim to assess the functions of miRNAs on long term outcomes of KTx patients by extracting differently expressed miRNAs between patients of normal graft function and graft dysfunction, while also further analyzing their impact on the different genders.
Methods: We analyzed the follow up data of 40 patients who had received KTx for a period of more than ten years, either from deceased or living donors. We included data regarding patient demographics, renal function evaluation, immuno-related markers and miRNA data taken from the plasma of all patients. Graft dysfunction and differently expressed genes were accurately defined. These data were classified by gender for use in further studies.
Results: Twelve (12) out of 17 females and 8 out of 23 males had undergone graft dysfunction. Renal function analysis showed significant differences in blood urea nitrogen (BUN), creatinine and eGFR between the two groups, revealing significantly worse long-term outcomes in the female patients. There were 5 differently expressed miRNAs between the female control group and female dysfunction group: miR-128-3p, miR-21-5p, miR-150-5p, miR-92a-3p and miR-15a-5p, and 5 between the male control group and male dysfunction group: miR-23a-3p, miR-126-3p, miR-142-3p, miR-223-3p and miR-26a-5p.
Conclusion: Gender differences do exist in incidences of kidney graft dysfunction, with male patients displaying better preservation in graft functions. Overall, differently expressed miRNAs between control and dysfunction patients either enhance or suppress host immune responses. The miRNAs can be potential predictive markers for graft survival and also important factors that can lead to worse long term kidney graft function in females when compared to males.

MO38-6 Kidney Transplantation for a Transgender Male: A Case Report

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Background
Transgender is an umbrella term to describe people whose gender identity is incongruent with their gender assigned at birth. Physicians often lack knowledge and experience regarding transgender identities and transgender-specific healthcare.
Case presentation
We report a case of a transgender man who had received testosterone therapy and sex reassignment surgeries (chest masculinization surgery, metoidioplasty, scrotoplasty, and hysterectomy) since he was 19 years due to gender incongruence. He underwent a successful living-donor kidney transplant from his wife accompanied with no complications including rejection.
Conclusion
The skeletal muscle mass of this 41-year-old transgender man who had received testosterone therapy for over 20 years was closer to that of a female than that of a male. Therefore, we decided that his estimated glomerular filtration rate (eGFR) should be calculated using the equation based on the gender assigned at birth rather than the gender he identified with. Moreover, successful kidney transplantation decreased serum gonadotropin (luteinizing hormone and follicle stimulating hormone) levels, but normalization of the hypothalamic-pituitary-gonadal axis was not attained due to improperly elevated gonadotropin levels following ovariectomy. Further researches to develop appropriate eGFR equations for the transgender population and to clarify the long-term consequences of high gonadotropin levels in transgender individuals after gonadectomy are needed.

Day 2 November 26 (Sat), 2022 Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

MO39-1 Influence of HLA Epitope Mismatch on The Kidney Allograft After Transplantation

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Background
We calculated donor-recipient Eplet mismatch (EpMM) based on HLA class II genotyping results (DRB1, DPB1, DQB1) and retrospectively investigated the relationship between prognosis and renal transplant prognosis.
Methods
The subjects consisted of 273 patients who underwent renal transplantation at our hospital and were genotyped for the six antigens of HLA-A, B, C, DR, DP, and DQ. Epitope mismatch (antibody validated) were calculated using HLA Matchmaker. The analysis was performed by dividing the subjects into 6 groups: Group 1 (G1) (0 <EpMM> 2), Group 2 (G2) (3 <EpMM> 5), Group 3 (G3) (6 <EpMM> 8), Group 4 (G4) (9 <EpMM> 11), Group 5 (G5) (12 <EpMM> 14), and Group 6 (G6) (15 ≤ EpMM).
Results
The average EpMM was 7.2. Group 3 has the most, accounting for 32%. It has been suggested that there is a close relationship between EpMM and the incidence of CAMR and dnDSA. CAMR was observed in 33.3% of G6 and 6.3% of G1. The incidence of dnDSA was 41.7% in G6 and 12.5% in G1. However, the eGFR was not significantly different between G1 and G6 up to 10 years after transplantation.
Conclusion
The results of this study show that as EpMM increases, the incidence of CAMR and dnDSA increases. Our findings suggest that patients with an HLA-DPB1, DQB1, DRB1 EpMM of 6 or higher are at increased risk.

MO39-2 Impact of Low-level Donor-specific Anti-HLA Antibody on Post-transplant Clinical Outcomes of Kidney Transplant Recipients

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The clinical relevance of donor-specific anti-HLA antibody (HLA-DSA), detected only by solid phase assay (SPA) remians controversial. This study aimed to investigate the impact of low-level donor-specific HLA antibody (low-DSA) on post-transplant clinical outcomes of kidney transplant (KT) recipients. We retrospectively reviewed 1,027 cases of KT, including 629 living donor kidney transplantations (LDKTs) and 398 deceased donor kidney transplantations (DDKTs) between 2010 and 2018 in Seoul St. Mary's hospital. Patients whose HLA-DSA was positive in SPA (mean fluorescence intensity > 1,000) but negative in crossmatch test were defined as a low-DSA group. We compared the incidence of biopsy-proven allograft rejection (BPAR), changes in allograft function, allograft survival, patient survival, and post-transplant infections between subgroups according to the presence of pre-transplant low-DSA. The incidence of overall BPAR and T-cell mediated rejection did not differ between subgroups. However, antiobdy-mediated rejection (ABMR) developed more frequently in patients with low-DSA than in those without low-DSA in the total cohort, LDKT, and DDKT. In multivariable analysis, low-DSA was an independent risk factor for ABMR. Its impact was more pronounced in DDKT (Odds ratio [OR] : 10.000, 95% confidence interval [CI] : 2.781-35.960) than in LDKT (OR: 5.210, 95% CI: 2.100-12.924). There were no significant differences in secondary outcomes according to low-DSA. In conclusion, pre-transplant low-DSA had a significant impact on the development of ABMR, which was more pronounced in DDKT than in LDKT. However, its impact on long-term outcome was not significant.

MO39-3 A Case of CAAMR Caused by Pre-existing anti-DQ DSA in SLE Recipient Without History of Sensitization

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[Introduction] HLA antibodies are known to be produced by sensitization events such as pregnancy and blood transfusions. We report a case of CAAMR caused by pre-existing DSA in a patient with SLE without history of sensitization.
[Case] A male patient in his 30s presented to our hospital with CKD due to lupus nephritis. Low titer of anti-DQ DSA was detected in pre-transplantation evaluation although he had no prior history of sensitization. After desensitization with rituximab and mycophenolate mofetil, living donor kidney transplantation was performed. His early post-transplant period was uneventful, but his renal function started to decline at 2 years post-transplant. Although there was no findings of rejection on the cause biopsy at 2.5 years post-transplant, his renal function continued to decline thereafter, eventually requiring the reintroduction of hemodialysis at 7 years due to CAAMR. Retrospective HLA antibody tests on the stored serums revealed ant-DQ DSA was negative at one year post-transplant, but rebounded to more than 20,000 nMFI at two years post-transplant and thereafter. An additional C1qScreen revealed high titer of complement-binding DSA appeared at two years and thereafter.
[Discussion] Autoimmune diseases such as SLE are reported to produce allogeneic antibodies and low titer of natural DSA eventually caused CAAMR in the present case.
[Conclusion] In a case with SLE, careful follow up of pre-DSA might be needed even though the titer was low without any prior histories of sensitization events.

MO39-4 Outcomes of Treatments for Acute Antibody-Mediated Rejection After Kidney Transplantation

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Background: A certain consensus of the therapeutic strategy for the acute antibody-related rejection (A-ABMR) remains elusive. The aim of this study was to evaluate outcomes of treatments for after kidney transplantation at our institution.
Methods: Among patients who underwent kidney transplantation between 2014 and 2020 at department of Urology of Tokyo Women's Medical University, 40 patients who were pathologically diagnosed with A-ABMR were included in this retrospective study.
Results: A-ABMR was diagnosed at a median of 45 days after transplantation. Median serum creatinine (s-Cr) level and estimated glomerular filtration rate (eGFR) before treatments were 1.56 mg/dl and 36.1 ml/min/1.73m^2, respectively. Thirty-two patients (80%) received steroid pulse therapy, 17 patients (42.5%) received rituximab, 12 patients (30%) received plasma exchange, 2 patients (5%) received eculizumab, and 27 patients (67.5%) received intravenous immunoglobulin. Median s-Cr level and eGFR after the treatments were 1.35 mg/dl and 40.4 ml/min/1.73m^2, respectively, which were significantly improved compared with those before the treatment. Meanwhile, 22 (55%) patients developed in chronic ABMR. Mutivariable Cox proportional hazard regression analysis showed that age of the donor and t score of Banff classification before the treatments were significantly associated with chronic ABMR.
Conclusion: Most of all patients avoided acute graft loss, however, many of them developed chronic ABMR. Randomized controlled trials are necessary to further validation of treatment strategy in the future.

MO39-5 A Case of Living Kidney Transplantation Suspected of Hyper-acute Rejection During Kidney Transplant Surgery

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Case: A 61-year-old male underwent kidney transplantation in November 2019. Prior to the transplant, the immunologic tests revealed the presence of anti-human leukocyte antigen (HLA) antibodies, but no anti-donor HLA antibodies (DSA). The patient was given 500 mg of methylprednisolone (MP) intravenously before the perioperative blood flow re-perfusion. After the blood flow re-perfusion, the renal graft became red at first but became cyanotic subsequently. It was suspected of hyper-acute rejection. After administration of additional MP 500 mg and gamma globulin 30 g intravenously, the renal graft gradually turned red. The first urine output occurred postoperatively, and was good subsequently. On the 22 day after renal transplantation, the patient was discharged with a serum creatinine level (s-Cr) 2.38 mg/d*l*. The allograft renal function was relatively good without rejection and the s-Cr was down to 1.64 mg/dl.
Conclusion: The non-HLA antibody might be regarded as a cause of the hyperacute rejection, which was managed with perioperative additional therapies that were found to be effective.

MO39-6 Genetic Polymorphisms in CXCR5 Are Associated with *De Novo* Donor-specific Antibody Formation After Kidney Transplantation

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Introduction
Risk prediction of *de novo* donor-specific antibody (dnDSA) formation is crucial for understanding the long-term prognostic implications of kidney transplantation (KT) outcomes. Recently, follicular helper T cells (Tfh cells), a subtype of CD4+T cells, were reported to play an important role in dnDSA formation in solid organ transplantation. Given the growing recognition of the importance of Tfh cells in generating a strong humoral immune response, it is reasonable to hypothesize that polymorphisms in Tfh cells related molecules are associated with dnDSA formation after KT. Therefore, in this study, six single nucleotide polymorphisms (SNPs) *within six genes (BCL6, CXCR5, CXCL13, ICOS, CD40L, and IL21)* were selected and analyzed to determine if Tfh cell-related polymorphisms contribute to dnDSA formation after KT.
Methods
A total of 109 patients underwent living-donor KT at the Hiroshima University Hospital between January 2013 and February 2020. Of these, 25 patients were excluded because of re-transplantation, the presence of DSAs at the time of KT, their follow-up period was less than 1 year long, or genomic DNA was not available. The remaining 83 patients were included. Six Tfh-related SNPs were detected by TaqMan SNP genotyping.
Results
Among the 83 KT recipients, eight developed dnDSAs during the observation period. Statistically significant differences in baseline characteristics between patients with and without dnDSA formation were not observed except for donor age. Among the six Tfh-related genetic polymorphisms, the incidence of dnDSA formation was significantly higher in GG/GA genotype of rs3922in the CXCR5 gene than in AA genotype (18.1% vs 4.0%, p = 0.03). The other five SNPs showed no associations with dnDSA formation.
Conclusions
Our findings indicate that genetic polymorphisms in the CXCR5 gene are predisposing factors for dnDSA formation after KT.

MO40-1 Graft Perfusion with An HSP90 Inhibitor Prolongs Graft Survival

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Purpose: We hypothesized that preconditioning of the graft with an HSP90 inhibitor might suppress the alloreaction and prolong the graft survival in solid organ transplantation.
Materials and methods: Murine heterotopic heart transplantation was performed using C57BL/6 (H-2b) and BALB/c (H-2d) mice as donors and recipients, respectively. In the graft preconditioning group, the graft was perfused in situ with 1 mL of a cold solution of alvespimycin, an HSP90 inhibitor, in which the agent was dissolved in heparinized Ringer ´ s lactate solution. The graft survivals of the graft preconditioning group and the control group were compared. In addition, histopathological examination and quantitative RT-PCR were done.
Results: Median allograft survivals were 14 and 7 days in the graft preconditioning group and control group, respectively (log-rank $p < 0.001$). In immunohistochemical study, infiltration of neutrophils and dendritic cells in the graft was suppressed in the graft preconditioning group on day 3. Subsequently, expression of IL-2 mRNA and IL-12p40 mRNA in the graft was downregulated in the graft preconditioning group on day 5.
Conclusion: The results of this study suggest that preconditioning of a graft with alvespimycin may suppress the adaptive immune response, leading to inhibition of acute allograft rejection. Preconditioning of the graft targeting HSP90 may be a promising strategy in solid organ transplantation.

MO40-2 Protective Effect of Berberine Against Tacrolimus-Induced β-Cell Dysfunction

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Background: Tacrolimus (FK506)-induced diabetes mellitus is one of the most important factors of post-transplant diabetes mellitus (PTDM). Berberine (BBR), a bioactive isoquinoline derivative alkaloid, found in many medicinal plants. In this study, we aimed to investigate the therapeutic potential of BBR, which is known to be an antioxidant and anti-inflammation compound, in tacrolimus-induced pancreatic beta cell dysfunction.
Methods: INS-1 cells were incubated with FK506 with or without BBR and harvested at 24 hr intervals. Cells were assessed for viability, apoptosis, cell insulin secretion and content. Western blot and RT-PCR analysis were performed for the expression of superoxide dismutase (SOD)-1, unncoupling protein-2 (UCP-2), heme oxygenase-1 (HO-1), p-c-Jun N-terminal kinase (JNK), and toll like receptor-4 (TLR-4) in INS-1 cells.
Results: BBR (5 and 10 μM) increased remarkably cell viability and insulin secretion. Co-treatment with BBR significantly increased expression of SOD-1, HO-1, Bcl-2 and UCP-2. Pancreatic beta cell line showed that FK506 treatment increased apoptosis, while co-treatment with BBR effectively attenuated these alterations. BBR could significantly reduce the levels of BAX, JNK and TLR-4 in INS-1 cells.

MO40-3 Fucoidan Alleviates the FK506-Induced Renal Damage via Antioxidant Effect and Inhibiting Apoptosis

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Purpose: Tacrolimus (FK506) is an immunosuppressant agent that is frequently used to prevent rejection of solid organs upon transplant. However, nephrotoxicity due to apoptosis and inflammatory response mediated by FK506 limit its usefulness. Fucoidan (FUC) is an antioxidant and anti-inflammatory sulfated polysaccharide compound from brown seawood. In the present study, the protective effect of FUC against FK506-induced damage in LLC-PK1 pig kidney epithelial cells was investigated.
Materials and Methods: LLC-PK1 cells were exposed to FK506 with FUC and cell viability was measured. Western blotting and RT-PCR analyses evaluated protein or gene expression of HO-1, Bcl-2, Bax, caspase-3/9, kidney injury molecule-1 (KIM-1), and Toll-like receptor-2 (TLR-2) expression were assessed. The number of apoptotic cells was measured using an annexin V/PI staining with flow cytometry.
Results: Reduction in cell viability by 50mM FK506 was ameliorated significantly by cotreatment with FUC. MDA, KIM-1, TLR-2, BAX and cleaved caspase-3, increased markedly in LLC-PK1 cells treated with FK506 and significantly decreased after cotreatment with FUC. HO-1 and Bcl-2 significantly increased in LLC-PK1 cells treated with FK506 after cotreatment with FUC. Moreover, flow cytometry assay showed that apoptotic cell death was increased by FK506 treatment, whereas it was decreased after cotreatment with FUC.
Conclusion: These results collectively provide therapeutic evidence that FUC ameliorates the FK506-induced renal damage via antioxidant effect and inhibiting apoptosis and inflammation.

MO40-4 Recombinant Thrombomodulin Alpha Attenuates Kidney Graft Damage After Long Cold Ischemia Time in a Rat Kidney Transplant Model

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Objectives: Thrombomodulin (TM) is expressed on the endothelial cells and prevents hypercoagulation via combining with thrombin. In inflammatory, TM is inactivated. The purpose of this study is to investigate whether perfusate solution saturated with recombinant TM alpha (rTM) can attenuate kidney graft damage after long cold ischemia time.
Methods: We used a syngeneic rat kidney transplantation model. Donor kidney grafts were perfused using a cold UW solution saturated with (Group A) or without (Group B) rTM for 24 hours. After kidney transplantation, blood and urine samples were sequentially collected [post-operative day (POD) 1, 2, and 7] to measure creatinine clearance and neutrophil gelatinase-associated lipocalin (NGAL). Kidney graft samples in an acute phase (2 hours after operation) were collected, and TUNEL assay and immunohistochemistry (IHC) for TM were performed.
Results: IHC revealed that the expression of TM on kidney grafts after 24-hour cold ischemia was extensively reduced, compared with those after 0-hour ischemia. Microvascular thrombus was widely observed in Group B, although it was rarely observed in Group A. Creatinine clearance levels in Group A were significantly higher than in Group B. Furthermore, serum levels of NGAL in Group A were significantly lower than those in Group B. Fewer damaged tubular cells and apoptosis-positive cells at a very acute phase were observed in Group A.
Conclusion: Perfusion with rTM significantly attenuates kidney graft damage after long cold ischemia time by abrogating apoptosis in tubular cells.

MO40-5 Feasibility of Organ Transportation by The Drone: An Experimental Study Using a Rat Model

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Background: Recently, successful delivery of organs for transplantation was reported. We conducted this study to clarify the influences of transportation by the drone on quality of liver graft using a rat model.
Methods: The livers of 12 Wister rats (6 rats were 8 week-old and 6 rats were 32 weeks old) were divided into two groups. Drone group (n=12) and Control group (n=12). The drone experiment was conducted between islands in Nagasaki prefecture, Japan. The distance of between the islands was 12 km. The livers of Drone group were transported by a multicopter at a speed of 30-40 km/h over 60 m above the sea level. For analyzing quality of transported liver, histological evaluation and biochemistry data were compared between groups.
Results: The temperature inside the cold storage containers remained constant regardless of the transfer method. Cold storage time did not differ between the Drone and Control groups (902 min, 909 min, respectively). The macroscopic findings showed no difference in coloration and no obvious damage in both groups. AST, ALT, and ALP in preservation fluid samples were graft weight-corrected and compared, and no significant differences were found between the two groups: AST/g (4.61 vs 4.81 IU/L), ALT/g (2.78 vs 2.92 IU/L), ALP/g (39.1 vs 37.0 IU/L).Immunochemical staining showed no significant difference between the two groups for TUNEL(141 vs 113 cells p=0.78), CD163(818 vs 870 cells p=0.14), iNOs(121 vs 101 cells p=0.81) and αSMA (1.58 vs 1.09 p=0.31).
Conclusion: The simulation experiment of organ transport for transplantation by the drone was successfully conducted. Since there were no differences in the quality of transported liver with the drone and without the drone in terms of the quality of the liver in a rat model, further studies including large-animal experiments may be associated with future clinical applications.

MO40-6 Downregulated PGC1α Drives Steatotic Liver Graft Injury by Metabolic Reprogramming of M1 Macrophage

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Background & Aim
The intrahepatic M1 macrophage-mediated inflammation drives graft injury after liver transplantation, but the metabolic status of M1 macrophage is poorly understood. Our previous study demonstrated the critical role of PGC1α in mediating steatotic graft injury (Liu et al., 2020). Thereby, this study aims to elucidate the role of PGC1α in regulating M1 macrophage polarization regarding metabolic reprogramming during steatotic graft injury.
Method
The association between PGC1α expression, M1 macrophage polarization and steatotic allograft dysfunction was analyzed in a local liver transplant cohort. Macrophage subtype with distinct PGC1α expression patterns was investigated in a rat orthotopic liver transplant model. The mechanical role of PGC1α in mediating macrophagic metabolic reprogramming and polarization was explored in a mouse model with hepatic ischemia and reperfusion.
Results
The PGC1α mRNA level was able to distinguish steatotic and normal allografts, and the ROC curve determined the cutoff value (relative fold change=0.385) with AUC of 0.811 (p<0.001). In addition, the lower PGC1α expression recipients using steatotic grafts were shown significantly elevated ALT and AST, as well as deteriorated long-term graft survival. In rat liver transplant models, steatotic graft experienced an increased intrahepatic M1 macrophage, which was $CD68^{+}IFN\gamma^{+}PGC1\alpha^{low}$ dominant. Detailed metabolism analyses showed that steatotic graft had down-regulated oxidative phosphorylation (OXPHOS) but enhanced glycolysis, which was indicated by decreased complex II (succinate dehydrogenase, SDH) activity and increased plasma lactate level. In the mouse model, inhibition of PGC1α decreased the expression of OXPHOS subunits *Sdha* and *Coxii*, but reactivation of PGC1α restored their expression. Phenotypically, inhibition of PGC1α showed elevated ALT and AST, exacerbated portal triad inflammation, and extended steatosis, whereas reactivation of PGC1α attenuated these phenomena.
Conclusion
PGC1α down-regulation drives steatotic allograft injury via promoting M1 macrophage polarization through metabolic reprogramming.

Day 2 November 26 (Sat), 2022 Mini Oral Booth A (Central, Kyoto Sangyo Kaikan Hall)

MO41-1 Central Pontine Myelinolysis After Liver Transplantation; A Case Report

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Central pontine myelinolysis (CPM) is a demyelinating disease of the pons often associated with neurological disorders. We herein report a case of CPM after liver transplantation, successfully treated with several postoperative managements by the transplant team. A-60-year-old female had deceased donor liver transplantation for acute liver failure with hepatic coma. Tacrolimus trough levels were 10-12 ng/dL in initial posttransplant period. On POD10, she developed neurological disorders, including impaired consciousness and respiratory muscle paralysis. Magnetic resonance imaging showed a hyperintense signal on T2-weighted in the central pons, a characteristic finding of CPM. Because tacrolimus was reported to be a possible factor for CPM, tacrolimus was replaced with everolimus. To restore neurological function, multidisciplinary approaches were implemented. Although the neurological function of the recipient was improved, her activities of daily living were in a state of total assistance. After coordinating comprehensive support care, the recipient was discharged to a rehabilitation facility 140 days after transplantation. Preexisting hepatic encephalopathy has a defective blood-brain barrier which may cause their susceptibility to injury by CNI. With CNI-based immunosuppression, CPM must be ruled out preferentially in such transplant recipients with a neurological disorder. Proper interventions, including neurological rehabilitation and mental health care, were important for the improvement of neurological impairment and prevention of morality.

MO41-2 Significance of Tenascin-C Levels in Recipients with Prolonged Jaundice After Living Donor Liver Transplantation

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[Introduction]
Tenascin-C (TNC) is one of extracellular matrix glycoproteins. Production of TNC is rare in normal adult tissues, and expression is transiently enhanced in wound healing process. TNC value in the blood reflects organ damage and regeneration. The present study aimed to clarify whether plasma TNC levels after living donor liver transplantation (LDLT) could be a predictor of irreversible liver damage in the recipients with prolonged jaundice.
[Material and Methods]
Between 2002 to 2016, the plasma TNC levels on postoperative day (POD) 1 to 14 were analyzed in the 79 patients underwent LDLT. We defined prolonged jaundice as total bilirubin (TB) level more than 10 mg/dl on POD 14. According to TB on POD 14 (TB-D14), 79 patients were divided into two groups; non-prolonged jaundice (NJ) group were 56 patients and prolonged jaundice (PJ) group were 23 patients.
[Results]
Multivariate analysis for 90-day mortality identified TNC on POD 14 (TNC-D14) as a single significant independent prognostic factor. According to ROC curves, the best cut-off value of TNC-D14 for 90-day survival was determined to be 193.7 ng/ml. Furthermore, in the PJ group, the patients with low TNC-D14 (less than 193.7) had satisfactory survival compared to patients with high TNC-D14 (100 vs. 38.5% at 90-day, p=0.004).
[Conclusions]
Plasma TNC-D14 can be used as a predictive marker of prognosis in patients after LDLT. Especially in cases of prolonged jaundice after LDLT, plasma TNC-D14 is very useful in the early diagnosis of postoperative liver regeneration disorders.

MO41-3 Gene Polymorphisms and Risk Factors of Neurological Complications After Liver Transplantation

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Introduction
Neurological complications (NCs) are frequent complications after liver transplantation (LT). We aim to assess the association between single nucleotide polymorphisms (SNPs) and NCs after liver transplantation. This study contributes to the prediction of NCs and the quality of life of patients after LT.
Materials and Methods
A total of 197 patients who accepted LT surgery at the Affiliated Hospital of Qingdao University were selected. The clinical symptoms and laboratory tests were used to analyze whether the recipients had NCs. Genomic DNAs were extracted from donor's fresh frozen liver and recipient's anti-coagulated blood using different kits. Categorical variables were validated by subsequent logistic regression analysis. Preoperative hepatic encephalopathy as a risk factor for NCs was evaluated by logistic regression analysis.
Results
We found five SNPs are closely associated with NCs, including recipient STK38L rs2242185 [OR=0.192(0.061-0.605); p=0.005], recipient TNFα rs1800629 [OR=2.869(1.006-8.178); p=0.049], recipient MTRR rs1802059 [OR=6.72(1.229-36.738); p=0.028], donor OATP rs2306283 [OR=3.425(1.161-10.108); p=0.026], and recipient TNFRSF11A rs2277731 [OR=0.29(0.107-0.783); p=0.015]. The incidence of NCs was 11.17% (22/197), but there was no correlation between preoperative hepatic encephalopathy and postoperative NCs [OR=1.467(0.393-5.474); p=0.568].
Conclusion
The five gene polymorphisms are associated with an increased risk of NCs after LT and have a potential clinical value for the prediction and prevention of NCs.

MO41-4 Risk Factor and Management of Biliary Stricture After Living Donor Liver Transplantation

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Background: Biliary stricture (BS) is a common complication of living donor liver transplantation (LDLT). Endoscopic retrograde biliary drainage (ERBD) is the primary treatment for BS, but sometimes refractory. The aim of this study is to investigate the risk factors of BS after LDLT, and to present successful management for BS in our institution.
Method: The study comprised 27 patients who underwent LDLT. We analyzed the relation between the patient characteristics and the incidence of BS.
Results: Seven (26%) patients developed BS. Chronic cholestatic liver disease was a significant risk factor of BS (p=0.01). In some cases, ERBD could not be successfully performed. A 57-year-old woman who was diagnosed as primary biliary cholangitis (PBC) underwent LDLT with left lobe graft and developed BS 1 month after LDLT. Percutaneous transhepatic cholangio drainage (PTCD), and embolization for portal vein and hepatic artery were performed. After that, ethanol was injected in biliary duct , and intervention was completed. A 54-year-old woman underwent LDLT with right lobe graft and duct-to-duct biliary reconstruction for PBC. Insertion of internal plastic stents by ERBD was not successful due to the significantly bending bile duct. After PTCD, gun site technique for the posterior branch and dual hepatic vascular embolization for the anterior branch were performed. She is followed up without an external fistula tube.
Conclusion: Chronic cholestatic liver disease was the risk factor for BS, and appropriate procedures should be chosen based on the types of strictures.

MO41-5 De Novo Malignancy After Living Liver Transplantation: A Single-center Long-Term Experience

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Background and aim: The incidence of de novo malignancy (DNM) after liver transplantation (LT) is reported to be 3.1 to 14.4%. It could be a cause of death in recipients with good graft function. The aim of this study is to clarify the clinicopathological features of DNM.
Patients and methods: The recipients who underwent adult-to-adult living donor LT (LDLT) in our hospital were investigated. The medical records were reviewed retrospectively.
Result: A total of 191 recipients were included. The indications were metabolic liver disease (n=53), cholestatic disease (50), hepatitis C virus cirrhosis (42), acute liver failure (13), and others (33), respectively. The median age at LDLT was 48 (18-71) years and follow-up period was 14 (0-29) years. DNM was diagnosed in 24 recipients (29 sites), including digestive tract (n=10), urinary (5), gynecological (5), lung (4), hematological (3), and others (2), respectively. Asynchronous DNM was experienced in 4 recipients. The median duration from LDLT to DNM was 7 (0.3-19) years. Three patients were lost due to advanced stage cancer. R0 treatment for non-hematological DNM was achieved in 21 (81%) lesions. The 1-, 5-, 10-, and 20-year DNM incidence were 1.1, 5.1, 11, 21%, respectively. The 20-year-survival rate of DNM (59.6%) and non-DNM (55.9%) was not significantly different. DNM occurred significantly higher in primary sclerosing cholangitis patients than the others ($p<0.05$).
Conclusion: Even in DNM recipients, the earlier detection of malignancy and R0 treatment will promise the comparable long-term outcome with non-DNM recipients.

MO41-6 Metachronous Double De Novo Malignancy After Living Donor Liver Transplantation: A Case Report

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<Introduction>The incidence of de novo malignancy after liver transplantation was reported to be 5.3-24.7%. Because of the higher incidence, routine medical checkup is important for early detection, making it possible to perform curative therapy.
<Case presentation>A 50-year-old female underwent a living donor liver transplant (LDLT) for alcoholic decompensated liver cirrhosis. There were no complications and no alcohol relapse after LDLT. Immunosuppressive medications included tacrolimus, MMF, PSL for maintenance treatment. Routine cancer screening was performed and no abnormal findings were noted until 12 years postoperatively. She had gross hematuria thirteen years after LDLT, and was diagnosed with bladder carcinoma. Medical interview revealed that she continued to smoke after LDLT. Radical resection was accomplished by transurethral resection of the bladder carcinoma (pStage I). She developed esophageal currency disorder fourteen years after LDLT and was diagnosis of advanced esophageal cancer. Due to post-transplant, neoadjuvant chemoradiation therapy was not indicated and radical esophagectomy was performed (p-Stage III). Recurrence of esophageal cancer in skin, cervical lymph node and bones was observed seven months after the surgery. She was treated with chemotherapy, but died twenty months after surgery.
<Conclusion>Patients with a history of heavy alcohol use often have smoking habitats which is a risk factor for cancer. Therefore, anti-smoking education must be implemented to reduce a carcinogenic risk and routine medical checkup is important for early detection.

MO42-1 Urgent Desensitization in Heart Transplantation: A Ten-Year Experience in a Tertiary Medical Center

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Background
There has been rising incidence of sensitization in patients awaiting heart transplantation. Desensitization eliminates the preformed antibodies to permit safe transplantation across positive crossmatch. Desensitization protocol and outcomes vary among different institutions. In this report, we present our experience of perioperative desensitization therapy in sensitized heart transplant recipients.
Methods
All heart transplantation in sensitized recipients between Jan. 2012 and Jan. 2022 were retrospectively analyzed. The primary outcome was 1-year survival. The secondary outcomes included severe primary graft dysfunction, rejection and infection within the first year post transplant.
Results
Perioperative desensitization was indicated in 26 patients. Extracorporeal circulatory life support was used as bridge to transplant in 18 patients. Twenty-one patients underwent prior cardiac surgery. The average number of donor offers per recipient was 2.7 (range 1-8). Seventeen patients accepted a marginal donor heart. The cumulative 1-month, 3-month, 6-month, and 1-year posttransplant survival was 92%, 88%, 80% and 73%, respectively. Ten patients were supported with extracorporeal membrane oxygenation post transplant. The cumulative incidence of acute cellular rejection, antibody-mediated rejection and infection were 14.3%, 19% and 37.5%, respectively. Infection was the leading cause of posttransplant death.
Conclusion
Acceptable early posttransplant outcomes could be anticipated with urgent perioperative desensitization, while infection might be the major morbidity.

MO42-2 SARS-CoV-2 Antibody Response AfterSARS-CoV-2 Vaccine in Heart Transplant Recipients

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Background: Antibody response after SARS-CoV-2 Vaccine is promising in general populations, but poor antibody response has been reported in solid organ transplant recipients. This study aimed to evaluate antibody response after SARS-CoV-2 Vaccine in heart transplant recipients.
Methods: We examined 26 heart transplant recipients who received SARS-CoV-2 mRNA vaccine in our center. IgG antibody assay was performed using Roche Elecsys anti-SARS-CoV-2 S enzyme immunoassay before the first vaccination, 1 month after the first vaccination, and 1 month and 3 months after the second vaccination.
Results: The median age of 26 heart transplant recipients included in the study was 38 years (IQR, 34 to 48 years). Among 26 heart transplant recipients, only 4 (15%) patients had measurable antibody 1 month after the first vaccination. After the second vaccination, one patient was nonresponder (anti-S1 antibody level < 0.8 AU/mL), and 26 patients (96%) had measurable antibody. There was a significant increase in antibody level between 1 month after first vaccination and 1month after second dose (1.32 [IQR, <0.4-12] vs 482 [4.65-2335] AU/mL, p=0.001). At 3 months after second vaccination, antibody level was not significantly decreased compared with antibody level at 1month after second dose (551 [130-1980] vs 482 [4.65-2335] AU/mL, p=0.422).
Conclusions: In this study, heart transplant recipients had poor antibody response at 1 month after first Vaccination. However, majority of recipients had sufficient antibody response at 1 month and 3 months after second vaccination.

MO42-3 Low-Density Lipoprotein Concentration and Cardiovascular Event After Heart Transplantation

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Background: Dyslipidemia is a common complication after heart transplantation (HT) and the strict control of hyperlipidemia is recommended in the current HT guidelines. However, the goal low-density lipoprotein cholesterol (LDL) concentration is unclear. The aim of this study was to evaluate the association between the LDL concentration and cardiovascular outcomes after HT.
Methods: We retrospectively examined the records of 137 patients who underwent HT between August 2007 and May 2021 at our institution. We divided to low- and high- LDL group according to the LDL concentration at one year after HT. The primary endpoint was cardiovascular events defined as the composite of heart failure hospitalization, myocardial infarction, revascularization, catheter ablation, cardiac implantable electronic devices implantation, pulmonary embolism and all-cause mortality.
Results: The etiology of ischemic cardiomyopathy was higher in high-LDL group (LDL >70 mg/dL) ($p = 0.049$) and moderate or high intensity statin therapy was higher in low-LDL group (LDL ≤70 mg/dL) ($p = 0.0001$). During the mean follow of 5.7 ± 3.2 years, there were 19 cardiovascular events (13.9%): Two of 41 patients (4.9%) in low-LDL group and 17 of 96 patients (17.7%) in high-LDL group. The times to cardiovascular events were similar between the two groups ($p = 0.17$).
Conclusions: LDL concentration of <70 mg/dL did not show the benefit for preventing cardiovascular events and further exploration of the goal LDL concentration after HT is needed.

MO42-4 Acute Cellular Rejection with Discrepancy Between Cardiac Histopathological and Imaging Findings

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A 63-year-old female patient with advanced heart failure due to dilated cardiomyopathy underwent heart transplantation (HTx) after waiting for 5 years. As immunosuppressive regimen, corticosteroids, everolimus, and mycophenolate mofetil had been used after cessation of tacrolimus due to renal nephrotoxicity after surgery. Good cardiac allograft function without any rejection had been maintained during the process of reducing the dose of immunosuppressive drugs. However, 7 months after HTx, she was admitted to our center because of heart failure requiring inotropic agents with diffuse biventricular hypokinesis. Emergent endomyocardial biopsy (EMB) was performed, which revealed multifocal lymphocyte infiltration with myocyte damage suggesting acute cellular rejection of cardiac allograft (International Society of Heart and Lung Transplantation (ISHLT) 1990 Grade 3A / 2005 Grade 2R). Steroid pulse therapy was initiated followed by tapering while confirming no rejection relapse in follow-up EMB. General status and symptoms improved with treatment of acute rejection; however cardiac dysfunction was not fully recovered requiring the use of high-dose diuretics. Cardiac magnetic resonance showed circumferential late gadolinium enhancement and prolonged T1 and T2 times in left and right ventricle reflecting residual myocardial inflammation. Although further investigation is needed, clinicians should be careful when deciding on therapeutic strategies, as there may be a discrepancy between cardiac histopathological and imaging findings.

MO42-5 Application of A Newly Developed Organ Fixator to Heart Transplantation: Investigation in a Pig Model

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In organ transplantation, secondary warm ischemic (SWI) injury is a perennial problem until the completion of blood vessel anastomosis and resumption of blood flow. Such SWI injury is known to occur more severely in transplanted organs, which are susceptible to body temperature. In the proceeding report, we developed an organ fixator, named OrganPocket (OP) made by original elastomer material, and demonstrated that SWI injury can be suppressed in clinical renal transplantation therapy. In the present study, we investigated the usefulness of the OP in heart transplantation using a pig model.
First, evaluations were conducted using a pig heart extraction model. Following extraction, the heart was placed in cold storage in an organ preservation solution at 4°C, for which the OP was used. The heart along with the OP was allowed to remain for 30 minutes in a 37°C environment, simulating an intra-abdominal cavity environment. As a control, we measured the temperature in the same environment without the OP. The control heart reached 16°C in 30 minutes, but the heart with the OP maintained an average core temperature of 10°C or less. Furthermore, we tested the OP in the intraperitoneal heterotopic transplantation in the pig. The SWI time was approximately 30 minutes, but the surface temperature when the OP was removed was 20°C. After reperfusion, the heart graft showed normal pulsation.
The world's first OrganPocket, which prevents SWI, may be useful during heart transplantation as well.

MO42-6 Clinical Impacts of the Utilization of Marginal Donor Hearts on Short-term and Long-Term Outcomes

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Objective: Heart transplantation is the gold standard therapy for end-stage heart failure. However, the number of patients with end-stage heart failure has been more rapidly increasing than that of the supply of donor hearts. In Japan, the donor heart utilization and the proportion of marginal donor heart is higher than those in other countries. We therefore evaluated the clinical impacts of the utilization of marginal donor hearts on short-term and long-term outcomes.
Methods: One-hundred eight adult patients (≥18 years old) undergoing heart transplantation at Osaka University between 2007 and 2022 were identified. The marginal donors were defined as having more than 2 of the following: age ≥ 50 years, ejection fraction less than 55%, left ventricular hypertrophy (posterior wall diameter ≥14mm), the presence of cardiopulmonary arrest, ischemic time more than 240 min, the presence of valve disease, donor-to-recipient body mass index ratio less than 0.8, or donor high-dose inotrope use. Kaplan–Meier analysis was utilized to model survival and multivariate logistic regression analysis was performed to estimate the predictors for moderate or severe primary graft dysfunction.
Results: In our institution, 39% of donor hearts included more than 2 marginal factors. The most frequent marginal factor was the presence of cardiopulmonary arrest. The 30-day mortality was 0.9% and the 5-years overall survival rate was 92.5% in an entire cohort. The 10-year overall survival rate in patients with marginal donor heart transplantation was equivalent to those in patients with normal criteria donor heart transplantation (92 vs. 92%, p=0.71), whereas the patients with donor hearts having more than 3 marginal factors showed worse 5-year overall survival rates than those with normal criteria donor heart transplantation (69 vs. 92%, p=0.003). In multivariate logistic regression analysis, the donor hearts having more than 3 marginal factors was significant predictors for the predictors for moderate or severe primary graft dysfunction (odds ratio 7.2 [1.9-27.1], p=0.004).
Conclusion: The clinical outcomes of patients undergoing heart transplantation was satisfactory in our institution. The short-term and long-term outcomes of patients undergoing heart transplantation with marginal donor heart below 2 marginal factors were reasonable. The optimal utilization of marginal donor hearts might contribute to improve the donor shortage.

Day 2 November 26 (Sat), 2022 Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

MO43-1 Antibody Acquisition After SARS-CoV-2 Vaccination in Japanese Kidney Transplant Patients

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Kidney transplant (KT) patients are known to have low antibody acquisition after SARS-CoV-2 vaccination. It is important to verify its efficacy in Japanese kidney transplant patients. We estimated anti-SARS-CoV-2 antibody using ELISA in 107 KT patients and 57 controls. Blood samples were obtained before and 1, 3, 6 months after the second vaccines. Additional measurement was performed 1 month after third vaccines. One month after second vaccines, antibody acquisition in control and KT groups were 100% and 37%. Antibody level of KT group was significantly lower than that in control group (median 4.6 A.U. vs. 106.4 A.U., $p<0.001$). Antibody positive rate in KT group was 54.0%, and antibody levels were 72.5 A.U. after third vaccines. Antibody acquisition in Japanese KT patients was extremely low, but third vaccines improve serostatus in KT patients.

MO43-2 COVID-19 Infection in Post LDLT Patients and The Use of Everolimus

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Background: Japanese Society for Transplantation has released a guideline for COVID–19 in living donor liver transplant recipients, which includes #1. The basic immunosuppressant (IS) regimen should not be altered to avoid organ rejection. #2. Calcineurin inhibitor and steroid dose should be lowered to escape severe infection. #3. Mycophenolate mofetil (MMF) should be tapered or utilized for a minimal period. #4. In case of considering the antimetabolites, they should be switched to Everolimus (EVL) one month after transplantation. Even with these principles, the use of IS is diverse depending on the patient's status and is challenging to stylize.
Object: To report the status of COVID–19 infection in post living–donor liver transplant (LDLT) recipients, and the current IS regimen, including EVL.
Patients and Methods: Among 767 patients who underwent LDLT in our institution, 583 living patients were investigated for COVID–19 infection status. Patients who had been infected were further analyzed for the IS regimen before and after the infection.
Results: Eighteen patients out of 583 (3.1%) confirmed COVID–19 infection. The mean age of infection was 62.6 years old, and 14 patients (78%) were hospitalized for treatment. The IS regimens before COVID–19 were sundry. Seven out of eleven patients with MMF were tapered, and EVL was initiated in three patients. The median duration of the symptom was 3.5 days, and 17 out of 18 patients recovered uneventfully.
Conclusion: The status of COVID–19 infection in LDLT recipients was reported, and the utility of IS guidelines in COVID–19 infection was analyzed.

MO43-3 Clinical Outcome of COVID-19 in Pediatric Liver Transplantation Recipients

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Background: Although patients with immunosuppression are reportedly at a high risk of severe and prolonged coronavirus disease-2019 (COVID-19), there is insufficient evidence of the clinical significance of COVID-19 and the optimal management after pediatric liver transplantation (LT).
Materials and Methods: We investigated medical records of 654 pediatric patients who underwent LT at our hospital between November 2005 and June 2022 to examine the incidence, clinical course, treatment, and management of immunosuppressive medications of COVID-19 infection after LT.
Result: 59 patients (9.0%) were diagnosed with COVID-19 with positive PCR results. The median age of COVID-19 development was 8.8 years (range: 9 months-24.8 years). Only four (6.7%) were vaccinated before infection. 57 (98.3%) were categorized as asymptomatic/mild infection. Eight received COVID-19 monoclonal antibodies, and three received antivirals as the treatment. The calcineurin inhibitor was discontinued in 36 while febrile. Mycophenolate mofetil was reduced by half in eight and held off in one. One developed acute cellular rejection (ACR) 14 days after COVID-19 diagnosis, yet, he was successfully treated by high-dose steroid therapy. The median duration of persistently positive COVID-19 PCR results was 40 days (range: 21 to 171 days).
Conclusion: COVID-19 infection did not result in serious clinical outcomes among the pediatric LT recipients. We should pursue safe management (e.g., to avoid ACR) by not over-reducing immunosuppressive medications even if the patients develop COVID-19.

MO43-4 Adjustment of Immunosuppressants to Facilitate AntiCovid19 Antibody Production After mRNA Vaccination in Liver Transplant Recipients

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Background & aims. Liver transplant recipients are immunocompromised with low immunogenicity to produce enough antibodies in anti-CoV-19 mRNA vaccination. Whether immunosuppressants should be adjusted during vaccination is in debate.
Methods. A total of 183 liver transplant recipients receiving 2 doses of Moderna mRNA-1273 vaccine were enrolled. The patients were informed to temporarily suspend mycophenolate mofetil (MMF) or everolimus (EVR) for 2 weeks during both the 1 and 2nd vaccination. For analysis, the patients were grouped into tacrolimus monotherapy (MT, n=41) and dual therapy with non-adjustment (NA, n=23), single suspension (SS, n=19), and double suspension (DS, n=100) of MMF/EVR in 2 doses of mRNA vaccine. Anti-live-SARS-CoV-2 spike neutralizing antibody levels were measured at 1-2 months after the 2nd vaccination.
Results. 155 (84.7%) patients had humoral response to vaccines in this study. The humoral response rates were 60.9%, 89.5%, 91.0% and 80.5% in NA, SS, DS, and MT group patients, respectively ($p = 0.003$). The median (interquartile) antibody value was 279.3 (50.61-465.04) IU/mL in DS group patients, which was higher than 82.93 (22.63- 229.37) IU/mL in SS group ($p = 0.029$) and 25.09 (9.62-455.27) IU/mL in NA group ($p = 0.004$). Multivariate analysis showed that favorable factors for humoral response were temporary suspension of MMF/EVR and monotherapy, and unfavorable factors were deceased donor liver transplantation, WBC count < 4000/uL, lymphocyte < 20%, and tacrolimus trough level ≥ 6.8ng/mL.
Conclusions. Long-term usage of immunosuppressants results in low immunogenicity in liver transplant recipients and causes low humoral response to anti-viral vaccination. 2-week suspension of anti-metabolite immunosuppressants can create a window to facilitate antibody production.

MO43-5 Antibody Response After SARS-CoV-2 mRNA Vaccines in Previously Infected Kidney Transplant Recipients

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Background
Kidney transplant recipients (KTRs) are vulnerable to COVID-19 and may be less responsive to mRNA vaccines, however, the post-vaccination antibody kinetics in previously infected and uninfected KTRs are not yet well understood.
Methods
In this observational cohort study, we monthly evaluated anti-S1 IgG and neutralizing antibody against SARS-CoV-2 before and up to 9 months after the two vaccines (mRNA-BNT162b2 or mRNA-1273) among previously infected KTRs, uninfected KTRs and healthy uninfected controls.
Results
Eleven previously infected KTRs, 13 uninfected KTRs and 11 age-matched healthy uninfected controls were enrolled and 9, 8, and 4 had received third vaccination. In previously infected KTRs, the antibody retention rate before vaccine was 100% for anti-S1 IgG and 91% for neutralizing antibody; the median levels of anti-S1 IgG and neutralizing antibody increased significantly and plateauing in the one month after second vaccination. However, there was no significant increase in both median levels of anti-S1 IgG and neutralizing antibody following third vaccination. During the entire observation period, the median levels of anti-S1 IgG and neutralizing antibody in previously infected KTRs was partially higher or comparable to healthy controls. On the other hand, the antibody retention rate of uninfected KTRs was 36% for anti-S1 IgG and 9% for neutralizing antibody after the second vaccination, and 67% for anti-S1 IgG and 56% for neutralizing antibody after the third vaccination. Antibody responses in uninfected KTRs were weaker than in previously infected KTRs and healthy controls throughout the entire period.
Conclusion
In previously infected KTRs, sufficient antibody response was observed after two vaccinations, while in uninfected KTRs, even three vaccinations often do not induce sufficient antibody response.

MO43-6 The Outcome of Heart Transplant Recipients After Three Doses of Covid-19 Vaccine

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Background: Organ transplant recipients have diminished humoral immune responses to COVID–19 vaccination and higher rates of COVID–19 breakthrough infection than the general population.In this study, we focused on the serologic assessment around three doses of vaccine in Heart transplantation(HTx) recipients because the data in this population were scanty. **Methods:** In this prospective study, we analyzed the humoral immune response to three doses of COVID–19 vaccination. Anti-spike IgG (S–IgG) antibody was determined at a specified time point, which is 30 days after each dose of vaccine, and a S-IgG value of 0.8 U/ml or higher was considered positive (Roche Diagnostics). **Results:** We report the S-IgG antibody response in 27 HTx recipients (age:51±13 years;82% were men) in National Taiwan University hospital.The time between HTx and the initiation of vaccination was 115±69 months. The third dose of vaccine included: 67% of the patients received the mRNA–1273 vaccine, 30% received the BNT162b2 vaccine and 4% received the MVC–COV1901 vaccine. We found that only 37% recipients had S–IgG antibody after the first dose of vaccination. But antibodies could be detected in more than 80% recipients after the second or the third doses. During the follow–up period,four patients were reported to have COVID–19 infection even after three doses of vaccine but their symptoms were mild. **Conclusion:** Our data demonstared that S–IgG antibody response would be enhanced following a third dose of the COVID–19 vaccine in HTx recipients.Future studies to define protective effect of COVID–19 vaccination are needed.

MO43-7 Outcomes of Kidney Transplantation Recipients with SARS-CoV-2 Infection: A Single-Center Experience

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A global coronavirus disease 2019 (COVID-19) pandemic has been caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection. With respect to kidney transplantation (KTx) management, the COVID-19 pandemic presents a very serious problem for the treatment of immunosuppressed recipients.

In this study, we report the outcomes of KTx recipients infected with SARS-CoV-2 at Tokyo Women's Medicai University in Tokyo, Japan.

We treated a total of 180 patients infected with SARS-CoV-2 undergoing KTx who regularly visited Tokyo Women's Medical University Hospital, Tokyo, Japan between March 2020 and July 2022. Among them, eight recipients suffered serious outcomes, including mechanical ventilation or death, or both.

In recent phases, almost all patients have received second doses of vaccination. The treatment for infection is gradually changing and being established in tandem with the development of the COVID-19 pandemic.

We observed no significant deterioration of allograft function after infection. The incidence of rejection, including the occurrence of de novo human leukocyte antigen antibodies after infection, is currently under investigation.

In conclusion, the incidence of KTx recipients infected with SARS-CoV-2 is increasing in tandem with increases in the number of COVID-19 cases.

MO44-1 Living-Donor Liver Transplantation for Primary Biliary Cholangitis: A Single-Institution Experience Over 10 Years

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Background: Although for primary biliary cholangitis (PBC) is considered a good indication for living donor liver transplantation (LDLT), the postoperative results are not well known.
Methods: At Jikei University Hospital, 14 patients with PBC underwent LDLT from February 2007 to June 2022. Their clinical records were retrospectively analyzed.
Results: Median age of 53 years, female in 12, right graft in 5 and three ABO-incompatible transplants. Living donors were children in 6 cases, partners in 4 cases, and siblings in 4 cases. Preoperative Model for End-Stage Liver Disease (MELD) scores ranged from 4-20 (median 17). Graft-to-recipient weight ratio ranged from 0.63-1.22 (median 0.84). Median operative time of donors and recipients were 465.5 and 731.5 minutes, respectively. Median operative blood loss of donors and recipients were 200 and 1,980 ml, respectively. Median postoperative hospital stay of donors and recipients were 10 and 34 days, respectively. All recipients made satisfactory recovery, and remain well with a median follow-up of 4.1-year. Three patients received liver biopsy after LDLT due to acute cellular rejection without histological findings of PBC recurrence.
Conclusions: LDLT provides a satisfactory long-term survival for patients with PBC.

MO44-2 The Factors of Predicting Over-Time Weight Increase After Liver Transplantation

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Background The indication of liver transplantation has shifted to nonalcoholic steatohepatitis (NASH) which is associated with lifestyle. Weight control after transplantation is an important issue, but few reports have examined this issue in detail.
Methods Among the cases performed from 2015 to 2019, 29 patients were included.
Results Median age, model for end-stage liver disease (MELD) score, and preoperative body mass index (BMI) were 57 years, 25 points, and 23.7. Although the weights at discharge were lower than preoperative weight in all except one case, more cases gained weight at 1 (55.1%), 6 (72.4%), and 12 months (82.7%) after discharge. The factors contributing to weight gain within 1 year were age $\leq$ 50 and BMI $\leq$ 25 ($P < 0.05$). The weight change during the 3-year postoperative period was represented by an approximate straight line, and the patients were classified into two groups, according to the positive (n = 18) and negative (n = 11) slope. Although there were no significant differences in MELD or albumin-bilirubin (ALBI) score, history of NASH, preoperative serum albumin or total cholesterol level, intraoperative ascites volume, and length of intensive care unit stay, patients with BMI $\leq$ 23 contributed to over-time weight gain in univariate and multivariate analyses ($P<0.05$).
Conclusion We revealed that almost all transplant recipients lost weight at discharge, but increased thereafter over time. Lower preoperative BMI was identified as a risk factor for weight gain, and accordingly patient education to control body weight is important even with less BMI.

MO44-3 Mitral and Aortic Valve Calcifications and Long-Term Survival After Liver Transplantation

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OBJECTIVE
To examine the association of mitral and aortic valve calcifications with long-term all-cause mortality and identify relevant risk factors in patients underwent liver transplantation (LT).
METHODS
We retrospectively analyzed 4148 consecutive LT patients from Asan LT Registry between 2008 and 2019, who had undergone routine pretransplant echocardiographic evaluation. Of these 154 (3.7%) had both valves affected; 137 (3.3%) with mitral valve and 17 (0.4%) with aortic valve. During a mean follow-up of 5.1 years (range, 0.1-12.1 years) after LT, 642 patients (15.5%) died. Patients with both valve calcifications had lower cumulative overall survival rates of 66.0% vs 81.6% at 10 years compared to those without (log-rank P<0.001, adjusted hazard ratio 1.47 [95% confidence interval;1.04 - 2.07]). After adjusting liver disease severity of model for end-liver disease score, both valve calcifications were significantly linked to risk factors of older age>65 years, hyperuricemia, hypertension, coronary artery disease and diabetes.
CONCLUSIONS
Our results indicate that patients with mitral and aortic valve calcifications are independently associated with long-term all-cause mortality in patients underwent LT.

MO44-4 Effect of Abdominal Aortic Calcification on Postoperative Renal Function in Liver Transplantation

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Background: In this study, we studied abdominal aortic calcification (AAC), a potential indicator of systemic atherosclerosis, and evaluated the relationship between preoperative AAC and postoperative chronic kidney disease (CKD), since the latter might be a long-term complication post liver transplantation (LT).
Methods: Among the 184 LTs performed between 2008 and 2021, 110 LTs with normal renal function (eGFR≥60mL/min/1.73 m2) before surgery were included. These were divided into high AAC(>100mm3) and low AAC groups(≤100 mm3) which consisted of 51 and 59 patients, respectively. Using the Agatston method, the AAC volume was automatically calculated for calcifications located in the abdominal aorta.
Results: The high AAC group was older, consisted of more men, and with lower preoperative creatinine and eGFR levels. There was no significant difference in the onset of postoperative CKD between the two groups; however, the cumulative postoperative CKD incidence was significantly higher in the high AAC group. Multivariate analysis of predictors of postoperative CKD using the Cox proportional hazards model showed significant differences in preoperative AAC>100 mm3, recipient age≥50 years, and preoperative creatinine>0.6 mg/dl.
Conclusion: To conclude, despite a normal preoperative renal function in liver transplant recipients, the development of postoperative CKD should be monitored in such patients. with age≥50 years, preoperative creatine>0.6 mg/dl, and preoperative AAC>100 mm3.Thus, the present study suggests that preoperative AAC may influence postoperative renal dysfunction.

MO44-5 Renal Dysfunction After Living-Donor Liver Transplantation in Tohoku University

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Background: Renal dysfunction after liver transplantation greatly affects long-term outcomes after transplantation. The purpose of this study was to investigate the risk of renal injury after living-donor liver transplantation.
Methods: From 2003 to 2021, we investigated 88 patients aged 18 years or older who underwent living-donor liver transplantation at our hospital (excluding those who died within 1 year after transplantation). The study was divided into the following two groups: eGFR<60 ml/min/1.73m2 at 3 years after surgery (poor renal function group, 20 cases), eGFR>>60 group (good renal function group, 45 cases).
Results: The survival rate was significantly lower in the poor direct delivery group than in the good renal function group (p=0.0205). In the group with poor renal function, the preoperative age was older (52.8±2.7 vs 39.9±1.8, p=0.0002), and the preoperative serum albumin level (g/dl) (2.6±0.2g/dl vs 3.0±0.1g/dl, p=0.0206), preoperative Hb value (g/dl) (9.1±0.5 vs 10.9± 0.3, p=0.0029), preoperative GFR value (ml/min/1.73m2) (69.5±10.8 vs 118.1±7.2, p =0.0004), and bleeding during surgery was high (ml) (28753±2982 vs 12592±2655, p=0.0013).
Conclusion: Patients with decreased renal function, anemia, or hypoalbuminemia before living-donor liver transplantation, or with a large amount of intraoperative bleeding are at high risk of worsening renal function after surgery, and careful monitoring of the course is necessary.

MO44-6 Nodular Regenerative Hyperplasia Presenting Non-Cirrhotic Portal Hypertension After Liver Transplantation: A Case Report

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We report a case of nodular regenerative hyperplasia (NRH) that developed after more than 20 years after living-donor liver transplantation (LDLT) and was accompanied by non-cirrhotic portal hypertension. A 41-year-old male underwent LDLT using the left lateral section graft from his mother at the age of 14 for Progressive Familial Intrahepatic Cholestasis (PFIC). Twenty-three years after LDLT, his periodic images examination revealed a 2 cm nodule in the segment 3. Since the nodule increased in size to 3cm in the next 4 years, we performed resection of the nodule laparoscopically. Histologically, the nodule was described as a hepatocellular hyperplastic lesion with no evidence of malignancy and the background liver showed shunt formation around the portal area without fibrosis, suggesting a state of hemodynamic imbalance. From these pathological findings, we diagnosed this liver graft as NRH. The portal pressure postoperatively measured by wedged hepatic vein was 24 mmHg, indicating portal hypertension. Retrospective review of his past images revealed that the collateral circulation was not recognized at the age of 25, but has developed probably by age of 37. The present CT image and doppler ultrasound showed no obvious macroscopic abnormal blood flow in the graft. The suggested intrahepatic hemodynamic imbalance, of which definite pathogenesis remains unclear, might result in parenchymal modifications of nodular lesions and NRH. Herein, we raise the clinical importance of NRH, which can develop non-cirrhotic portal hypertension even after a long period of surgery, and review past cases in the literature.

MO45-1 Heart Transplantation After Mustard Operation for Transposition of Great Arteries -Report of a Case-

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Congenital heart disease constitutes only 3% of all the etiology for end-stage heart failure requiring heart transplantation. A patient with transposition of great arteries (TGA) is even rare as a candidate for transplantation especially in Japan. Both anatomical and technical aspects along with consideration of surgical indication have not been fully elucidated up to date. The patient was a 47-year-old male. He had undergone Mustard operation for TGA at the age of 10 months. He developed systemic right ventricular dysfunction and was considered as a candidate for heart transplantation at the age of 38 years. However, he was turned down as a candidate on the grounds that he was not catecholamine-dependent at that time. At the age of 41, he developed an event of cardiac arrest during visit to our outpatient clinic. Cardiopulmonary resuscitation was immediately performed, and his circulation resumed fortunately. After the recovery of imminent death, he applied for heart transplantation again to be listed for waiting list, which was approved eventually. He, then, had a left ventricular assist device (LVAD) implantation, and finally underwent heart transplantation 2117 days later.
Intraoperatively, his pericardial tissue was found to be almost deficient due to previous harvesting for Mustard baffle. Despite meticulous adhesiolysis around the heart, bilateral phrenic nerve developed palsy on both sides postoperatively. His small sized left atrium was found to be shifted to the right, and the main pulmonary artery was located posteriorly for obvious reason, which required slight technical modifications during donor heart implantation.
This case conveys important implications not only for the surgical technique, but also for the appropriate timing for LVAD implantation for a long-standing complex congenital heart disease.

MO45-2 Extracorporeal Membrane Oxygenation Duration as A Bridge to Transplant: Should We Differ the Status?

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Background. Venoarterial extracorporeal membrane oxygenation (ECMO) as a bridge to transplant has important role in declining waitlist mortality in heart transplant patients. Revision of heart allocation system by the United Network of Organ Sharing in 2018 has divided ECMO duration into 2 status. In Taiwan, all ECMO patients are classified into 1 status. We investigated the correlation between ECMO duration with post-transplant survival and outcomes.
Method. Data of 304 heart transplant patients in National Taiwan University Hospital from January 2009 to December 2021 were retrospectively reviewed. We divided ECMO patients into 2 groups based on ECMO duration during the waitlist period and compared the survival and outcomes between those groups.
Result. Thirty-five patients receiving ECMO support were divided into 2 groups of duration: ≤7 days and >7 days, represented Status 1 and 3 of the UNOS new allocation policy. Group 2 has higher number than group 1 (23 vs 12 patients). No difference on waitlist period, regardless the duration of support applied. Group 1 patients have longer ICU stay compared to those in group 2, which was 50 and 22 days, consecutively. No significant difference found regarding in-hospital, 1-, 5-, and 10-year survival; as well as incident of cardiac allograft vasculopathy, cellular and antibody-mediated rejection on both groups.
Conclusion. There was no difference of survival and post-transplant outcomes between the patients receiving ECMO support in 7 days cut-off duration. This finding does not support the UNOS 2018 new allocation policy changes.

MO45-3 Impact of Bilirubin Level in the Result of Ventricular Assist Device Implantation: How High Can Be to Acceptable for the Outcome?

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Introduction:
The elevated bilirubin is considered as a relative contraindication for the ventricular assist device (VAD), especially over 2.5 mg/dL. However, some critical patients with elevated bilirubin was considered unsuitable for temporary or durable VAD implantation. We tried to review our database to delineate the VAD outcome in the viewpoint of bilirubin, and tried to propose a new set point for the bilirubin.
Method:
We reviewed our mechanical support database from 20019 to 2022 July, including all VAD, either temporary or durable. The patients under double bridge strategy (ECMO to VAD) were also recruited.
Result:
Total 254 patients VAD were recruited, 80% male. The double-bridge was 68.1% (173patients), and durable VAD (HeartMate, HeartWare) was 24% (61). The duration of VAD was 119 ± 19 days, and the pre-VAD bilirubin was 4.7 ± 0.4 mg/dL. The mortality rate in the study group was 49.8%.
We focused on the bilirubin data by using Youden index to delineate the cutoff of bilirubin. We found 5 mg/dL may work a good grouping points. We categorized the whole group as group-L (bilirubin < 5, n = 180) and group-H (bilirubin >5, n = 55). The result revealed the mortality in group-L was 41.1%, and group-H was 78.2%, $p < 0.05$.
Conclusion:
The bilirubin was considered as a reflective information for the hepatic dysfunction, and the recommended cutoff 2.5 mg/dL may be reconsidered to upgrade a higher level when the acceptable survival allowed.

MO45-4 The Effect of Pre-VAD Implant Renal Function on the Post-transplant Survival in Japan

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Backgrounds) Guidelines recommend estimated glomerular filtration rate (EGFR) > 30 as a candidacy for heart transplantation (HT). In Japan, HT candidacy is judged before implantable VAD (iVAD) implantation, and the effect of pre-iVAD low EGFR on the outcomes of HT is yet to be clarified in the Japanese registry.
Methods) From November 2007 to March 2022, we conducted iVADs in 212 HT candidates. We excluded those younger than 15 and those recovered, and included 196 patients, divided by the cut-off pre-iVAD EGFR of 60, low EGFR (n=66) and preserved EGFR (n=130).
Results) Age was younger in the preserved EGFR (low vs preserved, 52 vs 38, p<0.001), and female rate was lower in the preserved (37.9% vs 22.3%, p=0.033). HT rate was similar (42.4% vs 38.5%, p=0.703) during follow-up of 3.6 years. Post-HT 5-year survival tended to be lower in the low (77.2% vs 93.9%, p=0.160). Multivariable cox analysis revealed low EGFR was related to higher hazard of post-HT death (HR 3.67, 95%CI 0.85-15.8, p=0.081).
Conclusions) Even after years of support, pre-iVAD renal function might still affect the survival after HT. More prospective studies with larger sample size are mandatory to address the current HT candidacy.

MO45-5 Functional Recovery of Failing Heart by Mechanical Unloading Associated with c-Myc Expression via aPKC–FoXOs Pathway

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Background: Functional recovery of failing heart by mechanical unloading has been associated with cell cycle reentry or glucose metabolism. Recently we have shown that atypical protein kinase C (aPKC), a cell polarity protein, is a novel regulator of c-Myc expression via forkhead box protein Os (FoXOs) phosphorylation. Here we show that functional recovery of failing heart by mechanical unloading is associated with c-Myc up-regulation in cardiomyocytes via FoXOs phosphorylation by aPKC.

Methods & Results: Immunohistological staining of heart tissue samples was performed for 28 end-stage heart failure patients who underwent left ventricular assist device (LVAD) implantation and subsequent cardiac transplantation. After LVAD support, the study cohort showed a significant improvement of left ventricular ejection fraction (pre: 18 ± 6.5%, post: 24 ± 12%, $P = 0.009$). Fluorescence intensity of c-Myc and pFoXOs in cardiomyocyte nuclei were significantly increased after LVAD (c-Myc; pre: 7.5 ± 1.9, post: 14.6 ± 2.3, $P = 0.0005$, pFoXOs; pre: 17.2 ± 2.0, post: 44.7 ± 6.3, $P < 0.0001$). In addition, aPKC, which was localized in intercalated disc (ICD) of the heart, showed change of its main localization to cytoplasm of the cardiomyocytes as its active form, together with the increased fluorescence intensity after LVAD (active aPKC in ICD; pre: 1.2 ± 0.3, post: 2.4 ± 0.6, $P = 0.032$, active aPKC in cytoplasm; pre: 2.9 ± 0.5, post: 4.1 ± 0.7, $P = 0.029$). Primary isolated murine neonatal cadiomyocytes (mNCMs) cultured in a stretch chamber showed increased fluorescence intensities for c-Myc and pFoXOs in nuclei and active aPKC in cytoplasm by de-stretch condition (c-Myc; stretch: 132 ± 13, de-stretch: 169 ± 8, $P = 0.035$, pFoXOs; stretch: 47 ± 3.5, de-stretch: 70 ± 5, $P = 0.0004$, active aPKC; stretch: 2.2 ± 0.1, de-stretch: 3.2 ± 0.2, $P = 0.016$).

Conclusions: Functional recovery of failing heart by mechanical unloading may be induced by up-regulation of c-Myc in cardiomyocytes via aPKC-FoXOs pathway caused by de-stretch condition. Our findings may lead to a novel treatment strategy targeting aPKC-FoXOs pathway for end-stage heart failure patients.

Day 2 November 26 (Sat), 2022 Mini Oral Booth C (Central, Kyoto Sangyo Kaikan Hall)

MO46-1 SARS-CoV-2 Antibody Kinetics After Second Dose of Vaccination in Solid Organ Transplant Recipients

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Low reactivity of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) antibody production after vaccination is a concern among solid organ transplant (SOT) recipients. Furthermore, the period of antibody titer peak and kinetics after the second dose is unknown. In this clinical trial, we conducted a multicenter study included kidney, liver, heart, lung, and simultaneous pancreas-kidney (SPK) recipients (a total of 640 SOT recipients; 483 kidney, 49 liver, 54 heart, 20 lung, and 34 SPK). We found the S-IgG antibody titer gradually elevated and persisted within six months after two vaccination doses. The positive rate also elevated until six months after the second dose vaccination and reached 71.3% six months after the second dose vaccination. Kidney and lung transplant recipients showed poor antibody titer elevation compared with other organ transplants.
In conclusion, the SARS-CoV-2 S-IgG antibody titer and transition among SOT recipients were different and showed slow a slower peak compared with the general population. Therefore, the timing of the third dose should be performed after the peak, approximately three to six months after the second dose is most effective.

MO46-2 Outcome and Effect of Vaccination in SARS-CoV-2 Omicron Infection in Kidney Transplant Recipients

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Background: Kidney transplant (KTx) recipients are at high risk from COVID-19, though vaccination has significant efficacy in preventing and reducing the severity of infection. Until July 22, 2022, 71.1% have received at least 3 doses COVID vaccines in general population in Taiwan, the wave in SARS-CoV-2 Omicron still leads to significant increases in hospitalization and death, however, little information is available on disease severity and vaccine efficacy in our KTx recipients.
Methods: The surge epidemic driven by the Omicron variant since May 2022, we retrieved 370 KTx recipients received at least their first dose of various COVID vaccines. Outcomes were analyzed according to predictor variables including vaccination status.
Results: SARS-CoV-2 infection was identified in 17/372 (4.6%) at least post first dose, and 8/191 (4.2%) at least 7 days beyond post second dose. The majority of patients had a mild course but 3 (17%) were hospitalized due to pneumonia. The infection probability of various COVID-19 vaccines according to their first dose vaccine 10.5% (Moderna), 20% (Pfizer-BioNTech), 40% (Oxford-AstraZeneca) and 0% (MVC-COV1901).
Conclusions: These data demonstrate lower incidence of SARS-CoV-2 infection after vaccination in KTx patients during an Omicron dominant period of the epidemic. Amongst those developing infection, severe illness was less common with prior vaccination, particularly after two vaccine doses.

MO46-3 COVID-19 in Renal Transplants; Multi-center Experience in Osaka

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Novel coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome virus (SARS-CoV-2), was first identified in Wuhan, China, in December 2019. Since that time the disease has spread globally at an alarming rate, with the World Health Organization in March 2020 declaring the outbreak a pandemic and a major threat to international public health. In Japan, the first case of COVID-19 was identified in January 2020 (https://www3.nhk.or.jp/news/special/coronavirus/data/).

Subsequently, COVID-19 has spread explosively in Japan, although not to the same extent as in other countries. The Japanese government has announced a state of emergency or semi-emergency measures and asked people to quarantine themselves, depending on the number of cases. As a result, the number of cases in Japan has repeatedly increased and decreased, and we have experienced six waves until the end of June 2022. Eventually, the number of cases and deaths in Japan through June 30, 2022, is 9.3 million and 31,281, respectively (https://www3.nhk.or.jp/news/special/coronavirus/data/). Of these, Osaka has 1,014,169 cases and 5,210 deaths, ranking second only to Tokyo in the number of infected persons and first in the number of deaths in Japan. The overall fatality rate in Osaka and Japan was 0.51% and 0.34%, respectively.

There is paucity of data regarding incidence, clinical picture, and outcome of COVID-19 among Japanese renal transplant recipients. The aim of this study is to further elucidate the vaccination and infection status among Japanese renal transplant recipients in infection-endemic areas and describe their management and outcome. In addition, we analyzed the impact of COVID-19 on renal function.

MO46-4 COVID-19 in Kidney Transplant Recipients and Vaccination After COVID-19 Infection

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Background: Although kidney transplant recipients are at increased risk for viral infections, the impact of COVID-19 infection on the outcomes of kidney transplantation remains unclear. In general, people with a known or potential COVID-19 exposure are recommended to receive vaccine to help prevent severe COVID-19 following future exposures. However, the effect and the safety of vaccination after COVID-19 infection still unknown in kidney transplant recipients. The present study aimed to investigate the clinical features of COVID-19 and the efficacy of vaccination after COVID-19 infection in kidney transplant recipients.

Methods: 29 COVID-19 infections were diagnosed in Osaka University Transplantation Group hospitals of 600 kidney transplant recipients between March 2020 and March 2022. Clinical features, management, and outcomes were analyzed. Of them, eight recipients were received the messenger RNA vaccine after COVID-19 infection and examined the antibody titers.

Results: Most common initial symptoms included fever, cough, or sore throat. 16 (55%) patients required hospitalization. Five patients required supplemental oxygen; two of them were admitted to an intensive care unit (ICU) with mechanical ventilation. Immunosuppression reduction was initiated in seven patients. Dexamethasone was administered to four patients. In addition, following treatment was administered; Molnupiravir (n=6), Favipiravir (n=5), Remdesivir (n=6), Sotrovimab (n=4), Casirivimab-Imdevimab (n=1), Baricitinib (n=1), and Tocilizumab (n=1). After a median of 13 days, all kidney transplant recipients were discharged, and renal function was exacerbated after COVID-19 infection in one of 29 patients. Eight recipients were received the messenger RNA vaccine after COVID-19 infection, and their antibody titers significantly increased one month after vaccination without any severe side effects.

Conclusions: Our cohort shows a lower mortality and hospitalization rate compared to figures available in the literature. Vaccination after COVID-19 infection is recommended for the kidney transplant recipients as well as the general population.

MO46-5 Cost Effectiveness of Kidney Transplantation in High-Immunological Risk Patients in a Japan Cohort

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Kidney transplantation is an established treatment alternative to renal replacement therapy. Compared to dialysis, low-immunological risk kidney transplantation could reduce the medical costs of end-stage renal disease. However, there are few reports on whether high-immunological risk kidney transplantation will also contribute to a reduction in the financial burden to the governmental. A total of fifteen patients who underwent crossmatch-positive and/or donor-specific antibody-positive kidney transplantation were enrolled in this study. All patients received intravenous immunoglobulin administration as desensitizing therapy. No hyper-acute antibody-mediated rejection or associated graft loss events were observed within a year following the transplantation. Furthermore, although acute antibody-mediated rejection reactions were detected in 40% of the recipients, there were no events indicating deterioration of graft function. These population tended to spend expensive fees during transplantation (medications, $1,334; injections, $13,697; operation, $11,306; total cost, $41,384); however, the cumulative cost was $52.314 and 64,112 six and 12 months later, respectively. Compared to hemodialysis (Δ$36,923 per year), the costs of high-immunological kidney transplantation would be reversed after several years. Although kidney transplantation to high-immunological risk recipients should be introduced with circumspection due to the high incidence of acute antibody-mediated rejections, our protocol could be beneficial to recipients graft outcome and to the nation economy.

MO46-6 Poor Exercise Tolerance Before Kidney Transplantation Causes Long-Term Muscle Loss

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Introduction: In recent years, the ages of kidney transplant recipients have been much higher, especially in Japan. Therefore, low physical activity and sarcopenia have been major problems for kidney transplant recipients. In this study, focusing on exercise tolerance before kidney transplantation, we investigated the relationship between exercise tolerance before kidney transplantation and muscle loss after kidney transplantation.
Material and Methods: The study population consisted of 41 patients who underwent kidney transplantation at Kansai Medical University Hospital, and were evaluated from July 2018 to June 2021.
Muscle mass, physical activity and exercise tolerance were measured and compared before transplantation, 6 months after transplantation, and 1 year after transplantation.
Results: Mean anaerobic threshold (AT) VO2 were 10.4 mL/min in the poor exercise tolerance group and 13.5 mL/min in the normal group ($p=0.009$). Mean peak VO2 were 12.6 mL/min in the poor group and 21.1 mL/min in the normal group ($p<0.001$). There was no difference in SMI before transplantation in the group with poor exercise tolerance compared with the normal group, but the SMI at 6 months and 1 year after transplantation was significantly lower.
Conclusion: It was found that if the exercise tolerance was low before the transplantation, the muscle mass decreased significantly after the transplantation, and the recovery of the muscle mass was slow. We believe that some intervention therapy is needed for these patients before and immediately after transplantation.

MO47-1 Desensitization of Donor-Specific Antibody-Positive Renal Transplant Patients: A Single Institution Experience

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INTRODUCTION AND OBJECTIVES: Donor-specific antibody (DSA)-positive renal transplantation is associated with high immunologic risk and a generally poor renal prognosis after transplantation. Plasma exchange and the administration of rituximab and immunoglobulin (IVIG) are commonly used to desensitize highly susceptible patients with DSA. We report the outcomes of DSA-positive renal transplantation at our institution.
METHODS: We retrospectively evaluated 21 patients who underwent desensitization protocols due to positive DSA between 2010 and 2021: 16 patients received plasma exchange therapy and rituximab (PE+RTX) as preoperative desensitization until 2019, and 5 patients after 2020 received PE+RTX+IVIG (1 g/kg × 4 doses). The association between desensitization protocols and graft outcome was analyzed.
RESULTS: There were no statistical differences between groups for age, sex, history of blood transfusion, pregnancy, or dialysis ($P > 0.05$ for all parameters). Antibody-related rejection was observed in 6 patients (28.6%). All 6 patients who experienced antibody-related rejection were treated with PE+RTX desensitization therapy, and no antibody-related rejection occurred in patients with IVIG. The Allograft survival rate at 5 years postoperatively was 100%.
CONCLUSIONS: Antibody-related rejection was less frequent in the PE+RTX+IVIG group.

MO47-2 Low-dose Rituximab Induction Therapy in Immunologic High-risk Renal Transplantation Provides Favorable Graft Outcomes Without Increasing Cytomegalovirus Infection: A 5-Year Follow-up

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Objectives
We previously reported that low-dose rituximab induction therapy in immunologic high-risk patients for living donor renal transplantation did not increase CMV infections when preemptive therapy was performed. We now report additional long-term outcomes.
Methods
One-hundred thirty-one recipients undergoing living-donor renal transplantation in our institution from May 2009 to September 2021 were evaluated retrospectively. Indications for preoperative rituximab (200 mg/body) were the following: 1. ABO major mismatch, 2. ABO minor mismatch, 3. donor-specific anti-human leukocyte antigen antibody (DSA)-positive, 4. Focal segmental glomerulosclerosis (FSGS).
Results
There were 93 patients in the rituximab group and 38 in the non-rituximab group. Groups differed significantly in age (median age, 47 vs 40 years, respectively; P=0.02), but not in sex (male, 68% vs 68% P=1.00), FSGS (4% vs 0%, P=1.00). Estimated glomerular filtration rate did not differ significantly between groups until 5 years after transplantation. CMV clinical symptoms (16% vs 26%, P=0.22), including fever over 38 degrees (8% vs 11%, P=0.73) and gastrointestinal symptoms (9% vs 18%, P=0.13), and the 5-year survival rates of death-censored graft loss (96% vs 93%, P=0.73) did not differ significantly between two groups.
Conclusions
As in our previous study, low-dose rituximab induction therapy was effective in immunologically high-risk recipients without increasing CMV infection without valganciclovir prophylaxis. Furthermore, the graft survival rate and renal function at 5 years after transplantation were equivalent to those in the non-rituximab group.

MO47-3 Fabry Disease Screening in High Risk Renal Disease Patients in Taiwan: A Single Center Study

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Background
Fabry disease (FD) is an X-linked inborn error of lysosomal storage disorder, which is deficiency of the lysosomal hydrolase a-galactosidase A (a-Gal A) activity due to pathogenic variants in the GLA gene. Accumulation of globotriaosylceramide (Gb3) in the multiple organs contributes to end-stage kidney disease (ESKD), heart failure (HF) and cerebrovascular accident (CVA).
Methods
We started the FD Screening Program in male patients older than 20 years on chronic dialysis, post-kidney transplantation (KTx) and Pre-End Stage Renal Disease Program (Pre-ESRD) in this hospital. The a-Gal A activity were detected by the initial dried blood spots (DBS) screen assay, followed by levels of lyso-Gb3 and sequencing of the GLA gene in screening patients with suspected FD to confirm the diagnosis.
Results
A total of 1881 patients had been FD screened, the prevalence of FD is about 0.21 % (4 in 1881) until June 2022. Interestingly, we confirmed a family cluster (two sons and their mother) with GLA IVS4+919G>A (designated GLA IVS4) with hypertrophic cardiomyopathy in Taiwan and the other with mutation c.644A>G (p.Asn215Ser) with most common later-onset variant reported in European or North American descent. Two patients were proof of cardiomyopathy by cardiac biopsy, their cardiac function were reversed after enzyme replacement therapy (ERT).
Conclusions
Fabry Disease Screening Test is not only to detect CKD with unknown etiology, but also to prevent other organ complications. Early detection of FD with ERT is crucial to reverse target organ damage.

MO47-4 An Autophagy-Associated Diagnostic Model for Antibody-Mediated Rejection in Renal Transplantation

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Background: Antibody-mediated rejection (ABMR) is emerging as a major cause of graft loss in renal transplantation. Nowadays, non-invasive diagnosis of ABMR with high accuracy is urgently needed as the early screening guide for clinical renal biopsy. Therefore, we sought to develop and validate a non-invasive diagnostic gene signature for ABMR using peripheral blood.
Methods: Two renal transplantation cohorts were collected from the GEO database as training and validation cohorts. Based on differentially expressed genes (DEGs) in ABMR compared to stable functioning (STA) samples, we sought underlying mechanisms in ABMR. Finally, we build a diagnostic model which was then evaluated and validated.
Results: Autophagy was found to be the primary biological process in ABMR and selected for further analysis. A diagnostic model, consisting of three genes associated with autophagy, was then established. In the training cohort, the noninvasive gene model possessed decent diagnostic value in distinguishing ABMR from STA samples (AUC = 0.879), while it demonstrated a higher ability (AUC = 0.917) in validation cohort. Besides, our model also showed good discernibility (AUCs = 0.895 and 0.900) when distinguishing ABMR from T-cell mediated rejection (TCMR) in training and validation cohorts.
Conclusion: We identified and validated a three-gene diagnostic model with high accuracy for ABMR state in renal transplant patients. Our study provided a feasible and convenient tool for noninvasive diagnosis of ABMR in clinical practice and highlighted the importance of autophagy in ABMR.

MO47-5 Serum Phenylacetylglutamine Is A Risk Factor for Aortic Stiffness in Kidney Transplantation Patient

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Objective: Phenylacetylglutamine (PAG) is associated with cardiovascular disease (CVD) risk factors. Aortic stiffness (AS) is associated with aging-associated vascular diseases and is also an independent risk factor of CVD. We evaluated the association between serum PAG and AS in kidney transplantation (KT) patients.
Methods: 100 KT patients were enrolled in this study. Carotid-femoral pulse wave velocity (cfPWV) was measured. Patients with cfPWV >10 m/s were defined as the AS group. Serum PAG levels were detected using liquid chromatography-tandem mass spectrometry.
Results: Thirty KT patients (30.0%) had AS and higher percentages of diabetes ($p = 0.008$), were of older age ($p = 0.022$) and had higher systolic blood pressure (SBP, $p = 0.001$), serum fasting glucose level ($p = 0.001$), and PAG levels ($p < 0.001$) compared to control group. After adjusting for factors significantly associated with AS by multivariate logistic regression analysis, serum PAG (odds ratio [OR] : 1.004, 95% CI: 1.002-1.007, $p = 0.001$), age (OR: 1.074, 95% CI: 1.011-1.140, $p = 0.021$), fasting glucose (OR: 1.015, 95% CI: 1.001-1.025, $p = 0.033$), and SBP (OR: 1.034, 95% CI: 1.002-1.067, $p = 0.037$) were independently associated with AS in KT patients. After multivariable forward stepwise linear regression analysis also noted that serum logarithmically transformed PAG level (log-PAG, $\beta = 0.215$, adjusted R^2 change = 0.040, $p = 0.016$) was positively associated with cfPWV values in KT patients.
Conclusions: Serum PAG level is positively associated with cfPWV values and is a biomarker for AS in KT patients.

MO47-6 Incidence, Risk Factors and Clinical Outcomes of Neutropenia After Kidney Transplantation

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Purpose: Post transplant neutropenia (PTN) is relatively common in kidney transplant recipients and is associated with an increased risk of graft loss. Modern immunosuppressants and antivirals frequently cause neutropenia. The purpose of this study is to investigate the incidence, risk factors and clinical outcomes of PTN in kidney transplant recipients.
Methods: 289 recipients underwent kidney transplantation between January 2010 and December 2021 in our institution. As a standard protocol, all patients received immunosuppressive therapy including calcineurin inhibitor, methylprednisolone, and mycophenolate mofetil and/or everolimus. Patients with ABO blood type incompatibility (ABOi) and HLA incompatibility (HLAi) were given rituximab. Recipients with Cytomegalovirus (CMV) viremia and disease were treated preemptively with antivirals.
Results: PTN was experienced by 108/289 patients (37.4%) after kidney transplantation. Of 108 patients with PTN, 37 (34.2%) received granulocyte colony-stimulating factor. Risk factors associated with PTN included ABOi, HLAi, Rituximab and CMV high risk (donor-seropositive/recipient-seronegative) in univariate analysis. HLAi ($p<0.01$) and CMV high risk ($p<0.01$) were independent risk factor for PTN. Recipients with PTN experienced more bacterial infection (38.9% vs. 25.4%, $p=0.02$), biopsy-proven acute rejection (21.3% vs. 6.6%, $p<0.01$) and CMV viremia (81% vs. 45%, $p<0.01$). Overall 1- and 5-year graft survival rates were 99.0%, 90.9% in PTN+ and 99.4%, 97.1% in PTN-, respectively ($p=0.04$).
Conclusion: PTN is relatively high probability and is associated with an increased risk of graft loss. Strong immunosuppressive therapy and viral infection contribute to the development of PTN.

Day 2 November 26 (Sat), 2022 Mini Oral Booth B (Central, Kyoto Sangyo Kaikan Hall)

MO48-1 Affectors Related to Worse Kidney Allograft Survival in Chronic Active Antibody-Mediated Rejection

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Purpose: This study aims to evaluate the clinicopathological factors affecting worse kidney allograft outcomes in pathological chronic active antibody-mediated rejection (pCAABMR) diagnosed by Banff 2013 criteria.
Methods: A total of 422 biopsies from 344 kidney transplant recipients were performed in our institute between January 2016 and April 2018. Among them, 33 biopsies (7.8%) from 29 recipients were diagnosed as pCAABMR. We retrospectively investigated pathological and clinical features of pCAABMR recipients and their graft outcomes.
Results: The presence of DSA was evaluated in 21 recipients, and DSA was detected in 15 recipients (71%). Among 29 recipients, we could follow allograft survivals in 26 recipients. MVI scores (g+ptc, and C4d) were not significant predictors for graft survival. In contrast, cg, cv, ct, ci, and proteinuria were significant predictors by Log-rank analyses (*$p = 0.013, 0.005, 0.017, 0.017,$ and 0.009, respectively*). When each variable was adjusted for eGFR at the time of biopsies, only proteinuria and cv score were significant predictors (hazard ratio [95% confidence interval], p-value: 8.60 [1.37 - 5.91], *$p = 0.028$; 10.67 [1.34 - 217.92], $p = 0.025$; respectively).*
Conclusion: In recipients with pCAAMR in Banff 2013, chronic tissue injury scores, not MVI scores, may be related to kidney function at the biopsy. Proteinuria and cv status may be important for the prediction of graft survival.

MO48-2 The Effect of Steroid Pulse Therapy for the Reduction of Acute Rejection Episode in Subclinical Borderline Changes: An Open-Label, Randomized Clinical Trial

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Background
Subclinical rejection (SCR) has been correlated with subsequent chronic allograft nephropathy and allograft dysfunction. SCR is known to be effective in steroid pulse therapy in other studies. However, there is controversy about borderline change. The purpose of this study is to investigate the effect of early steroid pulse therapy for the reduction of acute rejection episode during the first year after renal transplantation in the patients who will show subclinical borderline changes at 2-week protocol biopsy.
Methods
This study was a randomized clinical study in which 17 recipients with stable kidney graft function and borderline changes in the protocol biopsy at 2 weeks were enrolled. The recipients were divided into two groups depending on steroid pulse therapy. We investigated changes in Banff scores through protocol biopsy after 1 year.
Results
Recipients who underwent ACR and borderline change within 1 year were 4 patients (50%) in the No SPT group and 6 patients (66.7%) in the SPT group, and there was no difference between the two groups (p=0.637). There was no difference between the two groups in the change of the Banff score between the 2 weeks and 1 year protocol biopsy. And there was no difference in the rates of opportunistic infections including cytomegalovirus (p=0.471) and BK polyomavirus (p=0.637). Also, there was no difference between the two groups with respect to creatinine and eGFR at 2 weeks to 3 years after surgery.
Conclusion
There was no difference in Banff score change, infection rate, and graft function between the two groups. In conclusion, we suggest that steroid pulse therapy is not essential in subclinical borderline change.

MO48-3 The Protective Role of Protocol Biopsy for Allograft Kidney Maintenance in Kidney Transplantation

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Many studies have reported that protocol biopsy (PB) may help preserve kidney function in kidney transplant(KT) recipients. Early detection of subclinical rejection may reduce the incidence of chronic antibody-mediated rejection and graft failure. However, no consensus has been reached regarding PB effectiveness, timing, and policy. This study aimed to evaluate the protective role of routine PB performed 2 weeks and 1 year after KT. We reviewed 854 KT recipients at the Samsung Medical Center between July 2007 and August 2017, with PBs planned at 2 weeks and 1 year after transplantation. We compared the trends in graft function, chronic kidney disease progression, new-onset chronic kidney disease, infection, and patient and graft survival between the 504 patients who underwent PB and 350 who did not undergo PB. The PB group was again divided into two groups: the single PB group (n = 207) and the double PB group (n = 297). The PB group was significantly different from the no-PB group in terms of the trends in graft function (estimated glomerular filtration rate). The Kaplan-Meier curve showed that PB did not significantly improve graft survival or overall patient survival. However, in the multivariate Cox analysis, the double PB group had advantages in graft survival, chronic kidney disease progression, and new-onset chronic kidney disease. PB can play a protective role in the maintenance of kidney grafts in KT recipients.

MO48-4 Follow-Up Outcomes of Transplanted Kidneys with Borderline Changes

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In the Banff classification for renal transplant pathology, the category borderline changes are defined as insufficient changes for a diagnosis of acute rejection. The category of borderline changes was expanded in 2005 to include lesions with minimal (<10%) inflammation, namely "i0" borderline infiltration. The relationship between borderline changes and acute renal rejection remains unclear. There is controversy about the appropriate clinical management for patients with these changes. This single-center retrospective observational study evaluated 78 renal transplant recipients whose biopsies indicated borderline changes. We assessed the effects of corticosteroid treatment on allograft function, allograft survival, and patient survival. No significant difference was observed in renal function assessed 4 weeks and 6 months after renal biopsy between the treated and untreated groups. Follow-up biopsy was performed in 75% of the cases. Compared with the untreated and treated groups, 51.2% and 14.3%, respectively, had the disappearance of the borderline changes, 37.2% and 71.4% had continuous borderline changes, and 11.6% and 14.3%, respectively, had progressed to acute rejection or or renal deterioration. In the case of "i0" borderline change, the difference in the rejection free survival rate was not detected. These results suggest that the natural history of i0 borderline changes in patients with relatively low immunological risk is not affected by steroid treatment.

MO48-5 A Case of De Novo Subclinical Full-House Pattern Deposition in 1 Year Kidney Allograft Biopsy

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Case: A 5-year-old boy with end-stage kidney disease due to CAKUT underwent kidney transplantation from his grandmother. At 1 hour implantation biopsy showed IgA(2+), C3(2+) deposition in mesangial areas. The donor had no urinalysis abnormalities. A protocol biopsy at 4 months exhibited IgA(1+), C3(±) deposition. Trace electron dense deposits (EDD) were seen in paramesangial areas. A protocol biopsy at 1 year demonstrated IgG(1+), IgA(±), IgM(1+), C3(1+), C1q(1+), i.e., full-house pattern deposition. Light microscopy showed no proliferative changes. Paramesangial and subendothelial EDD were observed in electron microscopy. IgG1 and IgG3 were dominant in IgG subclass. Urianalysis abnormalities or impairment of kidney function were not observed. Clinical or serological evidence suggesting SLE was not obtained. All of the biopsies had no evidence of rejection, and donor specific antibody was not detected.
Discussion: IgA deposition in the implantation biopsy was considered as donor derived, and the intensity decreased in the next biopsy. At 1 year biopsy, full-house deposition was developed, and EDD was more massive and evident. Only a few literatures reported full house pattern deposition in kidney allograft. We considered C1q nephropathy positive for C1q, IgG and IgM was newly developed and weak IgA deposition remained. This case was distinctive in the point of subclinical course and almost normal pathology in light microscopy.

MO48-6 Water Intake, Baseline Biopsy and Kidney Function After Living Donor Kidney Transplantation

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Background: Increased water intake is generally recommended in the CKD and kidney transplant populations, but the optimal amount may vary according to the stage. We hypothesized that the effect of water intake might be affected by the quality of the allograft.
Methods: We performed retrospective analysis of 167 adult living-donor kidney transplants (from April 2011 to May 2020) whose baseline biopsies were available. To examine the effect of self-reported daily water intake on ΔeGFR / year according to the baseline biopsy findings, chronic change group (IFTA or ct+ci≥1 Λ ah≥1, n=38) was compared with control group (n=129).
Results: The mean observation period was 5.6±2.5 years, and the distribution of water intake was as follows: ~1000ml (n=4), 1000~1500ml (n=23), 1500~2000ml (n=64), 2000~2500ml (n=57), 2500~3000ml (n=16) and 3000ml~ (n=3). Donor age was significantly higher in the chronic change group. In the control group, ΔeGFR / year tended to increase depending on the amount of water intake. However, in the chronic change group, increased water intake significantly decreased ΔeGFR/year (1000~1500ml: +1.95 mL/min/1.73m^2 and >2000ml: -1.92 mL/min/1.73m^2, p=0.014). No associations were found between water intake and recipient factors including non-adherence, urinary protein, urinary NaCl excretion, rejection, de novo DSA, and graft loss.
Conclusions: Increased water intake might have negative impact on kidney function in the recipient with chronic change at baseline biopsy.

MO49-1 Clinical Application of Genetic Testing in Pediatric Kidney Transplant Recipients with FSGS

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Background
Establishing a molecular genetic diagnosis of focal segmental glomerulosclerosis (FSGS) is useful for predicting post-transplant recurrence. Monogenic causes are reportedly present in approximately 20-30% of patients with FSGS. However, the characteristics of patients who are likely to have a monogenic cause remain to be determined.
Methods
Pediatric kidney transplant recipients with FSGS in our center were divided into three groups: familial/syndromic, presumed primary, and undetermined FSGS. Patients who met all of the following criteria were categorized as having presumed primary FSGS: (i) nephrotic syndrome, (ii) complete or partial remission with initial steroid therapy and/or additional immunosuppressive therapies, and (iii) diffuse foot process effacement on electron microscopy in the native kidney biopsy. All patients underwent genetic testing using next-generation sequencing.
Results
Twenty-four patients from 23 families were analyzed in this study. Pathogenic or likely pathogenic variants in FSGS-related genes were identified in four of four (100%) families, zero of eight (0%) families, and 10 of 11 (91%) families with familial/syndromic, presumed primary, and undetermined FSGS, respectively. Post-transplant recurrence only occurred in patients with presumed primary FSGS.
Conclusions
Our systematic approach based on precise clinicopathological findings might be useful to differentiate pediatric kidney transplant recipients with FSGS who are likely to have a monogenic cause from patients who are not, and to predict post-transplant recurrence.

MO49-2 Prescribing Prevalence of Medications with Potential Genotype-Guided Dosing in Kidney Transplant Recipients

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Genetic variants are associated with pharmacokinetic and pharmacodynamic changes leading to the variability of drug effect and safety profile in clinical response.

The role of genetic variation in transplant recipients is typically less studied. In 2019, Academia Sinica initiate a large-scale clinical genetic research project, Taiwan Precision Medicine Initiative, also call TPMI, which including 13 medical center-level hospitals in Taiwan, to the development of precision medicine for clinical application.

Our objective was to check potential risk for genotype-guided prescribing in kidney transplant recipients by examining the prevalence of prescriptions for each CPIC level A drug and calculating the impact of each actionable prescribing decisions.

We leveraged the TPMI to conduct a retrospective, large analysis in our hospital for CPIC level A drugs among kidney transplant recipients. Overall, patients had a mean age of 42.1 years and were predominantly male 53.6%. The CYP3A5*3/*3 genotype was observed in 52.0% recipient cases, CYP3A5*1/*3 in 37.6% cases and CYP3A5*1/*1 in 10.4% case. Each recipient had at least one actionable pharmacogenomic diplotype/phenotype.

Pharmacogenomic variants are common in transplant recipients. As our research progresses, the impact of pharmacogenomics on kidney transplant patients will become more clear.

MO49-3 Medication for Kidney Transplant Recipients with Familial Mediterranean Fever: A Case Series

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Background: Familial Mediterranean fever (FMF) is an inherited disease that causes recurrent fevers; it is rare in the Asian population. Colchicine is the first-line treatment for FMF; however, it may be difficult to administer to kidney transplant (KT) patients because of reduced renal function and its interaction with cyclosporine. We treated three KT patients with FMF. Case 1: A 61-year-old man received a KT at age 30 years. When planning his second KT, we noticed the presence of periodic fevers. We suspected FMF and identified the mutation (exon 2, E202Q/normal hetero). He was started on colchicine and then underwent the KT. When his colchicine dose was increased due to fever, he developed diarrhea and bone marrow suppression; therefore, colchicine was discontinued. Nine years after the transplant, his sCr is 0.8 mg/dl. Case 2: A 59-year-old man had received a KT at age 23 years had been suffering from recurrent fevers and recently developed severe diarrhea later diagnosed as intestinal amyloidosis. The etiology of the kidney disease was unknown, but FMF was suspected based on these findings. We identified the mutations (exon 2, L110P/normal hetero and E148Q/normal hetero). Case 3: A 67-year-old woman was admitted for a KT. She developed fever and joint pain, and the KT was postponed. The mutations (exon 2, E148Q/normal hetero and exon3, F127C/normal hetero) were identified. Based on our experience, we planned to use an anti-IL-1β antibody for a perioperative stress-induced FMF attack. Conclusion: Anti-IL-1β antibodies appeared to be an option in KT patients with FMF.

MO49-4 Association of ACTN3 Polymorphism with Sarcopenia in Kidney Transplant Recipients

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<Background> Sarcopenia is defined as loss of skeletal muscle mass and function associated with increased mortality. Some genetic polymorphisms are known to be risk factors used to assess for the incidence of sarcopenia in general population, but few studies have mentioned the association between the genetic polymorphisms and sarcopenia in patients after Kidney transplantation (KTx). To this end, we examined single nucleotide polymorphisms (SNPs) in the genes involved in sarcopenia after KTx.
<Method> Sixty-five patients who underwent KTx participated in this study. We utilized psoas mass index (PMI, the cross-sectional area of bilateral psoas muscle2/height2) as a surrogate marker for assessing the extent of sarcopenia. We determined PMI before KTx and 1 year after KTx and identified 6 SNPs in 6 genes known to be associated with sarcopenia in the general population. Finally, the link between the changes in PMI 1 year after KTx and each SNP was examined.
<Results> The average PMI before KTx and at 1 year after KTx was 7.6±2.2 and 7.3±2.1, respectively. PMI decreased in 43 (66.2%) patients. The ACTN3 rs1815739 genotype showed an association with changes in PMI, that is, the change of PMI in CT+TT genotypes was significantly lower than that in the CC genotype (-5.7±10.5 vs 1.9±9.3, 95% CI, 1.19–14.0 ;P=0.02). Moreover, T allele frequency was significantly higher in the group with PMI decrease than that with PMI increase (66.3% vs 45.5%; OR, 0.42; 95% CI, 0.18–0.950; P=0.025).
<Conclusion> The ACTN3 rs1815739 genotype may be a genetic risk factor for sarcopenia after KTx.

MO49-5 A Gene Signature Based on Peripheral Blood for Spontaneous Immune Tolerance in Renal Transplantation

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Aim: Achieving spontaneous tolerance is the optimal goal in renal transplantation (RT). However, robust biomarkers indicating spontaneous tolerance are still lacking for RT in clinic.
Method: The peripheral blood gene expression profiles of RT recipients in state of tolerance and other conditions in four independent cohorts were collected from databases. Immune cell assessment and single-cell analysis were utilized and the peripherally induced regulatory T cell (piTreg) was identified as the key cell subtype. Then, a piTreg-related gene (piTregRG) set was identified by analyzing cell induction data. Subsequently, selected biomarkers were applied to the Elastic Net for signature construction. The diagnostic ability of the signature was validated in three independent cohorts. Additionally, time-course analyses during short-term and long-term periods after transplantation were performed to test whether the signature was affected by administration of immunosuppressant.
Result: The piTreg subset possessed the best discriminating ability in peripheral blood for tolerance. Then, a piTregRG signature was constructed in training cohort (AUC=0.830). The signature showed robust performance in three external validation cohorts (AUC=0.840, 0.826, and 0.859). The signature was also proved to be not affected by immunosuppressant after RT.
Conclusion: We developed and validated a novel piTregRG signature in peripheral blood for tolerance. The signature offered a promising potential non-invasive test for individualized immunosuppressant management and immune surveillance for RT in clinic.

MO49-6 Identification of a Six Gene Peripheral Blood Signature Diagnosing Subclinical Acute Rejection After Renal Transplantation

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Purpose: Subclinical acute rejection (subAR) can only be diagnosed by protocol biopsy and is correlated with worse graft outcomes. However, noninvasive biomarkers of subAR are lacked for kidney transplantation recipients in clinic. This study aims to utilize to construct a peripheral blood-based gene signature for subAR diagnosis after kidney transplantation.
Methods: After systematically screening databases, two cohorts of high quality with 3-month blood profiles and biopsy-proven graft status from the Gene Expression Omnibus databases were employed as training and validation cohorts. Then, the support vector machine recursive feature elimination (SVM-RFE) and the least absolute shrinkage (LASSO) logistic regression were used to identify key biomarkers for subAR. Subsequently, the stepwise logistic regression method was applied to construct a gene signature for subAR in the training cohort. Patients were divided into high-risk and low-risk groups based on the cutoff point identified by the receiver operating characteristic (ROC) curve. Then, the signature was validated in a validation cohort with fixed formula. The single-sample Gene Set Enrichment Analysis was used to estimate immune cells in the blood.
Results: Fifty key biomarkers were filtered out with the machine learning algorithms. Then, a novel six-gene signature was constructed using the least absolute shrinkage and stepwise logistic regression method. The signature had high accuracy in both training (AUC=0.923) and validation cohort (AUC=0.855). Additionally, these six genes were found to have significant and consistent relationships with blood immune cells in both cohorts, especially for T cells subtypes.
Conclusions: We developed and validated a novel noninvasive six-gene signature based on peripheral blood to diagnose subAR, which offered a potential tool for clinical practice. The six-gene signature offered a potential method to monitor patients following transplantation and make a timely intervention.

MO50-1 Novel Mixed Lymphocyte Reaction Assay that Predicts Chronic Antibody Mediated Rejection in Kidney Transplant

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Background: Chronic antibody mediated rejection (CAMR) induced by de novo donor specific antibodies (DSA) is the main cause of graft loss in the long-term. Currently, there is no effective treatment or predictive marker for CAAMR exists. Therefore, a reliable immunoresponse monitoring system to identify recipients who will develop CAMR is required to improve long-term allograft survival. A novel mixed lymphocyte reaction (MLR) assay was developed in kidney transplant recipients.
Method: This assay was developed using isolated T cells as responders, which is much more sensitive to detect T cell responses compared with the standard MLR using peripheral blood mononuclear cells. In this study, 102 kidney transplant recipients were evaluated using this novel assay. The recipients were divided into three groups: DSA- (n=78), DSA+/CAMR- (n=8), and DSA+/CAMR+ (n=16).
Results: The MLR assay revealed that the anti-donor $CD4^+/CD8^+$ T cell responses were significantly higher in DSA+/CAMR recipients than in DSA- recipients. To identify which $CD4^+$ T cell subsets showed expansion, the levels of INF-γ, IL-4, IL-17 and FOXP3 in responder T cells were evaluated. Proliferating $CD4^+$ T cells showed a marked increase in the $CD4^+$INF-γ^+ and $CD4^+$IL-17^+ response in DSA+/CAMR+ recipients. Furthermore, evaluation of the DSA+/CAMR- recipients showed a similar $CD4^+$ T cell subset landscape, suggesting that the novel MLR assay can predict the development of CAMR.
Conclusion: DSA+ recipients have a greater potential for immune responses against the donor tissue. MLR using isolated T cells have a potential to predict the development of CAMR.

MO50-2 De Novo Class II Antibodies, Especially DQ, Have A Significant Impact on CAAMR and Renal Graft Loss

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Objective) Chronic active antibody-mediated rejection (CAAMR) is one of the most important factors that affect the outcome of kidney allograft, and de novo donor-specific anti-HLA antibodies (DSA) have been reported to be associated with CAAMR and to significantly exacerbate graft survival.
Methods) We retrospectively reviewed the transplant kidney prognosis in 42 biopsies (34 patients) with pathologic diagnosis of CAAMR out of 427 renal transplant biopsies performed in our department from 2013 to 2021.
Result) Patient background of 34 patients was ABO blood group incompatibility in 6 cases, male/female: 22/12. De novo DSA identified in 19 cases (class I: 5 cases, class II: 9 cases, I+II: 5). These class II included 5 cases of DQ alone, 5 cases of DR alone, and DR+DQ in 4 cases. 23 cases were treated with therapeutic intervention, 11 of which were treated with Rituximab. 16 of 19 DSA positive cases resulted in loss of transplant renal function. Moreover, all 9 de novo DSA DQ-positive cases had abolished transplant renal function. In examining factors affecting loss of transplant kidney function, the two factors that were significant in univariate analysis were DSA class II and episode biopsy. Patients with DSA class II had an 4.1-fold increased risk of transplant kidney loss.
Conclusion) Patients producing de novo DSA class II (especially DQ antibodies) have a higher rate of CAAMR complications and loss of transplant renal function. We consider that optimal maintenance immunosuppression is important to prevent de novo DSA production.

MO50-3 Clinical Impacts of Allograft Biopsy in Recipients with Transplantation Vintage Greater than Ten Years

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Although allograft kidney biopsy plays an important role in evaluating the cause of graft dysfunction or proteinuria in patients with recent transplantation, few studies have evaluated the significance of graft biopsy performed long after renal transplantation. We examined the clinical significance of renal biopsies in patients with very long transplantation vintage, in terms of estimated glomerular filtration rate (eGFR) slope, which has gained attention as a surrogate outcome recently. In this retrospective study, we evaluated 99 allograft biopsies conducted in three institutions between 2002 and 2018 in recipients who had undergone transplantation longer than 10 years before and did not receive an additional immunosuppressive therapy before the biopsy. A comparison of eGFR slopes before and after biopsy showed its significant improvement after biopsy [-4.42 (95% confidence interval (CI): -5.77, -3.06) to -3.13 mL/min/1.73 m^2/year (95% CI: -4.33, -1.93)] . While eGFR slope significantly improved in the group of patients with treatment modification based on the biopsy result [-5.31 (95% CI: -7.37, -3.25) to -3.04 mL/min/1.73 m^2/year (95% CI: -4.50, -1.58) after the biopsy] , no significant improvement in the annual eGFR slope was observed among the patients with no treatment modification. Among the therapeutic modifications, patients with an enhancement of immunosuppression had the most remarkable improvement in eGFR slope after biopsy. According to Banff scoring, those patients with the enhancement of IS had significantly higher g, ptc, and cg scores than those without. In conclusion, we demonstrated the clinical significance of renal biopsy even long after transplantation. Given the observed magnitude of eGFR slope improvement, treatment modifications based on renal biopsy results can improve renal prognosis even in the chronic phase.

MO50-4 Effects of Treating Subclinical Rejection 2 Wks After KT, As Determined by 1 Yr Histologic Outcomes

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Background: Subclinical rejection (SCR) is associated with chronic allograft nephropathy. Therefore, early detection and treatment of SCR through a protocol biopsy (PB) can reduce the incidence of pathological changes. This study evaluates the impact of early detection and treatment of subclinical rejection through the use of a routine PB 2 weeks after kidney transplantation (KT) by examining histologic outcomes 1 year later.
Methods: We reviewed 624 KT recipients at Samsung Medical Center between August 2012 and December 2018. PB was planned 2 weeks and 1 year after transplantation. We compared the histological changes between the 2 biopsies. After a propensity score matching analysis, we divided the patients into 2 groups: the proven normal group (n = *256*) and rejection group (n = *96*) at the PB taken 2 weeks post-transplant.
Results: The rejection group showed no significant difference from the normal group in the flow of graft function (eGFR) or the Kaplan-Meier curve for graft survival. In the histologic outcomes, the pathological differences between 2 groups showed significantly improved between the two time points.
Conclusions: Treating SCR through a PB 2 weeks after KT can contribute to maintenance of graft function and improve histologic changes 1 year after KT.

MO50-5 Can Urine Sediment Substitute for Urine Cytology in Predicting BKVN in Renal Transplant Recipients?

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Introduction
We previously reported detection of decoy cells in 6 months (M) or more on urine cytology (UC) efficiently predicts BK virus nephropathy (BKVN) in kidney transplantation (KT) recipients. This study analyzed whether prediction of BKVN by virus-infected cells in urine sediment (US), which costs less than UC, can substitute for the prediction by UC.
Methods
Totally, 141 KT recipients were retrospectively evaluated. UC and US from each urine sample which routinely monitored were included. Patients were divided into 2 groups based on the duration of consecutive presence of decoy cells in UC and virus-infected cells in US for 6M respectively. The predictive accuracy of BKVN was compared between each 2 groups by Fisher's exact test and ROC analysis.
Results
In total, 3,530 urine specimens were analyzed. Recipients were divided into 2 groups in UC (Decoy ≥ 6M: n=55, Decoy < 6M: n=86) and US (Sediment ≥ 6M: n=6, Sediment < 6M: n=135). Comparison using ROC curve showed UC was significantly more accurate in predicting BKVN than US (Decoy ≥ 6M: AUC=0.826, Sediment ≥ 6M: AUC=0.655, p=0.047). In comparison between the 2 respective groups, more BKVN cases were included in the consecutive positive group when using UC than using US (UC: 9 vs 0, p<0.001; US: 3 vs 6, p=0.003). The sensitivity, specificity, PPV and NPV to predict BKVN by UC were 100%, 66%, 17% and 100%, and those by US were 33%, 98%, 50% and 95.6% respectively.
Conclusions
Comparing in 6M or more, detection of decoy cells on UC can predict BKVN efficiently in KT recipients and cannot be substituted by US.

MO50-6 Comparison of Urinary Liver Fatty Acid Binding Protein and Pathological Biopsy Findings at 1 Year After Kidney Transplantation

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Background. To detect abnormal findings pathologically, we undertake protocol renal allograft biopsy at 1 year after kidney transplantation. But it is ideal to be able to predict renal allograft status by some urinary biomarkers. Urinary liver fatty acid binding protein (LFABP) has been evaluated as a biomarker of renal ischemia. In this study we examined whether urinary LFABP reflects some pathological findings of renal allograft.
Methods. We retrospectively enrolled 52 recipients with stable graft function who underwent protocol renal allograft biopsies at 1 year after kidney transplant in our center between October 2014 and February 2022. They all received same immunosuppressive therapy with TAC and MMF. We assessed the association LFABP level in urine sampled at the same time of biopsy with pathological findings of renal allograft.
Results. In 12 of 52 patients, high value of urinary LFABP was observed. All of them had abnormal findings pathologically. On the other hand, 26 of the 40 patients with normal value of urinary LFABP had no abnormal findings pathologically. High value of urinary LFABP was able to point out CNI toxicity (CNIT) in 75%, BK virus nephropathy in 100%, medullary ray injury (MRI) without CNIT in 16.7% and recurrent nephritis in 33.3%.
Conclusions. Urinary LFABP had a high positive predictive value for some pathological abnormal findings of allograft biopsy at 1 year after kidney transplantation. Our results suggest that renal transplant patients with elevated urinary LFABP levels may benefit for a renal allograft biopsy.

MO51-1 Eculizumab Was Effective for TMA After ABO-i Living-Donor Kidney Transplantation: Case Report

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Thrombotic microangiopathy (TMA) is known to occasionally occur after kidney transplantation, which impairs renal function.

We report the case of a 49-years old women who developed TMA after ABO-incompatible living donor kidney transplantation (ABOi KTx) for end-stage renal failure due to urination disorder. She underwent ABOi KTx after desensitization with rituximab and antibody removal by selective plasmapheresis.

After reperfusion, urination was immediately noted. However, thrombocytopenia($2.5 \times 10^4/\mu L$), progression of anemia (Hb, 8.7 g/dL), and low haptoglobin (<1mg dL) without renal dysfunction were observed on POD2.

We suspected TMA due to antibody-mediated rejection (AMR) or atypical hemolytic uremic syndrome (aHUS), so total plasma exchange was performed from POD2 to POD5. In addition, rituximab was administered on POD4, but there was little improvement in state of disease.

On POD5, TMA without microvascular inflammation was confirmed from 1-hour postoperative biopsy. Therefore, aHUS was diagnosed and eculizumab was administered on POD6. Subsequently, hemolytic anemia and thrombocytopenia improved dramatically. During the treatment period, an iliopsoas hematoma and deep vein thrombosis were observed, but she was discharged with good renal function on the 34th day after surgery.

Currently, we are searching for genetic mutations while administering eculizumab on an outpatient care. Early suspicion of aHUS and treatment with eculizumab allowed rescue of kidney graft function.

MO51-2 Ideal Dose of Rituximab in ABO-Incompatible Kidney Transplantation with Low Anti-A/B Antibody Titers

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Introduction

The clinical outcomes in ABO-incompatible kidney transplantation (ABOi) have been dramatically improved with the introduction of desensitization therapy with rituximab. However, rituximab has been reported to not only prevent antibody-mediated rejection (AMR) but also increase adverse events such as infection. We had started to use single dose of 100mg rituximab for the ABOi in patients with low anti-A/B antibody titers since 2016. We retrospectively compared the clinical outcomes in ABOi with low antibody titers before and after the introduction of rituximab.

Method

ABOi with low antibody titers (<×32) between 2008 and 2021 were included in this study. The patients were divided into two groups depending on with/without rituximab in the desensitization. The primary outcomes were incidence of acute AMR and infection.

Results

Among 142 ABOi with low antibody titers, 66 were desensitized without rituximab (NoRit), and 76 were pretreated with 100mg of rituximab (Rit) before transplantation. The incidence of acute AMR was significantly lower in Rit than in NoRit (0.0% [0/76] vs. 7.6% [5/66], P = 0.047). Posttransplant antibody titers were also lower in Rit than in NoRit. In addition, there were no significant difference in the incidence of adverse events including infection between the two groups.

Conclusion

In ABOi with low antibody titers, the desensitization protocol with the single dose of 100mg rituximab is an effective option, preventing acute AMR without increase in other adverse events.

MO51-3 Short-Term Outcome of ABO Incompatible Kidney Transplantation in Elderly End-Stage Kidney Disease Patients

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The average age of end-stage kidney disease(ESKD) patients who start dialysis therapy in japan was 70.88 years in 2020, and the number of elderly ESKD patients is increasing.The average waiting period for kidney transplantation is 5382.0 days, so living donor kidney transplantation is the only realistic option for elderly ESKD patients.
Donor candidates are spouses, siblings, or children, but inevitably the number of souses increases, and the percentage of immunological high risk combinations such as ABO and HLA incompatible kidney transplants increases.
ABO incompatible living donor kidney transplantation is performed in many institutes in our country and the literature show that its outcome is comparable to ABO compatible kidney transplantation.
Since July 2014 when we started the kidney transplant program, we have performed 150 living donor kidney transplants. Of these, 53 (35.3%) were ABO incompatible kidney transplants. Nine of them were 60 years old or older, and the median recipient age was 67 years old. The donor age was 65 years old. The relationship between the donor and the recipient was eight spouses and one siblings. There were 5 cases of blood type A inconpatible and 4 cases of blood type B incompatible. There were 4 DSA-positive cases. Induction immunosuppressive therapy included pre-transplant plasmapheresis and rituximab administration, plus IVIG in DSA-positive patients. Oral administration of Tacrolimus, MMF, and corticosteroid was performed using the same protocol as that of young recipients.The perioperative surgical complications were found in one case of lymphocele. Two DSA- positive cases showed acute antibody mediated rejection (AMR), but were remitted by treatment. During the obsercation period, malignant tumors were found in 2 cases,and they died even after treatment. The other 7 cases are alive and engrafted.
ABO incompatible kidney transplantation can be a good treatment option for elderly ESKD patients. To succeed in treatment, it is necessary to evaluate the patient's cardiopulmonary function and physical abilities and to screen malignant tumors.

MO51-4 Outcomes of ABO-Compatible Living Kidney Transplantation Recipients with Low Immunological Risk

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Objectives:
For ABO-compatible living kidney transplantation (ABO-CLKT), previous sensitization history, such as previous transplantation, blood transfusion, and pregnancy, is considered a risk factor for antibody-related rejection (ABMR). Therefore, some induction therapy such as rituximab (Rit) is often used for these cases, even if there are no donor-specific antibodies (DSA). In contrast, for patients with low immunological risk without DSA and sensitization history, routine immunosuppression induction without Rit is applied. Herein, we investigate the outcomes of ABO-compatible living kidney transplantation recipients with low immunological risk.
Methods:
Between January 2016 and December 2018, a total of 169 patients underwent ABO-CLKT at Tokyo Women's Medical University Hospital, Tokyo, Japan. Of these, 65 recipients had no sensitization history and immunosuppression induction was performed with tacrolimus, mycophenolate mofetil, methylprednisolone and basiliximab. Rit was not administered. We investigated the relationship between patient background and rejection rates.
Results:
The 3-month and 1-year cumulative incidence of ABMR was 1.5% and 1.5%, respectively. At 3 and 12 months postoperatively, borderline changes were observed in six and zero cases, respectively. T cell-mediated rejection occurred in nine cases at three months post-operation, and one case was still observed at the 1-year biopsy.
Conclusions:
For ABO-CLKT with low immunological risk recipients, routine immunosuppression induction is appropriate for rejection prevention.

MO51-5 Acute Antibody-Mediated Rejection After Massive Plasma Transfusion in ABO Incompatible Kidney Transplant Recipient – Difficult Decisions Regarding Plasma Selection Must Be Made When Massive Hemorrhage Occurs After ABO Incompatible Renal Transplantation

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We experienced a case of acute aortic dissection that occurred 14 years after blood type incompatible renal transplantation (donor type A, recipient type O), for which 30 units of type O FFP were transfused on the same day. Although the patient was rescued, the kidney graft lost function. Under suspicion of antibody-associated rejection due to anti-A antibodies, a transplant renal biopsy was performed on the second day and the results led to that diagnosis. Although FFP transfusion that does not contain antibodies such as type AB is standard practice for desensitization and surgery prior to blood group incompatibility transplantation, anaphylaxis caused by transfusion of heterozygous FFP is known and many centers have experienced it. The present case is a real-life example of a patient with blood group incompatibility who requires a massive FFP transfusion in the remote post-transplant period, for which a decision to choose a safe compatible transfusion or incompatible transfusion to protect the transplanted kidney must be made. It is possible that difficulties inherent with such a choice is why guidelines for blood group incompatible kidney transplantation do not specifically address this issue. Additionally, it is likely that management of this condition must still be discussed because renal transplant recipients rarely require a large amount of FFP. It is also possible that an increasing number of blood group incompatible transplant recipients are being treated outside of the center where they underwent transplantation. Based on valuable experience gained with the present case, we consider that transplant physicians and related societies should inform emergency physicians and vascular surgeons who perform life-saving treatment about this dilemma to increase awareness of the problem, so that not only life expectancy but also the transplanted kidney can be maintained whenever possible.

MO51-6 The Time Dependent Changes in Serum Immunoglobulin Levels and Risk Factors of Hypogammaglobulinemia After Kidney Transplantation

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Introduction

There are limitations to serum immunoglobulin levels as a biomarker to predict infection because of widely variable degrees in individual immunosuppression and susceptibility. Therefore to reflect the individual changes in immune function, this study aimed to analyze the time dependent changes in serum immunoglobulin levels of each kidney transplant recipients and determine the risks factors for evolution of hypogammaglobulinemia.

Methods

A retrospective study of serum samples from 192 kidney transplant recipients from the period of August 17, 2016 to December 12, 2019 was undertaken. All patients had serum samples attained from 4 different periods – T0, preoperative baseline; T1, Postoperative 2 week; T2, Postoperative 3month; and T3, Postoperative 1 year. The serum samples were analyzed for serum C3, C3, IgG, IgA and IgM.

Results

The pattern of immediate post transplant is a steep decrease followed by steady increases in levels of serum IgG, IgA, and IgM overtime was seen. The serum C3 and C4 levels show increase up to postoperative 3months then decrease to baseline levels at postoperative 1 year. A total of 54 patients developed HGG up to 1-year post kidney transplantation. Univariate analysis showed that risk factor for HGG was HLA or ABO incompatibility (OR 2.41; 95% CI:1.22-4.75 ; p=0.039), preoperative dialysis (OR 2.26; 95% CI:0.974-5.234; p=0.0403), postoperative antibody mediate rejection (OR 2.96; 95% CI:1.20-7.27; p=0.018), and CMV, BK, and EBV infection (OR 2.32; 95% CI:1.22-4.43; p=0.011). Multivariate analysis showed that risk factor for HGG was HGG at baseline T0 (OR 25.48; 95% CI:9.76-66.52 ; p=<0.001), and perioperative IV prophylactic ganciclovir use (OR 2.14; 95% CI:1.06-4.33 ; p=0.034). Further sub analysis of CMV, BK, EBV infected patients showed that the serum levels of IgA of infected patients remained significantly lower postoperatively compared to non infected patients (T1 to T3; p=0.031), while the serum levels of C3 of infected patients remained significantly higher postoperatively compared to non infected patients (T1 to T3; p=0.005).

Conclusions

The most important risk factor for development of HGG in kidney transplantation recipients is the baseline HGG status. Furthermore, sustained patterns of lower levels of IgG, IgA and IgM or high levels of C3 and C4 correlate with viral infection.

MO52-1 A Case of Short-Term Use of rATG for Acute TCMR After Donated Kidney Transplantation

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Rabbit anti-thymocyte globulin (rATG) has been recommended by KDIGO for steroid-resistant acute T cell-mediated rejection (ATCMR), but adverse events are frequent and there is little evidence regarding the duration of administration. A 20-year-old Japanese woman was diagnosed with ANCA-associated nephritis 7 years ago and was introduced to hemodialysis. She underwent a donated kidney transplant with a brain-dead child donor one year ago. Since discharge, her serum Cre had ranged from 0.8-0.9 mg/dL. Ten months after transplantation, she developed fever and fatigue, and was found to have poor adherence to PSL, TAC-ER, and MMF. 2 weeks later, she was admitted to our hospital, where her Cre worsened to 2.71 mg/dL and her transplanted kidney was enlarged. We diagnosed ATCMR (Banff IB i3 t3 g0 v0) by graft biopsy and administered mPSL 500 mg/day for a total of 3 days, and her Cre decreased to 1.24 mg/dL. However, 10 days later her Cre rose to 1.98 mg/dL, so we administered rATG 75 mg/day (1.5 mg/kg/day) for a total of 4 days. She was discharged without any infusion reaction, anemia or leukopenia. Since then, transplant kidney function has remained stable in the Cre 1.2-1.4 mg/dL range. In Japan, there are few reports on the use of rATG for ATCMR, and the package insert recommends a use period of 7-14 days. However, it has been reported that small doses of rATG are as effective as regular doses in transplant induction therapy. Short-term, low-dose administration of rATG may be effective in low-grade ATCMR. We report the clinical course of this case with a literature review.

MO52-2 Withdrawn

MO52-3 A RCT on Early Conversion to Low-dose Calcineurin Inhibitor Combined with Sirolimus in Renal Transplantation Patients

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Background:At present, there is still controversy about the combination therapy of sirolimus and calcineurin inhibitor and the application timing of sirolimus in renal transplant patients , and clinical data are lacking. The objective of this study was to investigate the effect of early conversion to a low-dose calcineurin inhibitor combined with sirolimus on the long-term prognosis of renal transplantation.
Methods:Patients who received a standard 4-week immune regimen of calcineurin inhibitor+mycophenolate mofetil+glucocorticoids after renal transplantation were included and randomly grouped. The immune regimen of patients in the experimental group was changed as follows: sirolimus+calcineurin inhibitor reduction+mycophenolate mofetil removal+glucocorticoid maintenance. The standard treatment was maintained in the control group. Patient eGFR, concomitant medication information, adverse events, and graft survival were recorded at baseline and at 12, 24, 36, 48, 72, and 104 weeks after conversion.
Results:In total, 60 cases of allogeneic kidney transplants derived from cadaveric donors were performed in our center from July 2018 to October 2019, and patients uniformly received the standard immune maintenance regimen of CNI+MMF+glucocorticoid after surgery. Thirty-one patients were included in the trial after assessment at week 4 after surgery, including 16 patients in the experimental group and 15 patients in the control group. Both treatment regimens improved renal function in the early posttransplantation period, but the renal function of the reduced-dose treatment group was significantly higher than that of the standard treatment group at all follow-up time points, and the difference was statistically significant ($P<0.05$). Adverse events were reported in 13 (81.3%) vs. 13 (86.7%) of the reduced-dose treatment group and the standard treatment group, respectively, of which 37.5% in the reduced-dose treatment group and 33.3% in the standard treatment group were reported to be serious adverse events; no acute rejection occurred in either group. Two patients in the reduced-dose treatment group were converted to the standard treatment regimen after lipid-lowering therapy failed due to continuous trace urine protein >800 mg/L. Although not statistically significant, the CMV infection rate was lower in the reduced-dose treatment group than in the standard treatment group, with an infection rate of 1 (6.3) vs. 4 (26.7), respectively ($P > 0.05$). Furthermore, there were 2 (12.5) vs. 2 (13.3) BK infections in the reduced-dose treatment group and the standard treatment group, respectively ($P>0.05$).
Conclusion:The early active conversion to a low-dose calcineurin inhibitor combined with sirolimus has high safety and effectiveness, and the regimen is well tolerated.
Trial registration:Chinese Clinical Trial Registry, ChiCTR1800017277; https://www.chictr.org.cn/.
Keywords:renal transplantation; calcineurin inhibitor; sirolimus; rapamycin; conversion

MO52-4 Long Term Outcomes of Low Dose r-ATG and Basiliximab Induction in Kidney Transplantation from ECD

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Background
Using kidneys from expanded criteria donors (ECD) has been increased due to the shortage of donor organs but seemed to have poorer prognosis. The aim of this study was to evaluate the safety and efficacy of rabbit anti-thymocyte globulin (rATG) induction in kidney transplantation (KT) from ECD compared to anti IL-2 receptor antibody (basiliximab).
Methods
We retrospectively analyzed 182 patients who underwent KT from ECDs between April 2004 and December 2020. The patients were categorized into two groups according to induction therapy modality. The basiliximab group (n=43) received basiliximab 20mg/kg on day 0 and 4, while low dose rATG group (n=139) received rATG 1.5mg/kg on day 0, 1, and 2.
Results
The mean donor age (60.6 vs 64.3, p = 0.007) and KDPI score (84.4 vs 90.0, p = 0.005) were higher in rATG group. Patients in rATG group showed more delayed graft function (11.6% vs 30.9%, p = 0.021) but no significant difference in biopsy proven acute rejection (41.9% vs 35.3%, p =0.546). However, graft survival rates (p = 0.88) and overall survival rates (p = 0.846) were not significantly different between the two groups. CMV infection rate seemed higher in rATG group, but graft survival rate was not influenced by CMV infection (p =0.677).
Conclusion
Low dose rATG induction in KT from ECD resulted in comparable patient and graft survival despite the worse donor and recipient profile comparing to basiliximab induction. Therefore, low dose rATG can be considered as an effective and safe induction therapy in KT from ECD.

MO52-5 Immune Status of Kidney Transplantation Patients Receiving Everolimus with Low-Dose Ciclosporin

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Background : Kidney transplantation (KT) outcomes have significantly improved due to the administration of calcineurin inhibitors (CNIs). However various complications may arise with long-term CNI use. Therefore, immunosuppressive therapies with minimal use of CNIs are being developed. Herein, we used a protocol for low-dose CNIs in combination with everolimus (EVR) starting 3 months after KT. The safety and efficacy of this protocol and the immune status of patients were evaluated.
Method: Fifty-five *de novo* KT patients were enrolled. Three months after KT, patients were randomized into the EVR group with low-dose ciclosporin (CyA) (n=28) or the standard-exposure CyA control group (n=27), both with mycophenolate mofetil and methylprednisolone. We evaluated renal function, adverse events, and immunological status for 3 years after KT. To evaluate the immune reactivity of KT patients, mixed lymphocyte reaction (MLR) assays using the carboxyfluorescein succinimidyl ester-labeling technique were performed.
Results: In the EVR group, the trough level of CyA was significantly reduced when compared with that in the control group. The incidence of hyperlipidemia was higher in the EVR group; however, renal function in both groups was well maintained. The incidence of cytomegalovirus (CMV) infection tended to be lower in the EVR group regardless of CMV serology. In addition, in the MLR-based immunological evaluation, T cell responses to allo-stimulation were properly maintained during the observation period in both EVR and control groups.
Conclusions: This study showed that the initiation of EVR starting 3 months after KT can reduce the trough level of CyA without affecting renal function or having an inferior immunosuppressive effect. The EVR combination protocol is expected to reduce CNI dosage and improve the long-term prognosis after KT.

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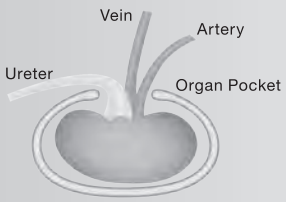

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