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The 1st International Congress of

Living Donor Liver Transplantation Study Group

Date: November 7 (Fri) – 8 (Sat), 2014

Venue: The Westin Chosun Seoul, Korea

PROGRAM BOOK & ABSTRACTS

SEOUL METROPOLITAN GOVERNMENT

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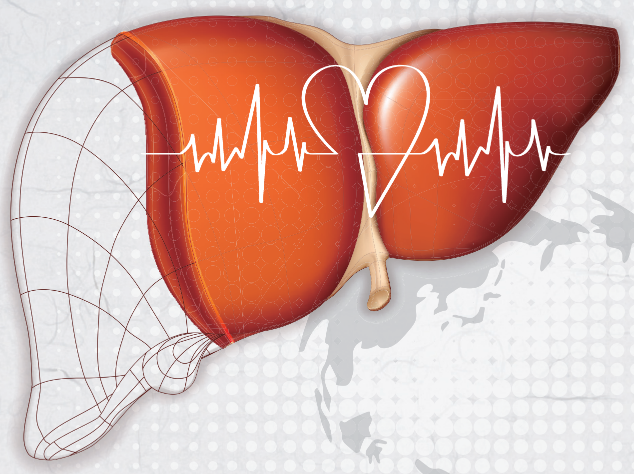

The 1st International Congress of
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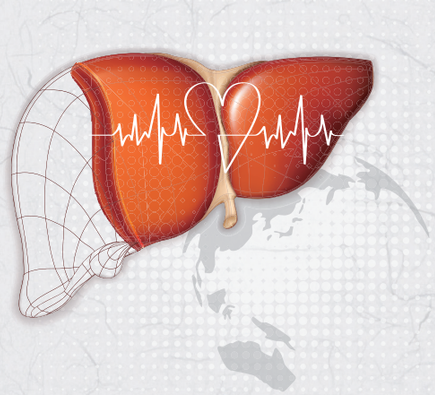
C O N T E N T S



INVITATION

On behalf of the Organizing Committee, it is our great pleasure to invite you to the 1st International Congress of the Living Donor Liver Transplantation Study Group (LDLT Study Group) to be held at the Westin Chosun Seoul, Korea on November 7 (Fri.) - 8 (Sat.), 2014.

As the inaugural congress of the LDLT Study Group, we are planning an exciting Scientific Program that will provide an opportunity to meet eminent speakers and delegates from all over the world to share the most up-to-date surgical accomplishments and new techniques in the field of Living Donor Liver Transplantation. In particular, we are also planning to organize Live LDLT Demonstrations in major centers in Seoul.

Furthermore, Seoul, a dynamic city full of charm, will be in its most beautiful fall season during the conference. In addition to its deep historical and cultural heritage, the capital provides all the possible conveniences and world-class facilities of an international megalopolis that it is today.

We are confident that the Congress will offer much to see, learn, and take away as long-lasting memories, and invite you to participate in this wonderful experience.

We look forward to welcoming you to the 1st International Congress of LDLT Study Group in Seoul, Korea.

Sincerely yours,

Sung-Gyu Lee, MD, PhD
President, Congress Organizing Committee
The 1st International Congress of LDLT Study Group

Kyung-Suk Suh, MD, PhD
Vice-President, Congress Organizing Committee
The 1st International Congress of LDLT Study Group

LDLT STUDY GROUP COUNCIL MEMBERS

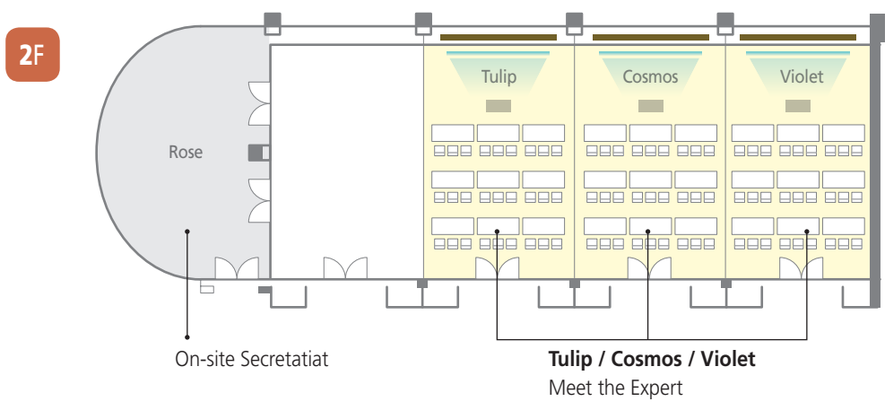
PRESIDENT	**Sung-Gyu Lee**	Asan Medical Center, Ulsan University	Korea
VICE-PRESIDENT	**Kyung-Suk Suh**	Seoul National University Hospital	Korea
ADVISORY COUNCIL	**Chao-Long Chen**	Kaohsiung Chang Gung Memorial Hospital	Taiwan
	Shinji Uemoto	Kyoto University	Japan
	Chung-Mau Lo	The University of Hong Kong	Hong Kong
	Suk-Koo Lee	Samsung Medical Center, Sungkyunkwan University	Korea
	Elizabeth Anne Pomfret	Lahey Clinic	USA
	Soon-Il Kim	Yonsei University	Korea
EXECUTIVE COUNCIL	**Hiroto Egawa**	Tokyo Womens` Medical University	Japan
	Mureo Kasahara	National Center for Child Health and Development	Japan
	Toru Ikegami	Kyushu University	Japan
	Chih-Chi Wang	Chang Gung University	Taiwan
	Rey-Heng Hu	National Taiwan University	Taiwan
	See-Ching Chan	The University of Hong Kong, Queen Mary Hospital	Hong Kong
	Choon Hyuck David Kwon	Samsung Medical Center, Sungkyunkwan University	Korea
	Deok-Bog Moon	Asan Medical Center, Ulsan University	Korea
	Kwang-Woong Lee	Seoul National University Hospital	Korea
	Kim Olthoff	Hospital of the University of Pennsylvania	USA
	Jan Lerut	University Hospitals Saint Luc	Belgium
SECRETARY	**Gi-Won Song**	Asan Medical Center, Ulsan University	Korea

The 1st International Congress of
Living Donor Liver Transplantation Study Group

CONGRESS ORGANIZING COMMITTEE

CONGRESS PRESIDENT	**Sung-Gyu Lee**	Asan Medical Center, Ulsan University	Korea
CONGRESS VICE-PRESIDENT	**Kyung-Suk Suh**	Seoul National University Hospital	Korea
SCIENTIFIC PROGRAM COMMITTEE CHAIR	**Kyung-Suk Suh**	Seoul National University Hospital	Korea
SCIENTIFIC PROGRAM COMMITTEE MEMBER	**Choon Hyuck David Kwon**	Samsung Medical Center, Sungkyunkwan University	Korea
	Gi-Won Song	Asan Medical Center, Ulsan University	Korea
	Kwang-Woong Lee	Seoul National University Hospital	Korea
	Mureo Kasahara	National Center for Child Health and Development	Japan
PUBLICATION COMMITTEE CHAIR	**Soon-Il Kim**	Yonsei University	Korea
PUBLICATION COMMITTEE MEMBER	**Myoung Soo Kim**	Yonsei University	Korea
	Deok-Bog Moon	Asan Medical Center, Ulsan University	Korea
	Nam-Joon Yi	Seoul National University Hospital	Korea
	Chongwoo Chu	Pusan National University Yangsan Hospital	Korea

FLOOR PLAN



CONGRESS INFORMATION

CONGRESS OVERVIEW

TITLE	The 1st International Congress of LDLT Study Group
PERIOD	November 7 (Fri) - 8 (Sat), 2014
VENUE	4 Live Demonstration Centers on Nov 7 (Fri) The Westin Chosun Seoul on Nov 8 (Sat)
PROGRAM HIGHLIGHTS	- Live LDLT Demonstrations in Major Centers in Seoul, Korea - How to Optimize the Outcome in LDLT - Different Paradigm of HCC Management in LDLT - Laparoscopic Living Donor Hepatectomy Demonstrated by Experts
ORGANIZED BY	The Organizing Committee of the 1st International Congress of LDLT Study Group
OFFICIAL LANGUAGE	English

VENUE INFORMATION

- **VENUE** The Westin Chosun Seoul
- **ADDRESS** 106, Sogong-ro, Jung-gu, Seoul, Korea
- **TEL** (82-2)771-0500
- **WEB** http://www.echosunhotel.com/Eseoul.action

REGISTRATION

Registration Desk

DATE & TIME	November 8 (Sat), 2014. 07:00-18:00
LOCATION	Entrance hallway the Grand Ballroom Lobby (1F)

Registration Category & Fees

CATEGORY	CONGRESS REGISTRATION FEE	LDLT STUDY GROUP ANNUAL MEMBERSHIP FEE	TOTAL
Regular / Congress + Membership	USD 50	USD 50	USD 100
Regular / Congress Only	USD 120	-	USD 120
Trainee / Congress + Membership	USD 20	USD 30	USD 50
Trainee / Congress Only	USD 60	-	USD 60

Entitlements

- Access to all scientific sessions
- Program books
- Coffee break and lunch boxs
- Live Demonstration (Applicants only)

LDLT STUDY GROUP ANNUAL MEMBERSHIP BENEFITS

- Discounted registration fee
- Membership until December 2015
  *If you missed your chance to become a member, please contact us after the congress at ldltstudygroup@insession.co.kr.

CATERING FACILITIES

Coffee

Fresh coffee will be served in the exhibition hall (Grandballroom B, 1F) during the break times.

*SERVING TIME

COFFEE BREAKS	11:20 – 11:40 (20′)
POSTER PRESENTATION WITH COFFEE	15:20 – 16:10 (50′)

PREVIEW LOUNGE

DATE & TIME	November 8 (Sat), 2014, 07:00-17:30
LOCATION	Grand Ballroom Lobby (1F)

* Speakers are required to visit the Preview Lounge and upload their final presentation files 1hour before the session begins to ensure the backgrounds, graphics and linked images or videos appear properly.
* Presentation materials should be brought in a USB memory stick.
* If a presentation includes animation(s), movie clip(s) or sound, please let the staff know in advance at the Preview Lounge.
* If a presenter brings his/her own laptop, especially MAC, he/she should also bring all the necessary adaptors which are compatible with RGB port and visit the Preview Lounge to check its compatibility with our technical system.

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AWARD AND SCHOLARSHIP

Best Poster Presentation Award

- Awarded to presenters of the selected poster presentations based on peer review of the scientific contents of the submitted abstracts.
- Awards will be given at the Closing Remarks, so please stay till the Closing Remarks and find out who the winners are.

Travel Grant

- Awarded to registered foreign participants selected by the members of the Organizing Committee from less developed countries.

SCIENTIFIC PROGRAM

PROGRAM AT A GLANCE

	Day 1 November 7 (Fri)				Day 2 November 8 (Sat)			
	Asan Medical Center	Samsung Medical Center	Seoul National University Hospital	Severance Hospital	Grand Ballroom (1F)	Tulip (2F)	Cosmos (2F)	Violet (2F)
08:00						Meet the Expert 1	Meet the Expert 2	Meet the Expert 3
08:30					Break			
09:00					Opening Remarks			
09:30					Symposium I			
10:00								
10:30					Debate Session			
11:00								
11:30					Coffee Break			
12:00								
12:30	Live Demonstration 1	Live Demonstration 2	Live Demonstration 3	Live Demonstration 4	Symposium II			
13:00					General Assembly			
13:30					Luncheon Symposium			
14:00								
14:30					Symposium III			
15:00								
15:30					Poster Presentation with Coffee			
16:00								
16:30					Video Symposium			
17:00								
17:30					Summary and Closing Remarks			

Registration & Technical Exhibition

LIVE DEMONSTRATIONS

DATE	November 7 (Fri), 2014
VENUE	Asan Medical Center Samsung Medical Center Seoul National University Hospital Severance Hospital
LANGUAGE	English

* Detailed programs may be different at each center.
* Each applicant is randomly allocated to a center.
* Shuttle buses are arranged between the congress venue (The Westin Chosun Seoul) and each center.

Invited Discussants for Live Demonstrations

CENTER	DISCUSSANT	AFFILIATION	COUNTRY
Asan Medical Center	Le Truong Chien	ChoRay Hospital	Vietnam
	Pham Huu Thien Chi	ChoRay Hospital	Vietnam
Samsung Medical Center	Yonson Ku	Kobe University Graduate School of Medicine	Japan
	Yuji Soejima	Matsuyama Red Cross Hospital	Japan
Seoul National University Hospital	Doskaliyev Zhaksylyk	National Scientific Medical Research Center	Kazakhstan
	Zhijun Zhu	Beijing Friendship Hospital	China

SCIENTIFIC PROGRAMS

Nov 8 (Sat), The Westin Chosun Seoul

07:30-08:30	**Meet the Expert at the Early Morning 1**	Tulip (2F)
	Donor evaluation protocol in LDLT	Sumihito Tamura (Japan) Nam-Joon Yi (Korea)
07:30-08:30	**Meet the Expert at the Early Morning 2**	Cosmos (2F)
	Hepatic arterial anastomosis – inflow selection and anastomosis techniques	Yasuhiro Ogura (Japan) Chul Soo Ahn (Korea)
07:30-08:30	**Meet the Expert at the Early Morning 3**	Violet (2F)
	To surmount difficult situations in LDLT: Extensive PVT or Extensive Adhesion	Chih-Chi Wang (Taiwan) Shin Hwang (Korea)
08:50-09:00	**Opening Remarks**	Sung-Gyu Lee (Korea)
09:00-10:20	**[Symposium 1] Controversial Issues in LDLT for HCC**	Grand Ballroom A
	CHAIRS: **Chung Mau Lo (Hong Kong, China), Hee Jung Wang (Korea)**	
	Reasonable approach for Salvage LDLT: Feasibility and Optimal timing	William Wei Sharr (Hong Kong, China)
	Hepatocellular cancer (HCC) and living donor liver transplantation (LDLT): is there a role for downstaging (DS) procedures?	Jan Lerut (Belgium)
	Immunosuppressive and other strategies in liver transplantation for HCC	Kwang-Woong Lee (Korea)
	PV tumor thrombus in segmental branch- Contraindication for LDLT?	Deok-Bog Moon (Korea)
10:20-11:20	**[Debate Session] How to Optimize Recipient Outcome in LDLT for High MELD Patients: Selection vs Management**	Grand Ballroom A
	CHAIRS: **Kyung-Suk Suh (Korea), Jan Lerut (Belgium)**	
	Western Perspective: Patient selection	Kim Olthoff (USA)
	Eastern Perspective: Perioperative management	Chung Mau Lo (Hong Kong, China)
	Rebuttal from Western	
	Rebuttal from Eastern	
	Discussion	
11:20-11:40	Coffee Break	

11:40-12:40	**[Symposium 2] Living Donor Pool Expansion**	Grand Ballroom A
	CHAIRS: **Chao-Long Chen (Taiwan), Sung-Gyu Lee (Korea)**	
	Graft steatosis in living donor liver transplantation	Kyung-Suk Suh (Korea)
	Strategy to expand donor pool by graft type selection	Yonson Ku (Japan)
	How to optimize small-for-size graft	Seiji Kawasaki (Japan)
12:40-13:00	**General Assembly**	Grand Ballroom A
13:00-13:40	**Luncheon Symposium (sponsored by Astellas)**	Grand Ballroom A
	CHAIR: **Dong Goo Kim (Korea)**	
	ABO incompatible LDLT experience in Korea	Gi-Won song (Korea)
13:40-15:20	**[Symposium 3] Assessment of Outcome for the Qualification of LDLT Program**	Grand Ballroom A
	CHAIRS: **Soon-Il Kim (Korea), Kim Olthoff (USA)**	
	Multicenter studies based on Japanese Liver Transplantation Registry	Yasutsugu Takada (Japan)
	Live Transplant Cohort of Korean Organ Transplant Registry (KOTRY): Present and Future	Myoung Soo Kim (Korea)
	Lessons from the NIH-sponsored multi-center trial (A2ALL) in US	Kim Olthoff (USA)
	Ethical Perspectives of Chinese new country-wide living donor system	Jiahong Dong (China)
	Panel Discussion: How to establish national registry in LDLT	Panel: 4 speakers
15:20-16:10	**Poster Presentation with Coffee**	Grand Ballroom B
16:10-17:40	**[Video Symposium] From the Standard to the Advanced**	Grand Ballroom A
	CHAIRS: **Dong Goo Kim (Korea), Rey-Heng Hu (Taiwan)**	
	Standard right and left donor hepatectomy	See-Ching Chan (Hong Kong, China)
	Liver implantation in live donor liver transplantation	Rey-Heng Hu (Taiwan)
	How to use hyper-reduced or monosegment in pediatric LDLT	Mureo Kasahara (Japan)
	Laparoscopic major donor hepatectomy	Choon Hyuck David Kwon (Korea)
	Portal flow reconstruction in LDLT for patient with extensive PVT	Toshimi Kaido (Japan)
	Adult living donor liver transplantation for Budd-Chiari syndrome: IVC replacement and Atrio-Caval Anastomosis	Sung-Gyu Lee (Korea)
17:40-17:50	**Summary and Closing Remarks**	Kyung-Suk Suh (Korea)

POSTER PRESENTATIONS

15:20-16:10	**Poster Presentation 1**	Grand Ballroom B
	CHAIRS: **Kwang-Woong Lee (Korea), Yasuhiro Ogura (Japan)**	
PP-1052	**Impact of serial change of donor specific antibodies on the graft outcomes after liver transplantation**	Dong Jin Joo (Korea)
PP-1057	**Hepatocytes transplantation from living donor reduced-graft procedure for a baby with ornithine transcarbamylase deficiency: Potential cell source for hepatocytes transplantation**	Takanobu Shigeta (Japan)
PP-1019	**Low-dose antiviral treatment for hepatitis C virus following living donor liver transplantation without splenectomy**	Toshihiko Yoshida (Japan)
PP-1063	**Safety of right-lobe living donor liver transplant from donors with Gilbert syndrome**	Hussien Elsiesy (Saudi Arabia)
PP-1073	**Single center experience of conversion from twice-daily tacrolimus to once-daily tacrolimus in stable liver transplant recipients**	Tae-Seok Kim (Korea)
PP-1067	**Is systemic heparinization necessary during living donor hepatectomy?**	Joo Dong Kim (Korea)
15:20-16:10	**Poster Presentation 2**	Grand Ballroom B
	CHAIRS: **Choon Hyuck David Kwon (Korea), Chih-Chi Wang (Taiwan)**	
PP-1074	**The outcome and sinusoidal functions of the graft in living donor liver transplantation using elderly donor.**	Mitsuhisa Takatsuki (Japan)
PP-1048	**Peri-transplant change in AFP level is a useful predictor of hepatocellular carcinoma recurrence following liver transplantation**	Tae Yoo (Korea)
PP-1017	**Lessons learned from outcomes of 188 children with biliary atresia: experience from a single center in mainland China.**	Qigen Li (China)
PP-1046	**Medical expenditure and length of stay for liver donors after transplantation in Taiwan**	Yi-Chun Chou (Taiwan)
PP-1066	**Predictors of survival in patients with hepatocellular carcinoma accepted for living donor liver transplantation beyond the "size-number" criteria**	Prashant Bhangui (India)
PP-1027	**Save the liver of prisoners in Nepal**	Kedar Narsingh K.C. (Nepal)

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15:20-16:10	**Poster Presentation 3**	Grand Ballroom B
	CHAIRS: **Gi-Won Song (Korea), Sumihito Tamura (Japan)**	
PP-1043	**Adverse outcomes and associated factors after liver transplantation for liver donors: a nationwide study**	Chien-Chang Liao (Taiwan)
PP-1039	**Animal model of living donor liver transplant in swine without using venovenous bypass**	Yi-Ju Wu (Taiwan)
PP-1071	**Influence of graft size matching on outcomes of infantile living donor liver transplantation**	Ping Wan (China)
PP-1038	**Initial experience of pediatric living donor liver transplantation from Thailand**	Bunthoon Nonthasoot (Thailand)
PP-1053	**Biliary complication after liver transplantation according to biliary reconstruction methods**	Jae Geun Lee (Korea)
PP-1047	**Indonesia first adult living donor liver transplantation in Cipto Mangunkusumo Hospital Jakarta Indonesia**	Toar Jean Maurice Lalisang (Indonesia)
15:20-16:10	**Poster Presentation 4**	Grand Ballroom B
	CHAIRS: **Nam-Joon Yi (Korea), Mureo Kasahara (Japan)**	
PP-1034	**Role of tissue C4d in differentiation between acute rejection and HCV recurrence after living donor liver transplantation**	Mahmoud Elmeteini (Egypt)
PP-1020	**Increasing the rate of living donor liver transplantation in absence of deceased organ donation: Impact on waiting time and short-term patient outcome**	Mahmoud Ali (Egypt)
PP-1056	**Portal vein stent insertion above portal anastomosis level as a considerable risk factor for biliary anastomotic stricture in adult living donor liver transplantation**	Min-Ho Shin (Korea)
PP-1013	**Outcomes of endo-radiological approach for the management of bile leaks after right lobe living donor liver transplantation with duct-to-duct anastomosis**	Kenneth Siu Ho Chok (Hong Kong, China)
PP-1012	**Adult right living-donor liver transplantation with special reference to reconstruction of the middle hepatic vein**	Nobuhisa Akamatsu (Japan)
PP-1032	**Hard venous outflow reconstruction in LDLT with right lobe liver graft. Case report**	Konstantin Lutsyk (Russia)

POSTERS

		Grand Ballroom B
PP-1015	**Living donor liver transplant vs. cadaveric liver transplant survival in relation to MELD score**	Mohammed AlSebayel (Saudi Arabia)
PP-1016	**Cryopreserved aortic graft for middle hepatic vein tributary reconstruction of a right hepatic graft in adult living donor liver transplantation: a case report**	Sabri Tekin (Turkey)
PP-1018	**Biliary anastomosis and biliary complications following living donor liver transplantation in Mongolia**	Bat-Ireedui Badarch (Mongolia)
PP-1021	**A case report of severe post-transplant lymphoproliferative disease after living donor liver transplantation**	Shinichi So (Japan)
PP-1024	**A case report of liver metastasis which was successfully treated by IMRT after LDLT**	Kaori Kuramitsu (Japan)
PP-1025	**Subcutaneous drain after empyema gall bladder surgery in an obese patient**	Muhammad Wahla (Pakistan)
PP-1026	**Perioperative predictors of neurologic complications after liver transplantation**	An-Chieh Feng (Taiwan)
PP-1029	**Living donor liver transplantation with resection of extrahepatic bile duct for diffuse biliary papillomatosis**	Yang Won Nah (Korea)
PP-1030	**Modified left lobe graft from Borderline remnant liver volume donor in Pediatric liver transplantation: A case report**	Methee Sutherasan (Thailand)
PP-1031	**Treatment with a vascular stent for hepatic artery pseudoaneurysm following liver transplantation**	Kuo-Shyang Jeng (Taiwan)
PP-1033	**Development of liver transplantation in Syzganov's National Scientific Center of Surgery**	Daniyar Toksanbayev (Kazakhstan)
PP-1035	**MELD score and living donor liver transplantation; what have we learned so far?**	Mahmoud Elmeteini (Egypt)
PP-1036	**Modified right liver grafts vein reconstruction for LDLT using the cryopreserved iliac vessels and artificial vascular grafts**	Batjargal Ganzorig (Mongolia)
PP-1040	**Management of hepatic artery complications after A-A living donor liver transplantation including urgent re-transplantation: a single center experience**	Mahmoud Elmeteini (Egypt)
PP-1041	**Optimizing outcome of living donor liver transplantation for hepatocellular carcinoma: crossing borders**	Mahmoud Elmeteini (Egypt)
PP-1042	**Updated status of deceased donor liver graft allocation for high-urgency adult patients in a Korean high-volume transplantation center**	Seok-Hwan Kim (Korea)
PP-1044	**Living liver donors, the value and outcome of team work**	Ahmed Elgohary (Saudi Arabia)
PP-1045	**Veno-arterial Extracorporeal membranous oxygenation resuscitation for patient with acute lung injury during liver transplantation : a case report**	YiChia Chan (Taiwan)

PP-1049	**Results of ABO incompatible liver transplantation with simplified protocol in a single center experience**	Juhan Lee (Korea)
PP-1050	**Surveillance protocol for hepatocellular carcinoma recurrence after living donor liver transplantation**	Bo-Hyun Jung (Korea)
PP-1051	**Tailored prophylaxis protocol against de novo hepatitis B for liver transplantation using hepatitis B core antibody-positive donors**	Bo-Hyun Jung (Korea)
PP-1054	**Successful treatment of diffuse portal vein thrombosis after splenectomy following living donor liver transplantation patient**	Sung-Hwa Kang (Korea)
PP-1055	**Usability of 3-dimensional virtual reconstruction software (Dr. Liver) for pre- and intraoperative determination of living donor liver transection and vascular reconstruction**	Wan-Joon Kim (Korea)
PP-1059	**Diagnosis and treatment of late posttransplant hepatocellular carcinoma recurrence after 5 years**	Young-In Yoon (Korea)
PP-1060	**Role of endoscopic screening for de novo gastric cancer in Korean liver transplant patients**	Woo-Hyoung Kang (Korea)
PP-1061	**Ad integrum functional and volumetric recovery in right lobe living donors: fact or fiction?**	Daniel Azoulay (France)
PP-1062	**Clinical analysis of recurrent hepatocellular carcinoma after living donor liver transplantation**	Gun Hyung Na (Korea)
PP-1064	**Cross-auxiliary double domino donor liver transplantation: conceptual Innovation in liver transplantation**	Zhi-jun Zhu (China)
PP-1065	**Outcomes of living and deceased donor liver transplant recipients according to the MELD score**	Juhan Lee (Korea)
PP-1068	**HBV and HCV reactivation after LDLT in Mongolia**	Tuul Nyamdavaa (Mongolia)
PP-1070	**Long-term outcome of 10-year pediatric survivors after living-donor liver transplantation**	Seak Hee Oh (Korea)
PP-1072	**An incidence of delirium among the patients who underwent liver transplantation(LT) in ICU**	Hui Ju Cho (Korea)
PP-1076	**Ethics in living donor liver transplantion**	Shin Do Suh (Korea)
PP-1077	**Technical knacks to enhance luminal patency of interposed synthetic graft in living donor liver transplantation using modified right liver graft**	Tae-Wan Lim (Korea)
PP-1081	**Budd Chiari Syndrome : transplantation and beyond**	Shishir Pareek (India)
PP-1082	**The possibility of radiotherapy as downstaging to living donor liver transplantation for hepatocellular carcinoma with portal vein tumor thrombus**	JinYong Choi (Korea)
PP-1083	**Donor age over than 55 years old in living donor liver transplantation**	SeungHwan Lee (Korea)

CHAIRPERSONS

NAME	AFFILIATION	COUNTRY
Chao-Long Chen	Kaohsiung Chang Gung Memorial Hospital	Taiwan
Dong Goo Kim	Catholic University of Korea, Seoul St. Mary's Hospital	Korea
Soon-Il Kim	Yonsei University	Korea
Hee Jung Wang	Ajou University	Korea

INVITED SPEAKERS

Chul Soo Ahn

AFFILIATION

Department of Liver Transplantation and Heaptobiliary Surgery, Asan Medical Center, Korea

BRIEF CV

Prof. Ahn graduated from HanYang University. He has been with Asan Medical Center Korea as a hepatic and transplant surgeon since 2004. He is also a professor in the Department of Surgery, Ulsan University

RESEARCH INTERESTS

Liver transplantation, Hepatic and biliary Surgery

See-Ching Chan

AFFILIATION

Department of Surgery, University of Hong Kong, Hong Kong

BRIEF CV

Prof. Chan graduated from the University of Hong Kong and earned MS PhD MD of research of living donor liver transplantation. He is the Chief of Liver Transplantation and President of the Hong Kong Society of Transplantation. He has published over 170 peer reviewed scientific papers and 10 book chapters on liver transplantation and liver surgery. In 2013, he was endowed Li Shu Fan Medical Foundation Professor of Surgery. In 2005 he received the State Scientific and Technological Progress (SSTA) First-class Award from the National Office for Science and Technology Awards. Since 2012, on the ISI Essential Science Indictors he is among the top 1% most cited scholars in Clinical Medicine.

RESEARCH INTERESTS

Bioethics of liver transplantation, Small-for-size graft, Hepatocellular carcinoma

Jiahong Dong

AFFILIATION

Department of Hepatobiliary Surgery, Chinese PLA General Hospital & Beijing Tsinghua Changgung Hospital, China

BRIEF CV

Prof. Dong graduated from the third military Medical University in 1986, and started his work in Southwest Hospital. Since 2007, he has been working in the Hospital & Institute of Hepatobiliary Surgery, Chinese PLA General Hospital. He also works at Beijing Tsinghua Changgung Hospital as the president since 2014.

RESEARCH INTERESTS

Liver transplantation, Precision liver surgery

Rey-Heng Hu

AFFILIATION

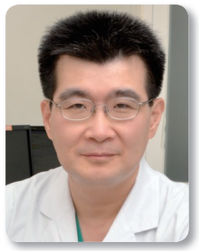
Department of Surgery, National Taiwan University Hospital, Taiwan

BRIEF CV

Prof. Hu graduated from College of Medicine, National Taiwan University Hospital as MD in 1983, and as PhD in 2000. He also studied in Massachusetts General Hospital and Pittsburg Medical Center in 1997. He worked as a general surgeon and transplantation surgeon at NTUH since 1990, and now is the Professor of surgery and also the Director of Office of Medical Affair of National Taiwan University Hospital.

RESEARCH INTERESTS

Liver transplantation, Hepatocellular carcinoma



Shin Hwang

AFFILIATION

Department of Surgery, Asan Medical Center, College of Medicine University of Ulsan, Korea

BRIEF CV

- Professor of Surgery, College of Medicine University of Ulsan, Asan Medical Center, Seoul, Korea
- Director, Organ Transplantation Center, Asan Medical Center
- Chief, Liver Cancer Center, Asan Medical Center
- Working as a faculty member of hepatobiliary surgery and liver transplantation at the Asan Medical Center since 1998
- Working as a visiting researcher at the Emory University Hospital in 2005
- Publishing more than 150 articles on hepatobiliary surgery and liver transplantation
- Chief Editor, Journal of Korean Hepatobiliary and Pancreatic Surgery

RESEARCH INTERESTS

Liver transplantation, Hepatocellular carcinoma, Cholangiocarcinoma, Stem cell therapy, Ischemia-reperfusion injury

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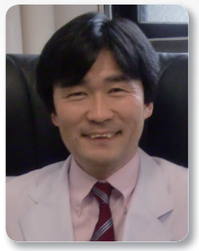


Toshimi Kaido

AFFILIATION

Department of Hepato-Biliary-Pancreatic and Transplant Surgery, Kyoto University, Japan

BRIEF CV

Prof. Kaido graduated from Kyoto University in 1987 and Kyoto University Graduate School of Medicine in 1996. He thinks change and innovation are essentials for advances in every field. In addition, his policy in medical practice is “Patients’ benefit”, in other words, to introduce beneficial things for patients actively, and to change or stop bad things for patients rapidly. So, he would like to continue change and innovation in the field of liver transplantation for patients with passion.

RESEARCH INTERESTS

Outcome research in hepato-biliary-pancreatic and transplant surgery, Hepatocellular carcinoma, Nutrition including sarcopenia, Infection

Mureo Kasahara

AFFILIATION

Organ Transplantation Center, National Center for Child Health and Develoment, Japan

BRIEF CV

Prof. Kasahara graduated from Gunma University, 1992. He has been with Kyoto University, Japan as a hepatic and transplant surgeon from 1996~2005. He is director of organ transplantation center in National Childrens Hopital, Tokyo, Japan since 2005.

RESEARCH INTERESTS

Pediatric liver/kidney/small bowel transplantation, Hepatocyte transplantation, Regenerative medicine

Seiji Kawasaki

AFFILIATION

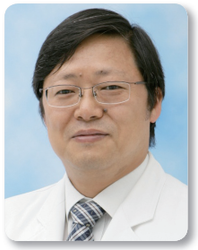
Department of Hepatobiliary Pancreatic Surgery, Juntendo University, Japan

BRIEF CV

Prof. Kawasaki graduated from University of Tokyo in 1977. He was an associate professor (1991-1995) and a professor (1995-2002) in the First Department of Surgery, Shinshu University, and moved to Juntendo University as a professor (2002-present), Department of Hepatobiliary Pancreatic Surgery.

RESEARCH INTERESTS

Hepatobiliary surgery, Living donor liver transplantation, Surgery for portal hypertension, Hepatic functional reserve



Myoung Soo Kim

AFFILIATION

Department of Surgery, Yonsei University College of Medicine, Korea

BRIEF CV

Prof. Kim graduated from Yonsei University College of Medicine in 1987 and obtained his PhD in Medical Science from same University, in 2003. He has received training in both surgery and transplantation from Severance Hospital, as well as advanced training at the University of Miami Medical Centre, USA, 2005.
Myoung Soo Kim is currently Professor of Surgery at Yonsei University and head of Transplantation Surgery department of the Severance Hospital in Seoul.
He is a key member of Administrative Committee for Organ Transplantation in Korean Network for Organ Sharing (KONOS). He recently conducted National-based survey for deceased donor liver allocation and National-based cohort study for liver transplantation recipients. Today topic is related with his recent work.

RESEARCH INTERESTS

Liver transplantation, Pediatric, ABOi, Hepatocellular carcinoma
Kidney transplantation, Deceased donor, High risk recipient such as urologic dysfunction, ABOi
Deceased donor organ allocation

Yonson Ku

AFFILIATION

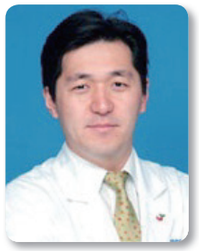
Department of Surgery, Kobe University Graduate School of Medicine, Japan

BRIEF CV

Prof. Ku studied Medicine at Kobe University School of Medicine and graduated in 1977. After graduation, he completed his clinical fellowship at Kobe University Hospital followed by the PhD course at Kobe University Graduate School of Medicine till 1983. He is currently Professor and Chairman at Department of Surgery, Kobe University Graduate School of Medicine since 2005. He is contributing to many Japanese academic societies as executive directors including Japanese Society of Gastroenterological Surgery, Japanese Society of Gastroenterology, Japan Society of Clinical Oncology, and Japan-Korea Transplantation Forum.
His research interests and life work are to build a novel therapeutic strategy for patients with advanced hepatocellular carcinoma with dismal prognosis. Thus, Percutaneous Isolated Hepatic, Perfusion (PIHP) was invented under his leadership from Kobe University to deliver a dose intensive chemotherapy for multiple liver tumors.
He has published 222 articles in peer-reviewed international journals in addition to 273 domestic scientific papers in Japan, and numerous chapters in textbooks of surgery, gastroenterology and oncology as represented by "Surgery of the Liver, Biliary Tract and Pancreas".

RESEARCH INTERESTS

Hepato-biliary pancreatic surgery, Liver transplantation



Choon Hyuck David Kwon

AFFILIATION

Department of Surgery, Samsung Medical Center, Sungkyunkwan University, Korea

BRIEF CV

Prof. Kwon's medical education and surgical training including liver transplant fellowship were all done in Korea at Seoul National University and Samsung Medical Center. He is an expert in liver transplantation having operated more than 900 cases and also in laparoscopic liver resections with over 500 cases. He also has performed more than 25 totally laparoscopic donor hepatectomy for adult living donor liver transplantation, having the largest clinical series in the world. He participated in the development of the first and only bioartifical liver support system in Korea. He is a board member of the The Korean Association of HBP Surgery, the The Korea Society for Transplantation and The Korean Liver Transplantation Study Group and the Korean Laparoscopic Surgery Study Group.

RESEARCH INTERESTS

Minimally invasive liver surgery, Bioartificial liver support system, Living donor liver transplantation

Kwang-Woong Lee

AFFILIATION

Department of Surgery, Seoul National University College of Medicine, Korea

BRIEF CV

Prof. Lee graduated Seoul National University. He has been with Samsung Medical Center and National Cancer Center, Korea as a hepatic and transplant surgeon. He has also been in Johns Hopkins University Hospital as a LDLT consultant. He is now associate professor of department of surgery, Seoul National University, Korea. He performed the first and successful hepatocyte transplantation in Korea.

RESEARCH INTERESTS

Hepatocyte transplantation, Gene delivery into the liver, Cancer stem cell

Sung-Gyu Lee

AFFILIATION

Department of H-B Surgery & Liver Transplantation, Asan Medical Center, Ulsan University, Korea

BRIEF CV

Prof. Lee is currently Endowed Chair Professor of Surgery, Hepato-Biliary Surgery and Liver Transplantation at Asan Medical Center, Ulsan University Medical School. He is Member of The National Academy of Sciences, Republic of Korea from 2013. He had M.D. and Ph.D. at Seoul National University School of Medicine in 1973 and 1986. He went through the internship and the residency courses from 1973 to 1978 at Seoul National University Hospital, having been in the Visiting Fellowship of Lahey Clinic & New England Deaconess Hospital, Boston, USA from 1986 to 1987. He was also Clinical Observer of HepatoBiliaryPancreatic Surgery at National Cancer Center, Tokyo, Japan in 1987, and Visiting Professor of Liver Transplantation at Medizinische Hochschule Hannover, Hannover, Germany in 1992. Now, his major field includes Adult Living-Donor Liver Transplantation, Oncological Surgery for Hepatocellular Carcinoma and Perihilar Cholangiocarcinoma.

RESEARCH INTERESTS

Living-donor liver transplant, HCC and hilar cholangio-CA

The 1st International Congress of
Living Donor Liver Transplantation Study Group

Jan Lerut

AFFILIATION

Department of Abdominal and Transplantation Surgery, University Hospitals Saint Luc UCL Brussels, Belgium

BRIEF CV

Prof. Lerut, MD, PhD trained in General Surgery at the Katholieke Universiteit Leuven (KUL) (B) under the lead of Prof. JA. Gruwez and at the H.Heine University of Dusseldorf (G) under the lead of Prof. K. Kremer and at the Université catholique de Louvain (UCL) (B) under the lead of Prof. PJ. Kestens.

From the very start of his surgical career he was involved in organ transplantation. This interest resulted in a transplantation fellowship at the Universities Paris-Sud-Centre Hépatobiliaire Paul Brousse under the lead of Prof. H.Bismuth and at Pittsburgh Medical Centre under the lead of Prof. Th. Starzl. He was director of the abdominal transplant program at the Inselspital University of Bern (CH) from 1987 to 1991 (Prof. LH.Blumgart)

Currently he is ordinary Professor of Surgery and Co-director of the Department of Abdominal and Transplantation Surgery as well as Director of the Starzl Abdominal Transplant Unit of the University Hospitals Saint Luc and of the UCL Transplant Centre in Brussels.

He has served as president of the Belgian Society of Transplantation (BST), as chairman of the Eurotransplant (ET) Liver Allocation Committee (ELIAC) and as President of the European Society for Organ Transplantation (ESOT). He is member of different councils and learning societies related to surgery and transplantation as well of the Belgian Superior Health Council. He is active in the EUROLIVER Foundation awareness campaigns for adolescents in relation to organ donation.

Under his Presidency of the ELIAC, the MELD system was introduced within the ET community. His presidency of ESOT was devoted to the broadening of the European transplant community and to the development of a master educational program in the field of transplantation. He was chosen president-elect of International Liver Transplant Society (ILTS) in 2014. In September 2015 , he will host the 17th bi-annual ESOT congress in Brussels. He is a member of 22 learning societies.

He authored more than 300 peer-reviewed articles, 24 books chapters and 24 scientific films. He made more than 600 communications on national and international congresses, most of them devoted to liver transplantation. He recently co-edited the book Regenerative Medicine Applications in Organ Transplantation (Academic press).

RESEARCH INTERESTS

Development of technical refinements in liver transplantation, Use of minimal immunosuppression, Tolerance induction in liver transplantation

Chung Mau Lo

AFFILIATION

Department of Surgery, The University of Hong Kong, Hong Kong

BRIEF CV

Prof. Lo is Chin Lan-Hong Professor and Chair of Hepatobiliary and Pancreatic Surgery as well as Head of the Department of Surgery at the University of Hong Kong. He is internationally renowned for his expertise in hepatobiliary surgery, liver cancer and liver transplantation. He has published over 420 original articles in refereed national and international journals and authored 10 book chapters.

He was the President of the International Liver Transplantation Society and the International Society for Digestive Surgery. He serves as associate editor of the American Journal of Transplantation and editorial board member of the Annals of Surgery and Surgery. He has been elected as an Honorary Fellow of the American Surgical Association and the American College of Surgeons, as well as an Honorary Member of the European Surgical Association.

RESEARCH INTERESTS

Liver transplantation, Hepatobiliary and pancreatic surgery

Deok-Bog Moon

AFFILIATION

Department of Hepato-Biliary Surgery and Liver Transplantation, Asan Medical Center, University of Ulsan College of Medicine, Korea

BRIEF CV

Prof. Moon, MD is the Professor, Hepato-Biliary Surgery and Liver Transplantation, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea.

He completed resident courses of General Surgery in 1997. Since 2001, he has been specialized in Hepato-Biliary Surgery and Liver Transplantation at Asan Medical Center. He is Hepato-Biliary and Liver Transplantation surgeon, working as a team-member of at Hepato-Biliary Surgery and Liver Transplantation unit with esteemed Professor Sung-Gyu Lee, at Asan Medical Center, Seoul, Korea. In liver transplantation, his major is recipient surgery including heaptectomy & implantation & hepatic artery anastomosis under microscope. The technique learned from liver transplantation is also very useful to perform hepato-biliary surgery. Therefore, his main interest is to perform the challenging operation which was inoperable before introduction of techniques used for liver transplantation.

RESEARCH INTERESTS

Hepatocelluar carcinoma and liver transplantation, Biliary and pancreatic surgery.

Yasuhiro Ogura

AFFILIATION

Department of Transplantation Surgery, Nagoya University Hospital, Japan

BRIEF CV

Prof. Ogura received M.D. from Kyoto University, Japan, in 1991, and completed surgical training for next several years. My Ph.D. program of Transplant Immunology, Kyoto University, started in 1996. During his Ph.D. course, he continued a transplant research at Transplant Immunobiology Lab., Stanford University, USA, between 1998 and 2001. After the basic research period, he returned Kyoto University Transplant Team as an Assistant Professor in 2001. He contributed to many liver transplants operations including hepatic artery reconstructions at Kyoto University Hospital until 2012, except new liver transplant program set-up period at Kobe City General Hospital between 2004 and 2006. Since 2012, he is Clinical Associate Professor and Director, Transplantation Surgery, Nagoya University Hospital, Japan.

RESEARCH INTERESTS

Small-for-size syndrome and portal pressure management during liver transplant, Tolerance and rejection

Kim Olthoff

AFFILIATION

Department of Surgery, University of Pennsylvania, USA

BRIEF CV

Prof. Olthoff graduated from the University of Chicago Pritzker School of Medicine and did her surgical and transplant training at UCLA. She joined the University of Pennsylvania in 1995 and is the Donald Guthrie Professor of Surgery in the Division of Transplantation at Penn, Vice Chair for Faculty Development of the Department of Surgery, and Chief of the Division of Transplant Surgery at the Penn Transplant Institute. She is a Past-President for the ASTS, a past Chair of the Liver-Intestine Committee of the United Network for Organ Sharing (UNOS), and a Deputy Editor for the journal Liver Transplantation. Her clinical practice focuses on adult and pediatric liver transplantation and hepatobiliary surgery.

RESEARCH INTERESTS

Her research is focused on liver regeneration in the transplant setting, exploring the molecular aspects of liver regeneration and recovery, graft dysfunction, and immunity in animal models and human translational studies, most notably with the A2ALL consortium, investigating liver regeneration, and the CTOT studies, investigating early allograft dysfunction.

William Wei Sharr

AFFILIATION

Department of Surgery, The University of Hong Kong, Hong Kong

BRIEF CV

Prof. Sharr graduated from medical school of the University of Hong Kong, obtained fellowship in 2008 then started training in hepatobiliary and pancreatic surgery and liver transplantation. Currently he is a specialist surgeon on liver transplantation and hepatobiliary and pancreatic surgery. He works in the Queen Mary Hospital in Hong Kong and also the University of Hong Kong Shenzhen Hospital in China. Besides service and administrative work, he also participates in teaching and research activities.

RESEARCH INTERESTS

Management of HCC including liver transplantation and resection, Living donor liver transplantation, Donor surgery, Expanding donor pool, HBV graft.

Gi-Won Song

AFFILIATION

Department of Surgery, Asan Medical Center, Ulsan University College of Medicine, Korea

BRIEF CV

Prof. Song graduated from Pusan National University College of Medicine, Pusan, Korea. After finishing Internship, Residence and clinical fellowship in Asan Medical Center, he is a clinical associate professor in Asan Medical Center.

RESEARCH INTERESTS

Liver transplantation, HCC

Kyung-Suk Suh

AFFILIATION

Department of Surgery, Seoul National University College of Medicine & Hospital, Korea

BRIEF CV

Prof. Suh graduated from Seoul National University Medical College in 1984. After finishing Intern and Residence in Seoul National University Hospital, he joined as a faculty Staff as an instructor in 1993 at the Department of Surgery, Seoul National University Hospital. From 2012, he is a Professor and Chairmen at the Department of Surgery Seoul National University College of Medicine.

RESEARCH INTERESTS

Liver resection, Liver transplantation, Hepatocellular carcinoma

Yasutsugu Takada

AFFILIATION

Department of HPB and Breast Surgery, Ehime University, Japan

BRIEF CV

Prof. Takada graduated from Kyoto University in 1983. He has been with Kyoto University, Japan as a hepatic and transplant surgeon since 1988. He was a Senior Assistant Professor in the Department of Surgery, Tsukuba University from 1995-2003. He was an Associate Professor in the Department of HPB and Transplant Surgery, Kyoto University from 2003-2009. He has been a Professor and Director in the Department of HPB and Breast Surgery, Ehime University since 2009.

RESEARCH INTERESTS

HPB surgery, LDLT, Liver transplantation for hepatocellular carcinoma, Liver transplantation for HCV-positive patients

Sumihito Tamura

AFFILIATION

Artificial Organ and Transplantation Division, Department of Surgery, The University of Tokyo Hospital, Japan

BRIEF CV

Prof. TAMURA graduated from Osaka University in 1992. Following surgical training including abdominal transplantation surgery fellowship under prof. Tzakis at Jackson Memorial Hospital, Miami, FL USA, he became Assistant Professor under Prof. Makuuchi at The University of Tokyo Hospital in 2004. Currently he is appointed Associate Professor and is also director of Tissue Bank and International Medical Center of the institution.

RESEARCH INTERESTS

Liver disease, Liver trasnplantation, Organ transplantation, Donor safety in living liver donor, Tissue transplantation, Tissue banking, Cyropreservation of homograft, Medical education, Surgical training, Medical care for foreign patients in Japan, Multicultural resource for health care

Chih-Chi Wang

AFFILIATION

Department of General Surgery, Kaohsiung Chang Gung Memorial Hospital, Taiwan

BRIEF CV

Education:

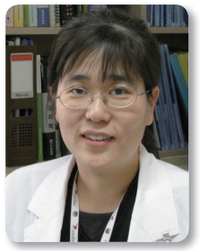
China Medical College (1978~1985)

Employment Record:

1. Attending Staff, Division of Trauma Surgery, Lin-Kou Chang Gung Memorial Hospital (CGMH) (1992~1993) Division of General Surgery, Lin-Kou CGMH (1993~1994)
2. Research Fellow, Intensive Care Unit, Department of Anesthesiology, Harbor UCLA (March 1994~Oct. 1994)
3. Research Fellow, Liver Support Unit, Department of Surgery, Cedars-Sinai Medical Center, UCLA School of Medicine, Los Angeles, California (Oct. 1994~Apr. 1996)
4. Director, Division of General Surgery, Kaohsiung CGMH (July 2007~now)
5. Professor, Kaohsiung CGMH (July 2014~now)

RESEARCH INTERESTS

Liver resection, Hepatocellular carcinoma, Liver transplantation, Liver support system, Liver failure



Nam-Joon Yi

AFFILIATION

Department of Surgery, Seoul National University College of Medicine, Korea

BRIEF CV

Prof. Yi graduated from Ewha Womans University on 1996. She is mainly working on liver transplantation. She has a special expertise in living donor liver transplantation and pediatric liver transplantation.

Her work focuses on

- Clinical studies of antiviral therapy for the recipients with hepatitis B virus associated liver disease
- Surgical technique for maximum use of a marginal graft and pediatric transplantation
- Micro-chimerism and tolerance in the field of pediatric living donor transplantation
- Developmental problem in post-transplant children
- Biologic behavior of HCC and metastatic tumor

RESEARCH INTERESTS

Regeneration of the small-for-size graft, Changes of bile salt transporter on canalicular membrane of hepatocyte after transplantation, Micro-chimerism of the graft in the pediatric liver transplantation, Biologic behavior of liver cancer

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NOVARTIS

GREEN CROSS

Chong Kun Dang Pharm. Seoul,Korea

SK chemicals
Life Science Biz.

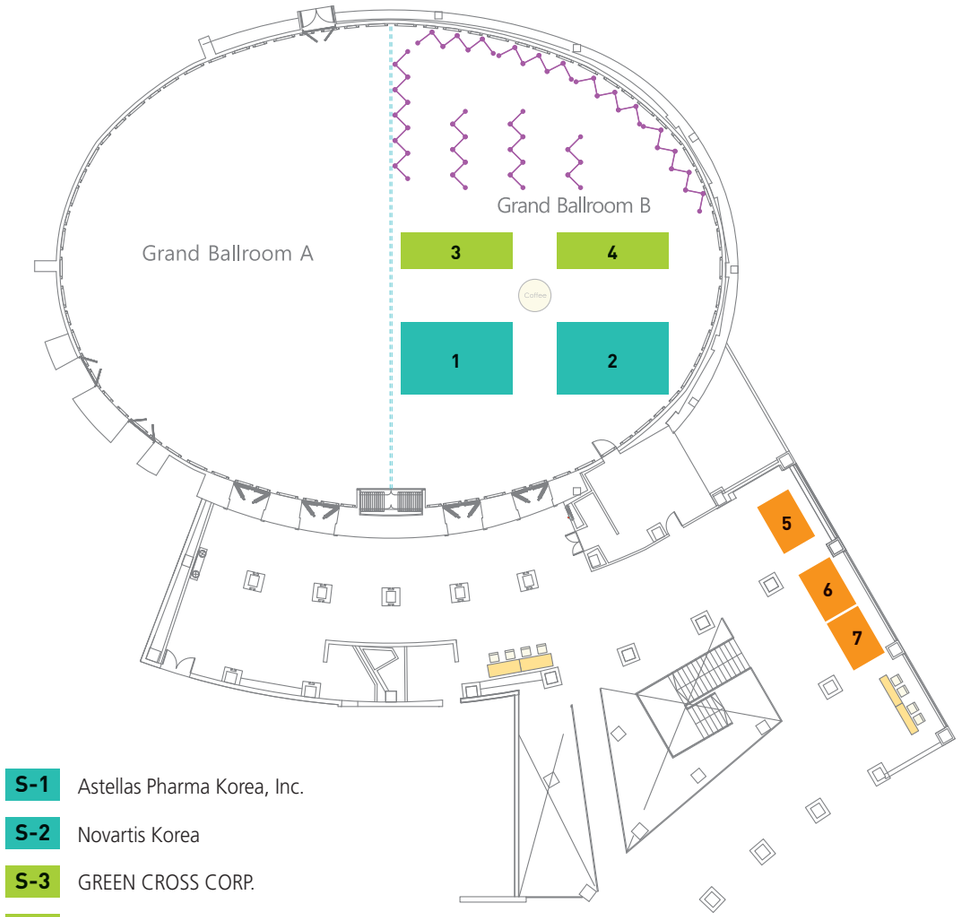
Roche 주식회사 한국로슈

Mitsubishi Tanabe Pharma

EXHIBITION INFORMATION

DATES	November 8 (Sat), 2014
OPENING HOURS	09:00-18:00
PLACE	Grand Ballroom B

EXHIBITION HALL LAYOUT



- **S-1** Astellas Pharma Korea, Inc.
- **S-2** Novartis Korea
- **S-3** GREEN CROSS CORP.
- **S-4** Chong Kun Dang Pharm
- **S-5** SK Chemical
- **S-6** Roche
- **S-7** Mitsubishi Tanabe Pharma

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EXHIBITION DIRECTORY

BOOTH S-1 **Astellas Pharma Korea, Inc.**

astellas
Leading Light for Life

PRESIDENT	Hai Do Jeong
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TEL	+82-3448-0504
WEBSITE	http://www.astellas.com/kr/
E-MAIL	
ADDRESS	3F, Geumha bldg.., 401, Hakdong-ro, Gangnam-gu
CITY STATE	Seoul
COUNTRY	Korea
ZIP-CODE	135-766

Astellas Pharma Korea, Inc. is the Korean subsidiary of a leading global pharmaceutical company with outstanding R&D capabilities and a worldwide network. It was founded on April 1st, 2005, through a merger between Fujisawa Pharmaceutical Co., Ltd. and Yamanouchi Pharmaceutical Co., Ltd., using 100% Japanese funding and dedicated to the goal of continued increase in company value. Astellas has contributed to increasing the quality of life of customers by developing drugs to treat adult diseases and disorders such as urination disturbances common in men, frequent urination commonly in women, overactive bladder syndrome that causes frequent bathroom trips, as well as painful atopic dermatitis. The company also developed Prograf and Advagraf, and immunosuppression agent, which has improved the survival rate of organ transplant recipients. Astellas Pharma Korea has been growing as a firm, taking pride in its contributions to customer quality of life, and provision of premium medicines in Korea, including Prograf, Advagraf, Harnal, Vesicare and Protopic Ointment. It also a promising company in the mid-to-long term with many superb products awaiting further development, clinical testing, and launch. Astellas Pharma Korea does not aim to merely expand sales volume, but will continuously increase company value with the goal of maximizing added value for customers and those seeking better health, by establishing its Global Category Leader business model.

BOOTH S-2 Novartis Korea

PRESIDENT	Brian Gladsden
FAX	+82-785-1939
TEL	+82-768-9201
WEBSITE	www.novartis.co.kr
E-MAIL	Narae.kim@novartis.com
ADDRESS	18F, Yonsei Severance Bldg, 10, Tongil-ro, Joong-gu, Seoul
CITY STATE	Seoul
COUNTRY	Korea
ZIP-CODE	100-753

Novartis AG, headquartered in Basel, Switzerland, is a leading global innovation-driven pharmaceutical company which is committed to discover and develop innovative drugs to cure diseases, to ease suffering and to enhance the quality of life through its more than 140 years history. Today, Novartis is one of the fastest growing global pharmaceutical companies, ranking the 2nd largest in the world. Novartis Group companies employ about 100,000 people and operate in over 140 countries. Novartis Korea is an affiliate of Novartis AG. Its major products include Neoral(Transplantation, Psoriasis), Certican/Myfortic/Simulect(Transplantation), Diovan/Exforge (hypertension), Glivec/Tasigna (leukemia), Exelon (dementia), Galvus (diabetes), Stalevo (Parkinson's disease), Femara (breast cancer), Lucentis (AMD), Sandimmun Neoral/Certican (immunosuppressant), Aclasta (osteoporosis), Exjade (iron overload). Novartis Korea was created in 1997 through merger of Sandoz Korea established in 1984 and Ciba-Geigy Korea, and has made every effort to improve the nation's quality of life, taking over Novartis' 'caring and curing', corporate mission and philosophy. Novartis Korea is committed to do its best to contribute to Korean society and Korean people's health and is aspired to become the most respected and successful pharmaceutical company in Korea. We also support the rapid development of the Korean healthcare industry. We are making innovative drugs available to Korea and provide recent scientific information through our leading edge clinical programs and our medical expertise.

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BOOTH S-3 GREEN CROSS CORP.

PRESIDENT	Soon-Tae Cho
FAX	+82-31-260-9412
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WEBSITE	www.greencross.com
E-MAIL	yuwill@greencross.com
ADDRESS	107, Ihyeon-ro 30beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do, Korea GREEN CROSS CORP.
CITY STATE	Yongin-si, Gyeonggi-do
COUNTRY	Korea
ZIP-CODE	446-770

Having spearheaded the biotechnology industry in Korea for the last half century,
Green Cross is now evolving into 'a global leader in healthcare industry' for a happy future for everyone.
For this, Green Gross promises to you it will put into practice its values: care, compassion, fairness, integrity and respect for all humanity. These are the values embodied by green cross on the basis of the spirit of creativity and challenge.
Our goal is to help people be free from the physical pain caused by diseases, so that they can lead stable and happy lives. Green Cross aims to become a leading healthcare service provider in fields such as medicines, medical equipment and healthcare services, and to help maintain and improve people's physical and mental health through disease prevention, diagnosis and treatment.

BOOTH S-4 Chong Kun Dang Pharm

PRESIDENT	Jung Woo Kim / Kyu Don Kim
FAX	02-3149-7966
TEL	02-3149-7976
WEBSITE	www.ckdpharm.com
E-MAIL	jh-6479@ckdpharm.com
ADDRESS	Chong Kun Dang bldg, Chungjeongno 3-ga. Seodaemun-gu, Seoul, korea
CITY STATE	Seoul
COUNTRY	Korea
ZIP-CODE	KS013

Chong Kun Dang Pharmaceutical Corporation (CKD) has been supplying the best quality medicine to the people in need since its inception in May 1941.
In 1968, CKD obtained USFDA approval for Chloramphenicol API which was the first commemorative USFDA approval for raw materials in Korean pharmaceutical industry. Beyond the Korean market, CKD has exported its finished products to overseas markets.
CKD has a variety of its own products and pipeline: specialty products such as Cyclosporine (Cipol-N®) and Tacrolimus (TacroBell®), new chemical entities - Camtobell® injection, anti-cancer drug and Duvie®, anti-diabetic drug, and biological products - HPV vaccine, Darbepoetin-α and G-CSF biomsiliars.
Recently, CKD-732, anti-obesity drug being licensed out to Zafgen (USA), was reported its successful completion of the phase IIa study.

BOOTH S-5 SK Chemicals Life Science

PRESIDENT	Inseok Lee
FAX	+82-2-2008-2823
TEL	+82-2008-2895
WEBSITE	http://www.skchemicals.com/kr/business/bs_life.asp
E-MAIL	itsnow21@sk.com
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CITY STATE	Gyeonggi-do
COUNTRY	Korea
ZIP-CODE	463-400

First comes the advancement of human health and the protection of the Earth's environment through environmentally-friendly materials and provision of total healthcare solutions.

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BOOTH S-6 Roche

PRESIDENT	Mike Crichton
FAX	+82-2-561-7288
TEL	+82-2-3451-3713
WEBSITE	www.roche.co.kr
E-MAIL	junghyun.seo@roche.com
ADDRESS	17th GT Tower(East), 411, Seocho-daero, Seocho-gu, Seoul
CITY STATE	Seoul
COUNTRY	Korea
ZIP-CODE	137-856

Roche has brought many highly effective drugs onto the market and is a world leader in innovative cancer drugs. Other areas include viral infections, metabolic, central nervous system disorders and inflammantory disease.

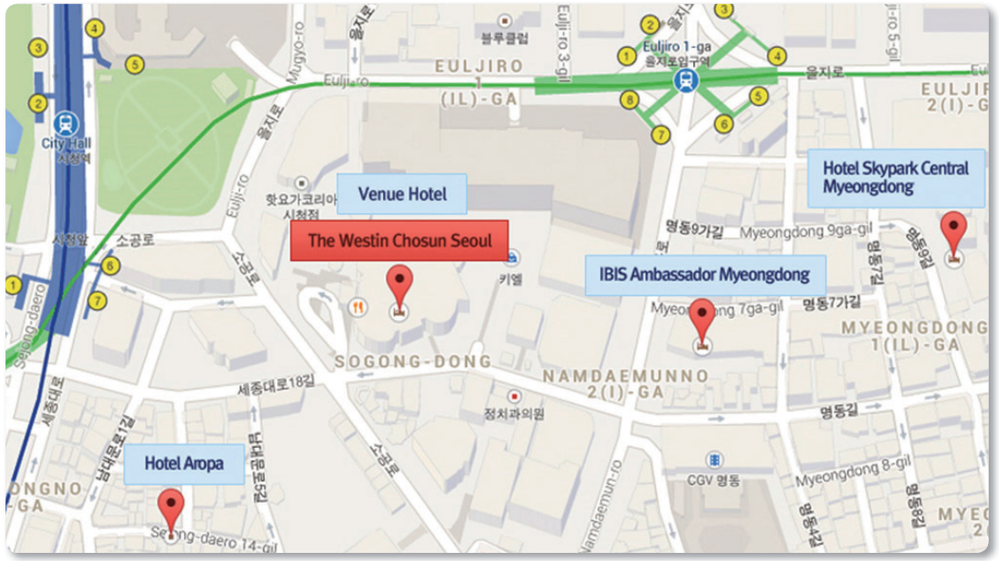
BOOTH S-7 Mitsubishi Tanabe Pharma

PRESIDENT	Matsuoka Kazuharu
FAX	+82-2-579-125
TEL	+82-2-579-0121
WEBSITE	www.mt-pharma-korea.com
E-MAIL	achasan@mt-pharma-korea.com
ADDRESS	21F MMAA Bldg, 2806, Nambusunhwan-ro, Gangnam-gu, Seoul, Korea
CITY STATE	Seoul
COUNTRY	Korea
ZIP-CODE	KS013

Mitsubishi Tanabe Pharma's philosophy states that "We contribute to the healthier lives of people around the world through the creation of pharmaceuticals." In accordance with this philosophy, as we implement our business activities we strive to realize our vision, which expresses that "We strive to to be a global research-driven pharmaceutical company that is trusted by communities."

ACCOMMODATION

LOCATION



VENUE HOTEL: THE WESTIN CHOSUN SEOUL

CATEGORY	HOTEL	DISTANCE FROM VENUE	WEBSITE
Venue Hotel	The Westin Chosun Seoul	Venue Hotel	http://www.echosunhotel.com/Eseoul.action

*Check-in time is 15:00 and check-out time is 12:00.

SUB-HOTELS

CATEGORY	HOTEL	DISTANCE FROM VENUE	WEBSITE
Sub-hotel	IBIS Ambassador Myeongdong	About 348m About 6 min. by foot	https://ibis.ambatelen.com/myeongdong/main.amb
Sub-hotel	Hotel Skypark Central Myeongdong	About 600m About 9 min. by foot	https://www.skyparkhotel.com:4438/eng/html/a/06.asp
Sub-hotel	Hotel Aropa	About 300m About 5 min. by foot	http://www.hotelaropa.co.kr/eindex.php
Sub-hotel	Hotel TONG Myung-Dong	About 600m About 9 min. by foot	http://www.tonghotel.com/myeongdong/sub01.php?mid=2
Sub-hotel	Maru Guest House	About 650m About 10 min. by foot	http://www.guesthousemaru.co.kr/en/

TRANSPORTATION

VENUE

- **VENUE** The Westin Chosun Seoul
- **ADDRESS** 106, Sogong-ro, Jung-gu, Seoul, Korea
- **TEL** (82-2)771-0500
- **WEB** http://www.echosunhotel.com/Eseoul.action

TRANSPORT INFORMATION

1) Transportation from Incheon International Airport

TRAVEL TIME

- Typical: 1 hour 10 min
- Rush Hour: Over 2 hours

HOTEL LIMOUSINE RENT CAR

- Hotel Limousine/Rent Car Pick-up: KRW 165,000 (including toll gate fee)
- Hotel Limousine/Rent Car Sending: KRW 155,000 (including toll gate fee)

TAXI (FARES ARE APPROXIMATE)

- Regular: KRW 50,000 (excluding toll gate fee)
- Deluxe: KRW 85,000 (excluding toll gate fee)

KAL LIMOUSINE BUS TIME TABLE

AIRPORT	ROUTE	FIRST BUS	LAST BUS	FEE
Incheon International Airport	The Westin Chosun Seoul - Incheon International Airport	05: 03	18: 38	KRW 16,000
	Incheon International Airport - The Westin Chosun Seoul	04: 45 (East) * 22: 44 (East) *	04: 49 (West) * 22: 48 (West) *	
Remarks		Every 20 min		

* (Bus Stop: East Direction 4B/West Direction 11A)

BUS ROUTE

- Incheon International Airport - Koreana Hotel - Plaza Hotel - **The Westin Chosun Seoul** - Lotte Hotel - Koreana Hotel - KAL(Korean Air Head office) - Lotte City - Seoul Garden(Best Western) - Incheon International Airport

2) Transportation from Gimpo Airport to The Westin Chosun Seoul

HOTEL LIMOUSINE / RENT CAR

- Hotel Limousine/Rent Car Pick-up KRW 120,000
- Hotel Limousine/Rent Car Sending KRW 110,000

GENERAL INFORMATION

(1) ATM (AUTOMATED TELLER MACHINES)

Travelers who carry internationally recognized credit cards can get cash advances in Korean Won at the Automated Teller Machines installed in airports, major hotels, department stores, subway stations, and tourists attractions.

(2) BUSINESS HOURS

Banks, post offices, and public offices are generally open from 09:00 to 17:00 on weekdays, but are closed on Saturdays and Sundays. Most of the shops are open from 10:00 to 22:00 through the entire week.

(3) CLIMATE & CLOTHING

The weather in Seoul in November is usually changeable with daily temperatures ranging from -6℃ to 21℃. It is recommended that you take an outer garment with you when you go outside.

(4) CURRENCY

The unit of the Korean currency is the Won (₩). Coin denominations are ₩10, ₩50, ₩100, and ₩500. Banknotes are ₩1,000, ₩5,000, ₩10,000, and ₩50,000. The exchange rate is approximately USD 1 to KRW 1,067.50 as of November 2014.

(5) TIPPING

Tipping is not customary in Korea. Sometimes, expensive restaurants and luxury hotels may add a service charge of 10%. Thus, you do not necessarily have to prepare for extra charges since it will be included in the bill.

(6) ELECTRICITY

In Korea, 220 volt outlets are most common. Some hotels provide 110 volt outlets for shavers. Please check the power supply before use.

(7) EMERGENCY

Dial 119 for the fire department and medical assistance and 112 for the police.

(8) TELEPHONE

For international calls, first dial the international dialing code (001, 002 or 00700), then the country code, followed by the area code, and then the phone number.

NOTE

The 1st International Congress of

Living Donor Liver Transplantation Study Group

ABSTRACTS

The 1st International Congress of

Living Donor Liver Transplantation Study Group

INVITED LECTURES

MEET THE EXPERT AT THE EARLY MORNING 1

Donor evaluation protocol in LDLT 07:30-08:30

Donor evaluation protocol in LDLT at the University of Tokyo Hospital

Sumihito Tamura

Artificial Organ and Transplantation Division, Department of Surgery
The University of Tokyo Hospital, Japan

Donor evaluation and safe donor surgery is the most significant component for a successful living donor liver transplant program.
Currently, in large, two schools of thought can be recognized for living donor hepatectomy. One is to obtain a graft as large as possible to secure the success of recipient surgery. Right liver graft is more likely to be the favored choice in adult-to-adult cases. The other approach is to obtain a graft as small as possible, leaving a comfortable size remnant in the donor for securing the safety of the donor. The latter approach is more commonly accepted in Asia, where living donor liver program has evolved in the hands of experienced hepato-biliary surgeons.
At the University of Tokyo Hospital, We have based our selection criteria on an algorithm based protocol for the smallest possible graft types in each case. In the presentation, our experience and outcomes will be discussed, together with some technical details and options.

MEET THE EXPERT AT THE EARLY MORNING 1

Donor evaluation protocol in LDLT 07:30-08:30

Donor Evaluation Protocol

Nam-Joon Yi

Department of Surgery
Seoul National University College of Medicine, Korea

Introduction

Donor surgery may give a harmful effect to a healthy person. It contradicts Hippocratic oath; "never do harm to anyone". What we can do here is to minimize donor morbidity and mortality as low as possible. In this regard, the preoperative evaluation is very important. The evaluation should include psychosocial and ethical issues as well as medical suitability. The medical workup should include any issues that may increase the risk of both the donor and the recipient. At the same time, it should be not harmful to donor and the cost benefic issue should be considered.

Donor work up protocol

The donor work up must include sufficient evaluation time if possible. Many centers adopt step by step evaluation policy to avoid unnecessary tests. The evaluation starts when a potential donor expresses the willingness of donation and informed fully about the nature of this operation.

Three-step evaluation protocol is used in my center (Fig.1). At the Step1, the general condition of the potential donor is evaluated. The assessment includs the medical history, body size, psychosocial circumstance, and basic blood and urine profile. Donor age is usually between 19 and 60 years. ABO compatibility is not contraindication. A relationship between the recipient and donor should be within the third degree of consanguinity or an intense emotional relationship should be judged by ethical board of local committee. At the Step 2, potential donor undergoes tests for viral disease and neoplastic disease and imaging studies for anatomy and quality of the liver. At the Step 3, the invasive procedures required to investigate the potential problems discovered during phases 1 and 2 are done. This included a liver biopsy, or additional consultations and procedures. A preoperative liver biopsy was taken from those donors suspected having moderate amount of steatosis from imaging studies. A conventional hepatic angiography and endoscopic retrograde cholangiography was not routinely performed. The volume of the liver is calculated by CT imaging. The biliary anatomy is confirmed by MRCP and 20min delay phase of Primovist MRT. In my center, operative cholangiogram is not routinely used. The presence of mild systemic diseases, such as well-controlled mild hypertension or diabetes, is not necessarily a contraindication. The donors are advised to stop smoking and drinking. If there are no antibody for hepatitis A and B, vaccination is scheduled before operation. The remnant liver volume of more than 30% of the whole liver is recommended. Macrovesicular steatosis less than 20 % can be used but the remnant liver volume should

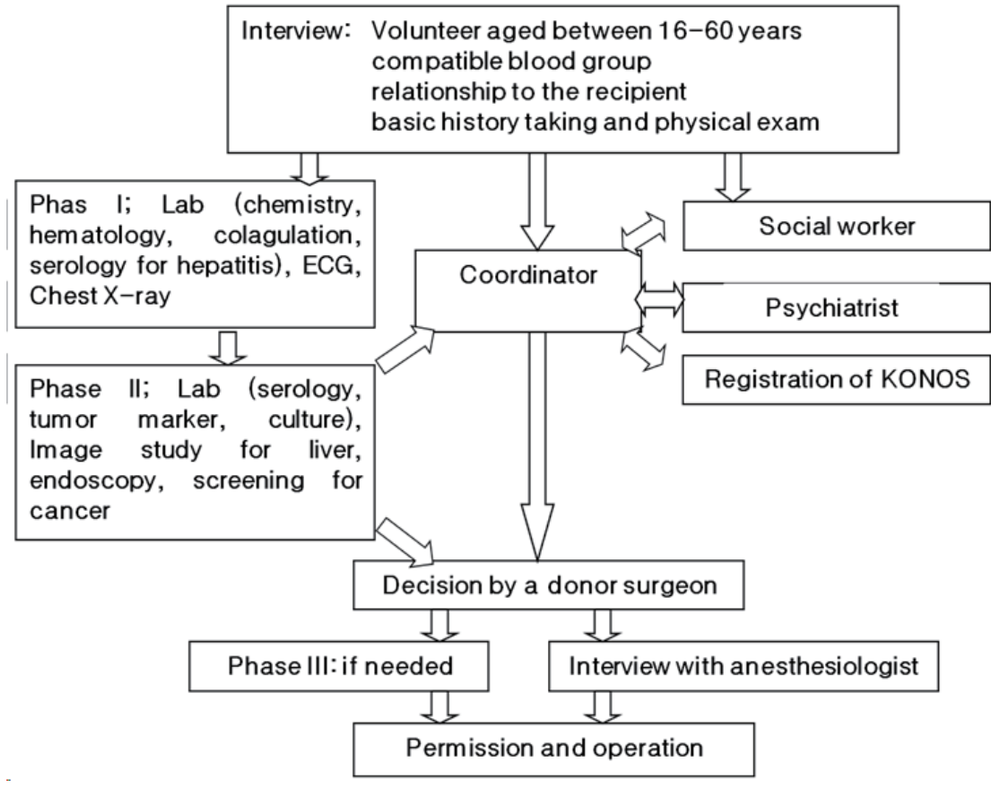
be more than 35%. If macrovesicular steatosis is more than 10%, we do liver biopsy and recommend of diet control. Donors with a graft versus recipient weight ratio ≥ 0.8% were generally accepted. Minimal variation of the anatomy of the liver has been accepted.

If the whole process has been accepted, a donor surgeon decides the type of operation. For donor operation, no autologous blood is preserved. We do not use a central line and cell saver. Any blood product has been used in my center. The medication should be minimal after operation. NG tube and Foley catheter are removed the day or one day after operation. A live donor is discharged about 7 days after operation. A live donor visits an outpatient clinic at1, 4, 12 months after operation for routine check-up.

Conclusion

Meticulous donor evaluation, operation and perioperative management is most important part for the successful LDLT, in both donors and recipients.

Fig. 1. Three-step evaluation protocol of the live donor in SNUH



MEET THE EXPERT AT THE EARLY MORNING 2

Hepatic arterial anastomosis – inflow selection and anastomosis techniques 07:30-08:30

Hepatic arterial anastomosis – inflow selection and anastomosis techniques

Yasuhiro Ogura

Department of Transplantation Surgery
Nagoya University Hospital, Japan

For the successful living donor liver transplantation (LDLT), all vascular anastomosis are very important. Especially hepatic arterial anastomosis is crucial, because the complications of hepatic arterial anastomosis directly lead to graft loss.
Regarding hepatic arterial reconstruction procedures, there are many differences in each LDLT transplant institute. Operators of hepatic arterial reconstruction could be transplant surgeons, neurosurgeons, plastic surgeons and so on. Anastomosis under loupes, or under surgical microscope is another choice.
With my over 600 personal experiences of hepatic arterial reconstructions, I have been using surgical loupes for adult cases, and surgical microscope for pediatric cases.
In this presentation, I will show some tips of hepatic arterial anastomosis techniques under loupes with some video clips.

Hepatic artery anatomical consideration:
Anatomically speaking of graft hepatic artery, right lobe graft has a large single right hepatic artery in most cases. In contrast, left lobe graft has more variations of left hepatic artery anatomy. Left hepatic artery can be a single artery, sometimes A2+A3. When left hepatic artery is a replaced one from left gastric artery (≈15%), the length of replaced left hepatic artery is important. Therefore, the information of graft hepatic artery anatomy must be checked precisely.
For the recipient evaluation, hepatic arterial anatomy should be checked by dynamic CT scan as well. Understandings hepatic artery anatomy can minimize the risk of the accidental injury of hepatic arteries during hepatic hilum dissection. If damaged, the selection of hepatic artery candidate for anastomosis is limited, and it is clearly disadvantage for hepatic arterial reconstruction.

Loupes:
My loupes for hepatic artery reconstruction are Zeiss EyeMag Pro Loupes®, 4.3x, 400mm working distance. With this magnification, I am confident to anastomose hepatic artery of its diameter >2.0mm. If hepatic artery diameter is <2.0mm and I feel uncomfortable using surgical loupes, I would change the procedures from using surgical loupes to surgical microscope. I think this small size limitation is the disadvantage of hepatic artery reconstruction under surgical loupes. Importantly, your assistant should equip almost the

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identical magnification power of surgical loupes, otherwise your assistant cannot help you properly.

Operative Procedures:
During recipient total hepatectomy, the recipient hepatic arteries need to be preserved as long as possible: usually very close to liver parenchyma. This high dissection gives long left hepatic artery, middle hepatic artery, and anterior and posterior branch of right hepatic arteries. This multiple option is very important, because the selection of hepatic artery for anastomosis should be decided according to the size and length of both graft and recipient hepatic arteries.
After portal revascularization, first of all, back flow from the graft hepatic artery must be confirmed before starting the hepatic arterial reconstruction procedures. If there is no back flow, graft artery may be damaged during donor operation. After the completion of graft hepatic artery preparation, one of the recipient hepatic arteries is selected not only by the size matching, but also the final anastomotic design (twisting, kinking, or overstretching should be avoided). The preparation of recipient hepatic artery is carried out, and then sufficient front flow by removing the clip must be confirmed prior to anastomosis.
I use Castroviejo Micro Needle Holder, and 8-0 Prolene, BV-130-5 needle®. By our standard technique, two stiches (12 and 6 o'clock) are placed and ligated. Then, approximately 5 interrupted stiches are placed on the anterior wall and ligated in order. After the completion of anterior wall, the posterior stiches are made as the same fashion.
The bleeding from the stitch hole will usually cease spontaneously, but additional stitch is necessary if the bleeding is significant.
When the standard technique is difficult for various reasons (size mismatch, overstretch etc.), the operators have to use some special technique according to their reasons.
Immediate after hepatic arterial reconstruction, hepatic arterial flow must be confirmed by Doppler ultrasound, and if it is not good, the surgeons need to find out the cause of inappropriate arterial flow, and sometimes need to make a decision of re-anastomosis.

Summary:
A steady and reliable technique is necessary for successful hepatic arterial reconstruction.

MEET THE EXPERT AT THE EARLY MORNING 2

Hepatic arterial anastomosis – inflow selection and anastomosis techniques 07:30-08:30

Arterial Anastomosis using Surgical Microscope in Live donor Liver Transplantation

Chul Soo Ahn, Deok-Bog Moon, Sung-Gyu Lee

Department of Liver Transplantation and Heaptobiliary Surgery
Asan Medical Center, Korea

Sufficient hepatic arterial flow is essential for graft survival with optimal function and decreasing postoperative complications in live donor liver transplantation. But in general, partial graft's hepatic arteries are small in size with thin and week vascular wall and sometimes graft had multiple arteries. In recipient, arterial sumps are relatively hypertrophied and edematous with fragile intima which is prone to get injury preoperatively or intraoperatively. So surgical microscope is applied with meticulous and precise techniques for the reconstruction of hepatic arteries

Gentle and systemic hilar dissection is needed to prevent additional injury to hepatic arteries. Recipient's arterial stump is selected by direct inspection of color, pulsation, blood flow from its opening, and size matching with donor's stump. Simple interrupted suture with intimal approximation technique is applied with various modified methods according to arterial conditions. Tension-free anastomosis is essential to prevent late stricture of artery. If the graft has multiple hepatic arteries, all of its sumps should be reconstructed. Alternative arterial flow is needed when all recipient's hepatic artery was injured. Right gastroepiploic artery can be the first possible choice. Close follow up of reconstructed hepatic artery is inevitable, early detection and early management can save the graft and patient.

In conclusion, sufficient arterial flow for transplanted graft can be achieved by meticulous and precise anastomosis with various technical modification under the surgical microscope following close postoperative monitoring.

MEET THE EXPERT AT THE EARLY MORNING 3

To surmount difficult situations in LDLT: Extensive PVT or Extensive Adhesion 07:30-08:30

To surmount difficult situations in LDLT: Extensive PVT or Extensive Adhesion

Chih-Chi Wang

Department of General Surgery
Kaohsiung Chang Gung Memorial Hospital, Taiwan

Two of the most common surgical challenges in living donor liver transplantation (LDLT) today are the presence of extensive adhesions during recipient hepatectomy and presence of concurrent portal venous thrombosis (PVT). Adhesions are fibrous bands of scar tissue that form between internal organs and tissues, joining them together abnormally. With respect to the recipient surgery in LDLT, we defined extensive adhesions as adhesions in at least 2 or more separate locations during LDLT, which required more than 5% of the total surgical time to lyse. Extensive adhesions increase total operative time and often cause significant bleeding increased risk of wound infections and there is a risk of bowel perforation during enterolysis. The common structures involved in adhesions are the anterior abdominal wall, the omentum, the duodenum, the stomach, the colon and the diaphragm in addition to the diseased liver.

In the last 3 years, we performed a total of 380 LDLT at our center including adult and pediatric cases. Out of them, 85 cases (22.4%) had a previous upper abdominal surgery. Among these 85 cases, 38 patients (44.7%) had extensive adhesions as per our definition. 9 of these patients were from the pediatric group and previously had Kasai procedure performed on them. Twenty-four patients had hepatic resection for liver tumors (e.g. hepatocellular carcinoma). Three of 85 patients had prior LDLT and underwent retransplantation. Apart from the 38 mentioned, 5 other patients also had extensive adhesions based on rare causes, like multiple paracentesis (n=1), recurring spontaneous bacterial peritonitis (n=1), contracted liver (n=1), radiofrequency ablation (n=1) and multiple intra-abdominal abscess (n=1).

Extensive PVT was considered when there was complete obstruction of the main portal vein (PV) extending into the proximal superior mesenteric vein (SMV) or diffuse portomesenteric thrombosis (Yerdel's grade III and IV). In the last 3 years, we performed LDLT on 3 cases of extensive PVT. The various techniques for vascularization of the graft in extensive PVT grade III are thrombectomy and jump grafts from the SMV or its tributaries, often with additional techniques such as fencing of the margins or ballooning and wall stenting of the PV when required. For grade IV cases, where the SMV is completely occluded with thrombus, other techniques like cavoportal hemi-transposition, reno-portal anastomosis, portal arterialization technique or multivisceral transplantation are required for vascularization of the graft. These procedures have multiple complications like ascites (41-100%), renal dysfunction (34-100%), digestive hemorrhage (25%), lower limb edema (32%) and hepatic artery thrmobosis (11%) among others. These can also be complicated by

variceal bleeds and encephalopathy due to persistent portal hypertension. Multivisceral transplantation (MVT) remains theoretically the best method of tackling grade IV portal vein thromboses, and is the only sure way of decompressing the portal system to eradicate all thrombus. However, other drawbacks of MVT such as high cost, limited availability, increased opportunistic infections, proliferative diseases and increased number of rejections still make it a distant feasible solution to this problem.

In conclusion, both of these problems are commonly encountered in any high volume center such as ours. The possibility of adhesions and the associated risk must always be documented in writing in the course of preoperative explanation of the planned procedure for purposes of consent. General strategies for preventing adhesions should be integrated into routine clinical practice. The use of commercially available biodegradable thermosensitive micelles or other barrier techniques is particularly advisable in patients at high risk of developing adhesions. Extensive PVT is no longer a contraindication for LDLT but the best strategy for dealing with diffuse (grade IV) PVT is yet to be established. Careful pre-operative evaluation, a multi-disciplinary approach, flexibility in the operating room regarding the different surgical options and meticulous surgical techniques are important and may lead to better results in LDLT with extensive PVT.

MEET THE EXPERT AT THE EARLY MORNING 3

To surmount difficult situations in LDLT: Extensive PVT or Extensive Adhesion 07:30-08:30

Management of Portal Vein Thrombosis for Liver Transplantation

Shin Hwang

Department of Surgery
Asan Medical Center, College of Medicine University of Ulsan, Korea

Management of Portal Vein Thrombosis for Liver Transplantation

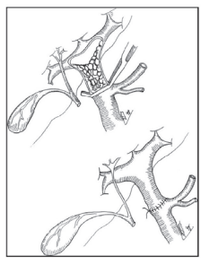
Grading of PV Thrombosis

- Grade 1 : < 50% of main PV(MPV)
- Grade 2 : >50% - 100% of MPV
- Grade 3 : Complete thrombosis of MPV & proximal SMV
- Grade 4 : Complete thrombosis of MPV, and proximal & distal SMV

Non-tumorous Portal Vein Thrombosis at AMC
(February, 2008 – December, 2012)

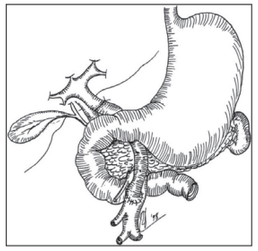
- **Total number of PVT in LT**
  : **223** / 1679 patients (**13.3%**)
  – **LDLT** : **188** / 1399 patients (**14.4%**)
  – **DDLT** : **35** /280 patients (**12.5%**)
- **Degree of PVT**
  – Partial PVT : 171 patients (76.7%)
  – Complete PVT : 52 patients (23.3%)
  – Grade 1: 93 patients (41.7%)
  – Grade 2: 120 patients (53.8%)
  – Grade 3: 7 patients (3.1%)
  – Grade 4: 3 patients (1.3%)

Grade 1 & 2
in Deceased Donor Whole Liver Transplantation



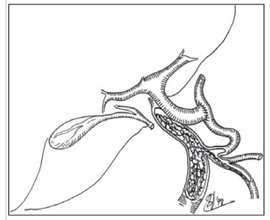
- Thrombectomy and low dissection
- Method of choice for revascularization in grades 1 and 2 PVT patients.
- It provides a suitable segment of donor portal vein distal to the thrombus

Grade 3
in Deceased Donor Whole Liver Transplantation



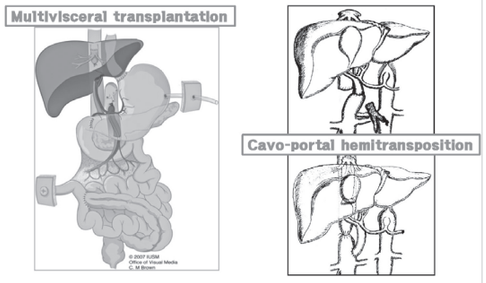
- Interposition of a donor iliac vein graft
- Between the donor distal SMV and the graft portal vein.
- The conduit is placed anterior to the pancreas and posterior to the pylorus region.

Grade 4
in Deceased Donor Whole Liver Transplantation



- A collateral of the portal system is used as an inflow vessel.
- In this case, a dilated coronary vein.

Grade 4
in Deceased Donor Whole Liver Transplantation



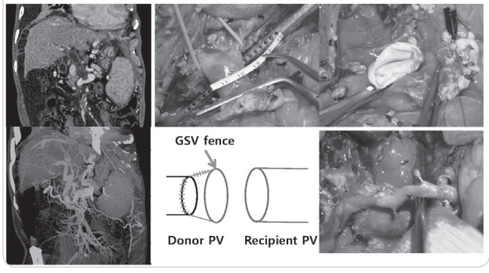
PV Thrombosis
in Living Donor Liver Transplantation

- Basically, management is not so different from DDLT.
- However, special consideration is necessary.

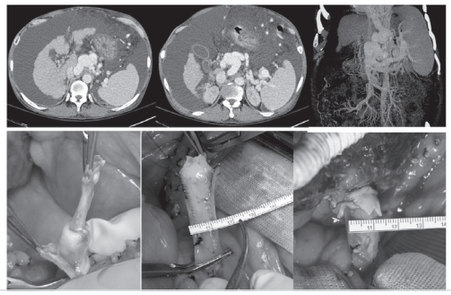
Special Considerations
in Living Donor Liver Transplantation

- **Donor PV**
  - Small & short
  - Type III donor PV
  - Absence of cadaveric fresh graft
- **Recipient PV**
  - Adequate size
    - PV stenosis
    - Large-diametered PV after thrombectomy
  - Quality of native PV wall after thrombectomy
  - Preservation of Rt. & Lt. PV for dual-graft LDLT
  - Completeness of thrombectomy
  - Presence of portal flow steal or sizable collaterals

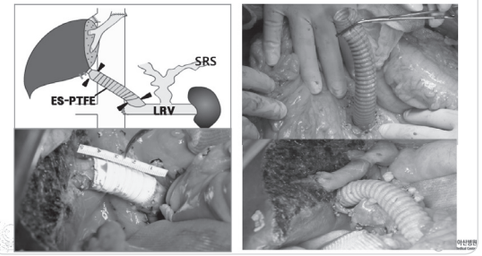
Mismatch of PV (too large)
between Donor & Recipient



Mismatch of PV (too small)
between Donor & Recipient



Absence of Cadaveric Fresh Vessel
for Interposition Graft (Grade 2,3,4 PVT)

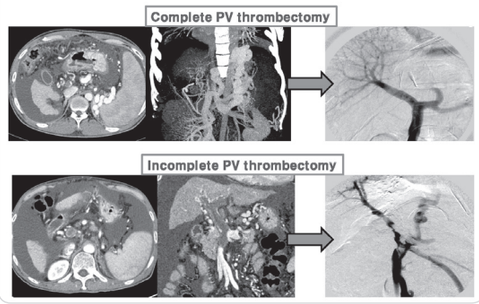


Application of Intraoperative Cine-Portogram to Detect Spontaneous Portosystemic Collaterals Missed by Intraoperative Doppler Exam in Adult Living Donor Liver Transplantation

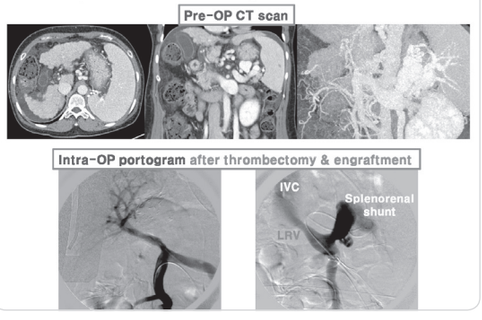
IOP is Very Useful Tools in LDLT & DDLT also.

- Precisely visualizing the significant spontaneous portosystemic collaterals not detected by intra-OP Doppler
- Monitoring the completeness of collateral ligation.
- Treating remained PVT &/or stenosis, and collaterals through PV stenting or Coil embolization

Completeness of Thrombectomy
in Grade 1, 2, 3 PVT



Presence of Portal Flow Steal
through the Preexisting Sizable Collaterals



Management of PVT at AMC (I)
in Grade 1, 2, and some of 3

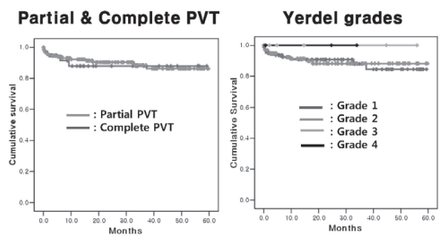
- PV thrombectomy with low dissection and eversion thrombectomy.
- Evaluation of Portal flow
  - Before interruption of sizable collaterals
  - After interruption of sizable collaterals
- Measurement of PV diameter
  - Less than 1 cm : PV plasty with GSV
  - More than 1 cm : No plasty
- Engraftment & Surgical interruption of sizable collaterals

Management of PVT at AMC (II)
in Grade 1, 2, and some of 3

Intraoperative cine-portography (IOP)

- Remained thrombosis or stenosis at intrapancreatic PV or proximal SMV
- Decision of Ballooning &/or PV stenting
  - Measurement of luminal diameter primarily
    - Less than 1 cm : Ballooning & /or PV stent placement
    - More than 1 cm : Observation after confirmation of no portal flow steal
  - Degree of luminal narrowing subsequently
    - Less than 50% of cross-sectional area : Observation
    - More than 50% of cross-sectional area : PV stenting

PV Complication-Free Survival Rate
after LDLT in PVT patients
(February, 2008 - December, 2012)



Conclusions

- Nonneoplastic PVT in cirrhotic patients must be related to the Post-LT mortality.
- However, multi-disciplinary approaches at AMC using thrombectomy, GSV plasty, interruption of collaterals, IOP with PV stenting/ballooning & collateral embolization, and interposition graft from large collateral vein decreased PVT-related complications and showed same excellent results despite difference of severity.
- Total splanchnic PVT without sizable collaterals is still a problem awaiting solution in LDLT.

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09:00-10:20

Reasonable approach for Salvage LDLT: Feasibility and Optimal timing

William Wei Sharr

Department of Surgery
The University of Hong Kong, Hong Kong

Up to date, well established curative treatments for hepatocellular carcinoma (HCC) can achieve up to 70% or even higher 5-year overall survival rate. However, due to the nature of underlying pathophysiology, intrahepatic recurrence is common, up to 50% or more in 5 years. There are many options of treatment for recurrent HCC with wide range of efficacy. The choice depends on multidisciplinary decision taking into account of patient, disease and expertise factors. Surgical approaches including salvage liver transplantation (SLT), and resection remain the mainstay of treatments whenever possible and can approach reasonable survival benefit. With experience and expertise, in selected patients, SLT is a safe operation comparable to primary LT. It has been proven to be a feasible option for recurrent HCC, with comparable results to those after resection. The difference in long-term survival after living donor SLT (SLDLT) and deceased donor SLT (SDDLT) is inconsistent among studies and not well elaborated. Considering the pros and cons of each, organ scarcity, and waiting time with risk of disease progression, SLDLT should be offered to the potential recipients.

Currently, there is no consensus in the timing of SLT. With few identified prognostic factors, we have limited knowledge of the natural course of HCC. Ideally, the timing of SLT should not be too early, but never too late. It should be clear that SLT would not change the biological behavior of HCC. Early SLT in selected patients after primary treatment may result in too many unnecessary LT, which means both recipient and donor risks. If too late, there maybe already advanced disease with undetectable extra-hepatic disease, which makes LT not beneficial to recipients. For majority standard transplantation centers, SLT is offered to patients with only intrahepatic recurrence within Milan criteria. Outcomes with such policy confirm its survival benefit. Specific to SLDLT, waiting time with bridging therapy may select patients with aggressive disease render LT not worthwhile. SLT before recurrence for those with poor tumor biology has been proposed but there is no supporting evidence so far.

In conclusion, SLDLT is technically feasible and has a role in management of recurrent HCC. Optimal timing has not yet been defined but widely adopted policy achieved satisfactory outcomes. To further extend the application of SLT and improve the outcomes, it needs more accurate markers in selection, and tools to modulate tumor biology.

[SYMPOSIUM 1] CONTROVERSIAL ISSUES IN LDLT FOR HCC

09:00-10:20

Hepatocellular cancer (HCC) and living donor liver transplantation (LDLT): Is there a role for downstaging (DS) procedures

Jan Lerut

Department of Abdominal and Transplantation Surgery
University Hospitals Saint Luc UCL Brussels, Belgium

The Milan criteria (MC) , which are based on static morphological characteristics of HCC (tumor diameter and numbers), are still, despite their introduction almost 20 years ago in clinical practice, the standard to list of HCC patients for LT. Several national and international studies very well showed that these criteria are much too restrictive, denying thereby many patients a curative treatment. Fortunately the 'conservative western' approach in this field of LT has been counteracted by the 'progressive eastern' approach. LDLT indeed became a much fertile soil on which the potential of LT in the treatment of HCC has been developed during the last two decades. Indeed by combining both morphologic and biological tumor behavior, many patients presenting with HCC far beyond the MC could be successfully transplanted. The most striking examples of this 'extended policy' have been produced by the Kyoto and Hangzhou groups and later on by Toronto center.

Many initial western as well as eastern LDLT experiences indicated however a significantly higher post-LT recurrence rate in LDLT when compared to post-mortem LT (PMLT). The more careful analysis of many studies showed that different patient characteristics (e.g. type of viral infections and more advanced HCC) and neo-adjuvant strategies (e.g. more frequent partial liver resection) and, more importantly, the usually higher tumor burden might explain these differences. If so it seems logical not only to imply but also to optimize neo-adjuvant loco-regional treatments (LRT) in order to bring the, oncologic more advanced, recipient into a more favorable oncologic situation at moment of LT. Widespread application of LRT is however debated in the context of LDLT by the facts that the factor 'time' is reduced at a minimum, that the real value of neo-adjuvant LRT is still widely debated in the context of PMLT and finally that the widely most applied LRT, trans-arterial chemotherapy (TACE) damages in up to 20% of recipients the hepatic artery, a situation that may seriously compromise the outcome of LDLT.

Papers specifically looking at the value of LRT as DS procedure in HCC patients scheduled for LDLT are scarce. Most studies comparing outcomes of LDLT and PMLT in HCC patients nearly always show a significantly higher tumor burden in the LDLT group and less good results in the most advanced HCC patients. Both arguments should be in favor to implement LRT as a valuable part of the LDLT project.

The authors elaborate in this lecture on the value of tumor down-staging (DS) by LRT in the setting of PMLT. The reasons why the utility of LRT is still debated today in the context of PMLT as well as the impact of LRT on outcome of LT in , especially MC out, patients is first discussed. Secondly the scarce literature reports in relation to LRT and LDLT are presented. Although prospective studies are missing, it seems that LRT may improve results of LDLT for HCC.

The combination of neo-adjuvant LRT and dynamic behavior of tumor morphology and biology together with the wider application of LDLT will be of importance in order not only to improve outcomes of LT but most of all to raise the accessibility of many liver cancer patients to a curative treatment.

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[SYMPOSIUM 1] CONTROVERSIAL ISSUES IN LDLT FOR HCC

09:00-10:20

Immunosuppressive and other strategies in liver transplantation for HCC

Kwang-Woong Lee

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The hepatocellular carcinoma (HCC) has become a frequent indication for liver transplant. It account for 40-50% of LDLT in Asian countries. HCC recurrence is the main reason for inferior survival in HCC patients to non-HCC patients after liver transplantation. Historically, it was noted that recurrent HCC had a devastating clinical course, and it was customary to attribute this phenomenon to the immunosuppressed state inducing the shortcut that high doses of immunosuppression are particularly undesirable in patients with HCC as they favour recurrence.
There are several strategies to reduce the recurrence and prolonged survival even after recurrence.
In this lecture, several strategies including immunosuppression will be provided.

1) Optimal immunosuppression after LT
Sirolimus (Rapamicine) and everolimus are a new type of immunosuppressors that stop proliferation of lymphocytes because it binds and inactivates a protein named the mammalian-target of Rapamicine (m-TOR) which participates in the proliferation of the cell, especially in the cycle starting in G1 until STAGE S. The antitumor role of this medication has been observed, and it ranges from stopping cellular transformation to proliferation and metastasis development. The most impressive aspect is the effect in diminish of angiogenesis because it lowers the production of VEGF which is a stimulating agent of endothelium cells. Long termed observation shows diminish in the incidence of PTLD and skin tumors and in renal transplant patients due to Kaposi tumors that receive sirolimus. Mammalian target of rapamycin (mTOR) inhibitors have been extensively tested in the posttransplant setting and have shown protective effects in preclinical, single-center, and registry-based studies5. While these data are not fully conclusive, a randomized study is currently underway and will probably provide a final answer (SILVER study). While waiting for further evidence, we favor the use of mTOR inhibitors after liver transplantation for HCC, as they are likely to have a clinically relevant anti-HCC effect, and have shown favorable side effect profiles if started a few weeks after transplantation to decrease the risk of wound infection and dehiscence.

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2) Anticancer drugs after LT
Sorafenib was the first systemic therapy to provide a significant survival advantage in the treatment of HCC. Its adjuvant effect after resection, radiofrequency ablation or percutaneous ethanol injection is currently assessed in the phase III STORM study. The next logical step should include the assessment of sorafenib after liver transplantation for HCC. Ideally, only patients at high risk of recurrence should be included in order to maximize the probability of observing a significant effect. Of note, treatment will probably need to be delayed for a few weeks after transplantation in order to prevent healing problems linked to the anti-VEGF effect of sorafenib. Posttransplant sorafenib's side effect profile and tolerance will need careful assessment, as they may be the main limitations of the treatment.

3) Intraoperative management to reduce recurrence
Minimizing the handling of HCC during recipient hepatectomy might be helpful to reduce the recurrence, especially in case with advanced HCC

4) Screening protocol after LT
Recurrence pattern after LT is different from that in non-transplant setting. Therefore, extrahepatic screening should be included in the protocol. The interval can be different according to the number of risk factors for recurrence.

[SYMPOSIUM 1] CONTROVERSIAL ISSUES IN LDLT FOR HCC

09:00-10:20

PV tumor thrombus in segmental branch- Contraindication for LDLT?

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Body: (Purpose) Even though liver transplantation(LT) for HCC with portal vein(PV) invasion has been contraindicated because of poor prognosis after LT, living-donor liver transplantation(LDLT) for those patients is performed infrequently after informed consent because of strong request of donor & recipient. Our experiences of LT for HCC with PV invasion hinted that some patients could survived unexpectedly long. Here, we aim to find their outcomes and favorable prognostic factors by reviewing LT patients for HCC with PV invasion. (Methods) From October 1993 to December 2013, LT for HCC with PV invasion was performed in 51 patients(3.4%) among total 1473 LT patients for HCC. LDLT was 90.2% and deceased donor LT was 9.8%. Variables related to HCC were evaluated how much affected on survivals. (Results) The overall and disease free 5-year survival rate after LDLT for HCC with PV invasion were 31.2% and 30.8%, respectively. On pre-LT CT scan, portal vein tumor thrombus(PVTT) level were main PV 2%, 1st order brahcnes 31.4%, 2nd order branches 29.4%, 3rd order branches 37.3%. Among PVTT level, there were no overall and disease free survival differences. Pretransplant treatment for HCC was performed for 45 patients(88.2%) and the viability of PVTT on pre-LT CT scan disappeared in 13 patients(28.9%). The mean survival of the patients with history of pre-transplant treatment for HCC was better than the patient without them. The patients without viability of PVTT on pre-LT CT scan had significant better overall survival than the others. (Conclusions) Among HCC patients with PV invasion, selected patients without viability of PVTT might be a good candidate for LT minimizing the previously reported harmful effect related to PVTT.

[DEBATE SESSION] HOW TO OPTIMIZE RECIPIENT OUTCOME IN LDLT FOR HIGH MELD PATIENTS: SELECTION VS MANAGEMENT

10:20-11:20

Western Perspective: Patient selection

Kim Olthoff

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Living donor liver transplantation (LDLT) for adults has been particularly well embraced by Asian countries for all MELD scores, given the extreme shortage of deceased donors. In contrast, North America, South America, and Europe have been able to build successful and sustainable infrastructures for deceased donation, and the adoption of a MELD-type of allocation system in many countries has decreased wait list mortality by prioritizing the patients with the greatest disease severity and the highest risk of death. In contrast to the 25 deceased donors per million U.S. citizens annually the number in Asia is approximately 5 per million citizens. Due to the greater availability of deceased donors in Western centers, LDLT has only constituted approximately 2-9% of total liver transplants in both Europe and the United States over the last 15 years (OPTN data, ELTR data). In the early 2000s, LDLT expanded to a greater degree in both Europe and the U.S., representing up to 11% of all liver transplants in Germany and 9.3% of U.S. liver transplants at its height in 2001. However, the annual number of LDLT performed in the U.S. and Europe has failed to increase, due mainly to concerns regarding donor safety. In 2013, there were 6203 DD liver transplants done in the US and only 252 LDLT. Despite this, living donor liver transplantation in adult recipients continues to have significant merit in the West, despite its more restricted utilization. Compared to Asia, LDLT is utilized more for select recipients who are currently disadvantaged by the MELD-based system of liver allocation, thus the mean MELD at transplant for LDLTs is significantly lower than the mean MELD at transplant for DDLT. The availability of deceased donors for high MELD patients has minimized the need for the use of LDLT in these critically ill patients, although the mean MELD at transplant continues to rise and the gap between the waitlist and the availability of deceased donors continues to widen, so LDLT may start to increase once again.

It has become clear that the outcome of LDLT depends on several critical factors: 1) proper recipient selection, 2) proper donor selection, 3) appropriate size matching between donor and recipient, and 4) meticulous attention to technical detail. However, the most significant determinant of post-transplant outcome among LDLT recipients is potentially liver disease severity. Early published series reported poor outcomes among high MELD recipients, and centers shyed away from performing LDLT in acute liver failure and high MELD patients. More recent publications from high volume centers in North America show comparable short and long term outcomes, albeit in a very select group of high MELD patients [1].

Altogether, these data suggest that although the complex technical issues and the more limited graft mass supplied by LDLT may be limiting in patients with high physiologic demand, MELD score alone does not reliably identify recipients too sick for LDLT. Similarly, in Europe, LDLT is generally avoided in recipients who possess MELD scores over 25 [2], and published data indicate that European recipients of LDLT generally have MELD scores in the range of 15 to 23 and are more frequently transplanted for cholestatic liver disease and HCC [3]. Hence, the patient population selected to receive a LDLT in Europe greatly resembles LDLT recipients in the United States and Canada in terms of graft type, transplant indication, and degree of liver disease severity.

Overall, patient and graft survival outcomes among adult LDLT recipients are excellent. A recent review of UNOS/OPTN data demonstrates patient and graft survival among live donor recipients in the United States that exceeds 80% and 70% at 5 years, respectively (http://optn.transplant.hrsa.gov/). In addition, more recent OPTN data unequivocally demonstrate comparable, or even better, 5 year patient survival among LDLT and DDLT recipients and show that early graft failure among both DDLT and LDLT recipients has decreased precipitously in recent years. In Europe, patient and graft survival outcomes for adult recipients of living donor liver transplants are also excellent. As published in the referenced single- and multi-center reports and database reports, one-year patient and graft survival in North America and Europe is consistently on the order of 80%, with 3-5 yr survival is approximately 70% (www.eltr.com).

Despite improving outcomes, the number of patients with a MELD over 30 receiving a LDLT is still rare. We have reviewed the incidence and outcome of LDLT in the US in high MELD patients in comparison to DDLT by analyzing the OPTN/UNOS database from centers having performed more than 15 LDLT. Over a 10 year period (2002-2012) only 19 patients with MELD ≥ 30 were transplanted with LDs. Four were from home, 11 from the hospital (non-ICU), and 4 were ICU. Three were on dialysis prior to transplant, and all 3 survived. Of the 19, 5 died, and all 5 were in the hospital prior to transplant (not ICU), most dying within the first 3 months post-transplant. In addition, the 5 who died were older; 54, 59, 64, and 65 (not statistically significant) than those that survived. Importantly, one year survival was still over 80% for these highly selected high MELD patients.

We have also investigated the donor and recipient factors that contribute to the best outcomes using a modified living donor risk index (LDRI). Goldberg et has recently utilized OPTN/UNOS data from 2/27/02-12/2/2012 comparing LDLT (N=2103) to DDLT (N=44,512) [4]. As expected, DDLT recipients had higher MELDs and were more likely to be in the hospital. Post-transplant outcomes in experienced centers had significantly better graft and patient survival with LDLT compared to DDLT. Patients with autoimmune or cholestatic liver disease also did better with LDLT, whereas there was no difference with HCV or NASH or ETOH. A risk score was developed using recipient age/weight/diagnosis/albumin and donor age/weight/lobe type (L vs. R) that had predictive value and may help donor/recipient matching. Ongoing studies are attempting to validate this predictive score in Asian populations over a much wider range of MELD scores.

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In summary, living donation is currently utilized in the West for relatively stable cirrhotic patients with low to mid MELD scores, often with decompensations that do not increase their MELD score. Although contemporary data from UNOS/OPTN indicate comparable or even improved patient survival with LDLT in experienced centers, the numbers of LDLT in the West have not increased. In addition, enthusiasm for LDLT in the West continues to be tempered by concerns over donor safety. Although serious donor morbidity and mortality are extremely uncommon throughout the U.S., Canada, and Europe, the incidence of complications among living donors cannot be ignored, and the potential of a donor death is always present. These issues, in addition to the relative widespread access to deceased donors, explain why Western centers continue to view LDLT as an option for only select adult recipients despite excellent donor and recipient outcomes and progressive experience with this complicated technique. As experience is gained, and as the gap widens between listed patients and deceased donor availability, we should learn from our Asian colleagues and increase the use of living donors in the West.

1. Selzner, M., et al., Live donor liver transplantation in high MELD score recipients. Ann Surg, 2010. 251(1): p. 153-7.
2. Neuhaus, P., Live donor/split liver grafts for adult recipients: when should we use them? Liver Transpl, 2005(11 Suppl 2): p. S6-9.
3. Settmacher, U., et al., Living donor liver transplantation in adults in the MELD era in Germany--a multi-center retrospective analysis. Transpl Int, 2011. 24(9): p. 904-11.
4. Goldberg DS, French B, Abt PL, Olthoff K, Shaked A. Superior survival using living donors and donor-recipient matching using a novel living donor risk index. Hepatology. 2014 (epub ahead of print)

[DEBATE SESSION] HOW TO OPTIMIZE RECIPIENT OUTCOME IN LDLT FOR HIGH MELD PATIENTS: SELECTION VS MANAGEMENT

10:20-11:20

Eastern Perspective: Perioperative management

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Department of Surgery
The University of Hong Kong, Hong Kong

[SYMPOSIUM 2] LIVING DONOR POOL EXPANSION

11:40-12:40

Graft steatosis in living donor liver transplantation

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Living donor liver transplantation (LDLT) is the predominant form of liver transplantation, especially in countries where cadaveric donors are scarce. Consequently, suboptimal donor livers such as steatotic livers are sometimes unavoidably used for transplantation given the limited number of donor candidates for LDLT. There are two type of fatty infiltrations, macrovesicular steatosis (MaS) and microvesicular steatosis (MiS). The clinical importance of MiS remains controversial. Grafts with severe steatosis are frequently associated with primary graft nonfunction, delayed graft function, and postoperative morbidity in deceased donor LT(DDLT).

Liver biopsy, the current standard of reference for the assessment of steatosis, is invasive, has sampling errors, and is not appropriate in some settings. Several magnetic resonance (MR) imaging such as chemical shift imaging and MR spectroscopy are currently in clinical use for the detection and quantification of fat.

Major concerns using grafts with steatosis in the LDLT setting is the influence of the presence of steatosis on the risks of liver resection in an otherwise healthy donor, and on the regenerative capabilities of the remnant liver. Consecutive 54 living liver donors from September 2002 to December 2003 in my center were prospectively evaluated and were allocated according to histologic degree of macrovesicular steatosis: Group1, < 5% (n=36); Group2, 5-30% (n=18). The results of serial liver function test, and major and minor morbidities were comparable between groups. No difference in the rate of liver regeneration at 10 days after hepatectomy was found between the groups (P = .487), but the liver regeneration rate at 3 months after hepatectomy in Group 1 was slightly higher than that in Group 2 (P = .044). Subsequently, no difference was observed between the two groups at 1 year after hepatectomy (P = .400). Mild hepatic steatosis is immediately cleared after hepatectomy and early regeneration power is impaired, but long-term regeneration power is comparable. And, hepatectomy in donors with mild steatosis can be performed with low morbidity.

In contrast to DDLT, hepatic regeneration power is inevitably necessary in the recipient who undergoes LDLT. Between September 2002 and February 2004, 55 cases of LDLT with a liver biopsy performed postoperative 10th day were enrolled. Patients were grouped according to the intraoperative histologic degree of macrovesicular steatosis (MaS) as follows: Group1, <5% (n=24); Group2, 5-15% (n=24); Group3, 15-30% (n=7). The number of positively stained hepatocytes in 10 high power fields was 48.0 ± 17.1, 53.8 ± 14.4, and 51.5 ± 4.1 in each group by PCNA (P = .681), and 24.0 ± 14.0, 25.5 ± 11.8, and 21.6 ± 6.8 by Ki-67 (P = .825), respectively. No primary graft nonfunction or delayed graft function

occurred. Major complications were comparable among groups. Hepatic regeneration power was not impaired in grafts with less than 30% of MaS.

Nonalcoholic steatohepatitis(NASH) is a relatively new disease entity representing no history of alcohol abuse but with liver biopsies demonstrating fatty change, lobular inflammation, focal necrosis, and Mallory bodies consistent with alcoholic hepatitis. There was one reported death in live donor with NASH. It is important to differentiate the NASH from nonalcoholic fatty liver disease (NAFLD).

Fortunately, Fatty liver disease is a reversible disease. So whenever we encounter a fatty liver donor, we have to treat this potential donor preoperatively as long as the recipient's condition allows. Diet program and exercise can reduce the amount of steatosis effectively in relatively short period.

In LDLD, the donor safety is primary concern and so, fatty liver disease should be evaluated meticulously in live donors. Long-term outcome of donors with fatty liver disease should be studied more.

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[SYMPOSIUM 2] LIVING DONOR POOL EXPANSION

11:40-12:40

Strategy to expand donor pool by graft type selection

Yonson Ku, Kaori Kuramitsu, Takumi Fukumoto

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Living donor liver transplantation (LDLT) was first successfully performed in 1989. The procedure was developed to overcome the organ shortage for transplantation using initially the left lateral segments for pediatric recipients. Success in this area was followed by the expansion of the technique to larger grafts including the left lobe, right lobe, and finally the right lobe with the middle hepatic vein for adult recipients. As illustrated by the deaths of right hepatic lobe donors worldwide, graft selection has been ab important issue for reconsideration based on the donor safety. Many studies were performed and provided the convincing evidence that donor safety improves when less liver volume is removed for transplantation. Strategy for the selection of relatively small-for-size grafts using the left lobe successfully increased donor pool. By contrast, small-for-size grafts have already been reported to associate with functional impairments such as prolonged cholestasis, ascites, coagulopathy, encephalopathy, and finally poorer outcomes and higher morbidities of the recipients. To prevent small-for-size syndrome, some centers investigated the benefit of intentional portal pressure modulation, and concluded that controlled portal pressure with smaller grafts is a key for successful transplantation. Right posterior segmental graft (RPSG) has been introduced as an alternative graft selection to increase graft volume and expand donor candidates. The first LDLT procedure with RPSG was reported in 2001. However RPSG has not been widely used in LDLT up to date because of technical concerns and surgical difficulties. Controversy still exists about the selection criteria for RPSG because of the complicated pedicular anatomy of the posterior segment.

Based on the most recent Japanese registry, 264 LDLT were performed for the recipients aged more than 18 in 2011, consisted of 150 left lobe, 107 right lobe, and 7 RPSG donors, indicating apparently a trend toward the left lobe usage primarily because of donor safety and hopefully donor pool expansion.

[SYMPOSIUM 2] LIVING DONOR POOL EXPANSION

11:40-12:40

How to optimize small-for-size graft

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Introduction: Small-for-size graft had been roughly defined as GRBWR ≤0.8%, which corresponds to approximately the GV/SV ratio of ≤40%. Most centers had not used these small-for-size grafts for possible postoperative small-for-size syndrome with resultant graft loss. It was reported that the GRBWR is ≤0.8% (GV/SV ratio ≤40%) and <0.6% (GV/SV ratio <30%) in 80% and 25% of the donor-recipient combinations, respectively, if the left lobe would be selected as the graft in LDLT. Therefore the majority of combinations were in the range of 0.6-0.8% (GV/SV ratio, 30-40%). Recently, LDLT using the left lobe graft of GRBWR in the range of 0.6-0.8% was advocated with portal inflow modulation, from the viewpoint of maximizing donor's safety.
From the beginning of our program on LDLT, we have accepted donor-recipient combinations giving preoperatively estimated GV/SV ratio of ≥30%.
Significance of left lobe grafts and postoperative courses and survival of the recipients in our series were investigated.

Methods: My experience included 151 adult-to-adult LDLTs using left lobe graft at Shinshu University (1990.6-2002.9) and Juntendo University (2003.7-2014.8). We have performed these LDLTs without portal inflow modulation.

Results: In 151 LDLTs using left lobe, the graft volume ranged from 230 to 625 ml. The actual GV/SV ratio varied from 26 to 65% and was less than 40% in 75 cases. The actual GRBWR was less than 0.8% in 61 recipients. Patient survival after left lobe graft LDLT in our series of 151 adult patients was 92% at 1 year and 87% at 5 years. If limited to 54 adult patients who underwent LDLT at Juntendo University, 1- and 5-year graft survival rates were 98% and 94%, respectively.

Conclusions: The left lobe grafting without portal venous modulation is applicable more frequently than has been previously supposed.

[SYMPOSIUM 3] ASSESSMENT OF OUTCOME FOR
THE QUALIFICATION OF LDLT PROGRAM

13:40-15:20

Multicenter studies based on Japanese Liver Transplantation Registry

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Japanese Liver Transplantation Society (JLTS) started the registry of liver transplantation in 1992, and have been reporting the annual summary results since 2002. According to the registry report in 2012 (Ishoku 2012; 47: 416-428, in Japanese), as of December 31, 2011, a total of 6,642 liver transplants have been performed in 65 institutions in Japan. There were 6,503 living donor liver transplantations (LDLT) and 139 deceased donor liver transplantations (DDLT) including 3 from donation after cardiac death donors. The number of DDLT increased to 41 in 2011 from 30 in 2010, due to the new law for organ transplantation enforced in the middle of 2010. In contrast, the annual number of LDLT decreased to 406 in 2011 from 443 in 2010. The patient survival rates after DDLT (83.6%, 80.4%, 78.8%, and 72.1% at 1, 3, 5, and 10 years, respectively) were similar to those after LDLT (83.4%, 79.3%, 76.9%, and 71.9%).
On January 1, 2012, an online registry and tracking system for liver transplantation in Japan was introduced. In 2012, 422 liver transplants were performed at 38 institutions, including 41 DDLT's and 381 LDLT's.

Based on the registry by JLTS, several multicenter studies have been conducted. The results of some studies have been already published as follows:

1) Umeshita K, et al. Operative morbidity of living liver donors in Japan. Lancet 2003; 362: 687-690.
2) Todo S, et al. Extending indication: role of living donor liver transplantation for hepatocellular carcinoma. Liver Transpl 2007; 13: S48-S54.
3) Hashikura Y, et al. Donor complications associated with living donor liver transplantation in Japan. Transplantation 2009; 88: 110-114.
4) Egawa H, et al. Disease recurrence plays a minor role as a cause for retransplantation after living-donor liver transplantation for primary biliary cirrhosis: A multicenter study in Japan. Hepatol Res 2013; 43: 502-507.
5) Kasahara M, et al. Long-term outcomes of pediatric living donor liver transplantation in Japan: An analysis of more than 2200 cases listed in the registry of the Japanese Liver Transplantation Society. Am J Transplant 2013; 13: 1830-1839.
6) Kubo S, et al. Pregnancy outcomes after living donor liver transplantation: results from a Japanese

Survey. Liver Transpl 2014; 20: 576-583.
7) Sakamoto S, et al. Nationwide survey of the outcomes of living donor liver transplantation for hepatoblastoma in Japan. Liver Transpl 2014; 20: 333-346.
8) Egawa H, et al. Risk factors for alcohol relapse after liver transplantation for alcoholic cirrhosis in Japan. Liver Transpl 2014; 20: 298-310.

Currently, many multicenter studies are ongoing in collaboration with the Research Project Committee of JLTS.

[SYMPOSIUM 3] ASSESSMENT OF OUTCOME FOR THE QUALIFICATION OF LDLT PROGRAM

13:40-15:20

Liver Transplant Cohort of Korean Organ Transplant Registry (KOTRY): Present and Future

Myoung Soo Kim

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In East Asian country including Korea, living donor liver transplantation is major portion of liver transplantation (69.1% on year 2013 in Korea). Majority of living donor liver transplantation causes difference in surgical technical approaches, post-transplant results and risk factor analysis compared with Western country. And safety after donor hepatectomy is another issue which is verified by large-scale population. Therefore, it is imperative to establish a National-based liver transplant cohort in Korean population and, thereby, exploring the post-transplant course of recipients and donors after operation. The goals of the present cohort study are 1) to establish a liver transplant cohort representing Korean recipient, 2) to investigate the post-transplant results, risk factors, and pre-transplant bio-immunologic parameters, and 3) to verify the living donor safety after partial liver donation. For these purposes, national-based liver transplant cohort, comprising both adult and children, was established since 2014.

The Korean Organ Transplant Registry (KOTRY) is officially established at April 2014 after 3 year preparation, which is supported by government fund (from Korean Center for Disease Control and Prevention (KCDC)). The liver transplant cohort is one of division of KOTRY. All liver transplantation except multi-organ transplantation is candidate of cohort study group. The clinical data, which is composed by general transplantation-related information, recipient information, immunosuppression, donor information, post-transplant results and complication after transplantation or hepatectomy, is collected every year. The clinical data is uniformly collected by The iCReaT (web-based Clinical Research Management System by KCDC). A biobank is also established for the sampling, safe transport and stocking of the DNA and serum. In first research year, the thirteen liver transplant centers are participated as cohort network, which center performed major portion (87.1% by 2012 data) of liver transplantation in Korea. Epidemiologists also participate as a collaborator and provided a major consultation on the methodology in maintaining the cohort and epidemiological expertise. During the first three research years, a research network plans to enroll 1,600 liver transplant cases (minimal 650 cases per year). At planned final research year (until year 2022, for 9 years), 5,200 cases of liver transplant recipient and 2,760 cases of living donor were enrolled in Korean liver transplant cohort.

The present liver transplant cohort will be the first liver transplant cohort among Korean population and will provide a valuable information regarding liver transplantation-related research and also useful data for national health policy.

[SYMPOSIUM 3] ASSESSMENT OF OUTCOME FOR THE QUALIFICATION OF LDLT PROGRAM

13:40-15:20

Lessons from NIH-sponsored multi-center trial (A2ALL) in US

Kim Olthoff

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The Adult-to-Adult Living Donor Liver Transplantation Cohort Study (A2ALL) is a collaborative consortium of 12 experienced liver transplant centers performing adult living donor liver transplantation (LDLT) in North America, funded by the NIDDK (https://www.nih-a2all.org/). The primary objective of A2ALL1 was to determine if there was a survival benefit of LDLT, obtaining detailed information on both donors and recipients from both retrospective (1998-2003) and prospective data (2004-2009), with up to 10 years of follow-up. Several ancillary studies in HCC, HCV, and liver regeneration and function have been conducted. An important aspect of A2ALL1 was the ability to directly compare LDLT with deceased donor liver transplant (DDLT) outcomes. A2ALL2 has continued to follow this cohort long-term, as well as enroll a new cohort of patients from 2009-2014. This consortium was important because it was the first prospective multi-center study of adult LDLT supported by a federal agency and the data coordinating center provided independent statistical analysis independent from single center bias.

Recipient Lessons Learned:

Patient and Graft Survival: One of the first reported findings from A2ALL was that center experience had the greatest influence on the risk of graft failure, and that outcomes improved greatly after the first 15-20 LDLT (HR 1.87). Other factors associated with mortality/graft loss post LDLT include longer cold ischemia time and older recipient age, and the results from A2ALL for recipient outcome and risk factors for mortality/graft loss was similar to other US centers performing LDLT.

Waitlist benefit: A2ALL was the first multicenter trial to report that LDLT was definitively associated with significantly improved patient survival from time of evaluation compared to DDLT. This demonstrated that the greatest benefit of LDLT was the ability to transplant patients sooner, minimizing death on the wait-list. Post transplant survival in A2ALL was equivalent between DDLT and LDLT. In a later report, it was apparent that the benefit applied across all MELD scores, except for those recipients with HCC.

Recipient complications: These were initially higher in LDLT vs. DDLT, but declined with increased center experience. Biliary and vascular complications were more common with LDLT, and LDLT had higher post OLT hospitalization rates, largely due to biliary tract complications. DDLT had more complications from systemic

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disease. Acute cellular rejection was found to be similar in LDLT and DDLT, suggesting that no difference in immunosuppression management is warranted in LDLT recipients.

Results with HCV: Another important finding from A2ALL1 was that there was no difference in post-transplant outcomes or fibrosis progression in patients with HCV in LDLT vs. DDLT (after taking into account center experience with LDLT). Pretransplant treatment with Peg-IFN-2b/RBV was associated with improved post transplant virologic response (pTVR) in those treated with > 16 weeks, but also associated with higher risk of infectious complications.

Results with HCC: Early findings from A2ALL showed that HCC recurrence was higher post LDLT compared to DDLT. After controlling for tumor characteristics, the MELD era with HCC exception points attenuated this difference and a later analysis showed that overall survival was not different between LDLT and DDLT, but differences in pre transplant HCC therapy, waiting time ("fast tracking"), and more aggressive tumor characteristics likely impacted the higher HCC recurrences post LDLT in the A2ALL1 cohort.

Liver regeneration and function: With regard to regeneration, mean GRWR was 1.3%±0.4% and mean graft weight was 60%±13% of SLV, showing relatively conservative approach to choice of graft size. Three-month absolute growth was 549±267 g, and percentage reconstitution was 93±18%. Predictors of greater 3-month liver volume included larger patient size and larger graft volume. Recipient graft failure in the first 90 days was predicted by poor graft function at day 7 (HR=4.50, P=0.001) but not by GRWR or graft fraction. A2ALL2 has shown an increase in the use of left lobe grafts and the willingness to use a smaller GRWR. A2ALL2 has also placed more focus on the graft characteristics, intraoperative findings, and inflow and outflow modulation, and these factors are currently under analysis.

Donor Lessons Learned:

Donor complications: Donor morbidity and mortality were studied in detail in both A2ALL1 and A2ALL2. In both, complications occurred in approximately 30-40%; most were not life-threatening or life altering (Clavien Grade 1-2) with > 95% of complications demonstrating complete resolution within 1 year of donation. Within 3 months post donation, most labs are within normal limits, however platelet counts take longer to return to normal, and 10% of donor have a platelet count < 150,000 at > 1 year post donation, and the clinical significance warrants further investigation. There also may be long-term psychological affects on the donor. Despite an extensive psychosocial pre operative evaluation, severe psychiatric complications were seen in donors (4.1%), independent of recipient outcome and can occur long after donation. Donor motivation, psychological follow-up, and pain control are all important foci of investigation in A2ALL2.

Liver regeneration and function: The return of liver mass has also been extensively studied in the donors. 3-month absolute growth was 676±251 g (mean±SD), and percentage reconstitution was 80%±13%. Predictors of greater 3-month liver volume included larger patient size and larger TLV. Donors with the

smallest remnant/TLV ratios had larger than expected growth but also had higher postoperative bilirubin and international normalized ratio at 7 and 30 days. In a combined donor-recipient analysis, donors had smaller 3-month liver volumes than recipients adjusted for patient size, remnant or graft volume, and TLV or SLV (P=0.004). Importantly, donor liver volume is a critical predictor of the rate of regeneration, and donor remnant fraction affects post-resection function.

In summary, A2ALL has made an important contribution to the field of living donor transplantation by providing a model for collection of data, unbiased analysis of data, and reporting of results that are not influenced by single center practice. This consortium can serve as an example to further grow international scientific collaborations in the LD community.

Selected A2ALL publications

1. Liver regeneration after living donor transplantation: Adult-to-adult living donor liver transplantation cohort study. Olthoff KM, Emond JC, Shearon TH, Everson G, Baker TB, Fisher RA, Freise CE, Gillespie BW, Everhart JE. Liver Transpl. 2014 (epub ahead of print)
2. Long-Term Quality of Life after Liver Donation in the Adult to Adult Living Donor Liver Transplantation Cohort Study (A2ALL). Ladner DP, Dew MA, Forney S, Gillespie BW, Brown RS Jr, Merion RM, Freise CE, Hayashi PH, Hong JC, Ashworth A, Berg CL, Burton JR Jr, Shaked A, Butt Z. J Hepatol. 2014 (epub ahead of print)
3. Hepatitis C disease severity in living versus deceased donor liver transplant recipients: an extended observation study. Terrault NA, Stravitz RT, Lok AS, Everson GT, Brown RS Jr, Kulik LM, Olthoff KM, Saab S, Adeyi O, Argo CK, Everhart JE, Rodrigo del R; A2ALL Study Group. Hepatology. 2014 Apr;59(4):1311-9
4. A randomized controlled trial of pretransplant antiviral therapy to prevent recurrence of hepatitis C after liver transplantation. Everson GT, Terrault NA, Lok AS, Rodrigo del R, Brown RS Jr, Saab S, Shiffman ML, Al-Osaimi AM, Kulik LM, Gillespie BW, Everhart JE; Adult-to-Adult Living Donor Liver Transplantation Cohort Study. Hepatology. 2013 May;57(5):1752-62
5. Development, management, and resolution of biliary complications after living and deceased donor liver transplantation: a report from the adult-to-adult living donor liver transplantation cohort study consortium. Zimmerman MA, Baker T, Goodrich NP, Freise C, Hong JC, Kumer S, Abt P, Cotterell AH, Samstein B, Everhart JE, Merion RM. Liver Transpl. 2013 Mar;19(3):259-67
6. Functional elements associated with hepatic regeneration in living donors after right hepatic lobectomy. Everson GT, Hoefs JC, Niemann CU, Olthoff KM, Dupuis R, Lauriski S, Herman A, Milne N, Gillespie BW, Goodrich NP, Everhart JE. Liver Transpl. 2013 Mar;19(3):292-304.
7. Complications of living donor hepatic lobectomy--a comprehensive report. Abecassis MM, Fisher RA, Olthoff KM, Freise CE, Rodrigo DR, Samstein B, Kam I, Merion RM; A2ALL Study Group. Am J Transplant. 2012 May;12(5):1208-17
8. Outcomes of living and deceased donor liver transplant recipients with hepatocellular carcinoma: results of the A2ALL cohort. Kulik LM, Fisher RA, Rodrigo DR, Brown RS Jr, Freise CE, Shaked A, Everhart JE, Everson GT, Hong JC, Hayashi PH, Berg CL, Lok AS; A2ALL Study Group. Am J Transplant. 2012 Nov;12(11):2997-3007
9. Liver transplant recipient survival benefit with living donation in the model for endstage liver disease allocation era. Berg CL, Merion RM, Shearon TH, Olthoff KM, Brown RS Jr, Baker TB, Everson GT, Hong JC, Terrault N, Hayashi PH, Fisher RA, Everhart JE. Hepatology. 2011 Oct;54(4):1313-21
10. Laboratory test results after living liver donation in the adult-to-adult living donor liver transplantation cohort study. Trotter JF, Gillespie BW, Terrault NA, Abecassis MM, Merion RM, Brown RS Jr, Olthoff KM, Hayashi PH, Berg CL, Fisher RA, Everhart JE; Adult-to-Adult Living Donor Liver Transplantation Cohort Study Group. Liver Transpl. 2011 Apr;17(4):409-17
11. Outcomes of adult living donor liver transplantation: comparison of the Adult-to-adult Living Donor Liver Transplantation Cohort Study and the national experience. Olthoff KM, Abecassis MM, Emond JC, Kam I, Merion RM, Gillespie BW, Tong L; Adult-to-Adult Living Donor Liver Transplantation Cohort Study Group. Liver Transpl. 2011 Jul;17(7):789-9
12. Database comparison of the adult-to-adult living donor liver transplantation cohort study (A2ALL) and the SRTR U.S. Transplant Registry. Gillespie BW, Merion RM, Ortiz-Rios E, Tong L, Shaked A, Brown RS, Ojo AO, Hayashi PH, Berg CL, Abecassis MM, Ashworth AS, Friese CE, Hong JC, Trotter JF, Everhart JE; A2ALL Study Group. Am J Transplant. 2010 Jul;10(7):1621-33
13. Hospitalization rates before and after adult-to-adult living donor or deceased donor liver transplantation. Merion RM, Shearon TH, Berg CL, Everhart JE, Abecassis MM, Shaked A, Fisher RA, Trotter JF, Brown RS Jr, Terrault NA, Hayashi PH, Hong JC; A2ALL Study Group. Ann Surg. 2010 Mar;251(3):542-9
14. Addition of adult-to-adult living donation to liver transplant programs improves survival but at an increased cost. Northup PG, Abecassis MM, Englesbe MJ, Emond JC, Lee VD, Stukenborg GJ, Tong L, Berg CL; Adult-to-Adult Living Donor Liver Transplantation Cohort Study Group. Liver Transpl. 2009 Feb;15(2):148-62
15. Incidence and severity of acute cellular rejection in recipients undergoing adult living donor or deceased donor liver transplantation. Shaked A, Ghobrial RM, Merion RM, Shearon TH, Emond JC, Fair JH, Fisher RA, Kulik LM, Pruett TL, Terrault NA; A2ALL Study Group. Am J Transplant. 2009 Feb;9(2):301-8
16. Recipient morbidity after living and deceased donor liver transplantation: findings from the A2ALL Retrospective Cohort Study. Freise CE, Gillespie BW, Koffron AJ, Lok AS, Pruett TL, Emond JC, Fair JH, Fisher RA, Olthoff KM, Trotter JF, Ghobrial RM, Everhart JE; A2ALL Study Group. Am J Transplant. 2008 Dec;8(12):2569-79
17. Outcomes of living donor liver transplantation for acute liver failure: the adult-to-adult living donor liver transplantation cohort study. Campsen J, Blei AT, Emond JC, Everhart JE, Freise CE, Lok AS, Saab S, Wisniewski KA, Trotter JF; Adult-to-Adult Living Donor Liver Transplantation Cohort Study Group. Liver Transpl. 2008 Sep;14(9):1273-80
18. Donor morbidity after living donation for liver transplantation. Ghobrial RM, Freise CE, Trotter JF, Tong L, Ojo AO, Fair JH, Fisher RA, Emond JC, Koffron AJ, Pruett TL, Olthoff KM; A2ALL Study Group. Gastroenterology. 2008 Aug;135(2):468-76

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19. Improvement in survival associated with adult-to-adult living donor liver transplantation. Berg CL, Gillespie BW, Merion RM, Brown RS Jr, Abecassis MM, Trotter JF, Fisher RA, Freise CE, Ghobrial RM, Shaked A, Fair JH, Everhart JE; A2ALL Study Group. Gastroenterology. 2007 Dec;133(6):1806-13
20. Outcomes of 385 adult-to-adult living donor liver transplant recipients: a report from the A2ALL Consortium. Olthoff KM, Merion RM, Ghobrial RM, Abecassis MM, Fair JH, Fisher RA, Freise CE, Kam I, Pruett TL, Everhart JE, Hulbert-Shearon TE, Gillespie BW, Emond JC; A2ALL Study Group. Ann Surg. 2005 Sep;242(3):314-23

[SYMPOSIUM 3] ASSESSMENT OF OUTCOME FOR THE QUALIFICATION OF LDLT PROGRAM

13:40-15:20

Ethical Perspectives of Chinese new country-wide living donor system

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Severe shortage of donor organs is to some extent the bottleneck of development of organ transplantation, especially in countries where the legislation on the adoption of brain death as the standard was not endorsed, such as China. As a feasible method to cure various end-stage organ diseases, living organ transplantation is actually demanded and has its practical significance. In China, the reduction in organ supply from the prison system has resulted in a rapid increase in the number of organ transplantations from living donors, which generates a new set of challenges, including ethical issue. Based on our clinic practices on living organ transplantation, the basic ethical principle is to pursue the optimal recovery of receptor on condition that the safety of donor is insured. According to WHO Guiding Principles on Human Organ Transplantation, China Regulation on Human Organ Transplantation and Regulation on Living Donor Organ Transplantation, the informed consent of donor and receptor (recepient), voluntary, priority of donor safety, as well as the balance of risks and benefits, are considered as most important ethical practice principles. We firmly believe that ethical, legal and regular living organ transplantation will promote the progress of China medical and health services.

[VIDEO SYMPOSIUM] FROM THE STANDARD TO THE ADVANCED

16:10-17:40

Standard right and left donor hepatectomy

See-Ching Chan

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University of Hong Kong, Hong Kong

Biliary Tract Management

The Calot's triangle is dissected to isolate the cystic duct and cystic artery. After cannulation of the cystic duct with a 3.5 Fr Argyle tube, the gallbladder is excised. Minimal dissection of the right liver hilum just enough to identify the right hepatic duct is done. The planned line of bile duct division is then marked with a large metal clip. The biliary tract is outlined by real-time operative cholangiogram under fluoroscopy.

Donor Right Hepatectomy

Exposure

Access is gained through a right subcostal incision with upper midline extension. The two curved blades of the Bookwalter retractor pull the rib cage laterally and anteriorly to open up the aperture made by the costal margins. Intraoperative ultrasonography (IOUS) is performed to study the junction of the MHV and left hepatic vein with the IVC. The relation of the V4b to the MHV already known from computed tomography is ascertained by IOUS.

Isolation of major vessels and parenchymal transaction

Hilar dissection is then continued to isolate the right hepatic artery and the right portal vein. The space between the right hepatic artery and the right hepatic duct should not be disrupted in order to preserve the blood supply of the latter. Short hepatic veins on the right side of the midline of the IVC are divided between ligatures. Inferior right hepatic vein(s) larger than 5 mm are preserved for anastomosis with the IVC in the recipient. Temporary right lobe inflow control is performed to mark the line of transection, the Cantlie's line with electrocautery. The line on the inferior surface is just to the left of the gallbladder fossa and joining with the planned line of division of the right hepatic duct marked earlier.

Liver parenchymal transection is started with electrocautery for the first 1 to 2 cm of parenchyma between segments 5 and 4a. The rest of the liver transection employs the Cavitron Ultrasonic Surgical Aspirator (CUSA) which exposes the left side of the MHV that lies two-third of the depth from the superior surface of the liver. Should the V4b insert into the MHV, transection stops to preserve this vein for draining segment.

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At the liver hilum, the right portal pedicle containing the right hepatic duct is also dissected out with minimal use of CUSA. The dissection should not be overdone to denude the right hepatic duct from its blood supply. Line of division already marked and verified by operative cholangiogram is followed. The right hepatic duct(s) is severed with scissors, tangential to the transection plane which is often quite horizontal. The right duct stump is repaired by 6/0 polydioxanone (PDS) suture, continuous. Liver parenchyma dorsal to the MHV is cleaved mainly by sharp dissection and the caudate lobe is transected until the IVC is exposed. Lifting up of the caudate lobe with a cotton-tape or a right-angled forceps much facilitates the transection. Care is taken to dissect in a definable plane between the liver capsule and the IVC.

Graft delivery

Graft delivery starts with applying a clamp onto the proximal right hepatic artery, distal to middle hepatic artery. The right hepatic artery is then divided with scissors. The right portal vein is then divided between vascular clamps applied at the right angle to the course of the main portal vein. The MHV, right hepatic vein, and if present the inferior right hepatic vein are controlled with the vascular stapler (TA 30, Tyco Healthcare, Norwalk, CT, USA) prior to its division by scissors. To avoid stricture of the portal vein, the right portal vein stump is sutured in a transverse manner with 6/0 Prolene sutures continuous, back-and-forth. Biliary leakage and patency of the remnant left hepatic duct is checked with intraoperative cholangiogram and methylene blue instillation. The methylene blue of the bile ducts must be flushed with normal saline. The cystic duct is ligated with 2/0 Vicryl. The remnant left liver is maintained in the anatomical position by reconstitution of the falciform ligament with non-absorbable sutures. Patency of the vessels is verified with intraoperative ultrasonography. The abdomen is closed without drainage.

Donor Left Hepatectomy

For donor with low body mass index, an upper midline incision could provide adequate access for the procedure. The left hepatic duct which may have a short extrahepatic course is marked by a large metal clip and planned line of division verified by cholangiogram under fluoroscopic guidance. Special attention is made to identify an insertion of the right posterior segment duct into the left hepatic duct. Under this situation, the left hepatic duct could only be divided to the left of the right posterior segmental duct. Middle hepatic artery when arises from the left hepatic artery should preferably be preserved. Temporary inflow control of the left hepatic artery and portal vein by vascular clamp reveals the Cantlie line. Liver transaction is onto the right of the middle hepatic vein by CUSA. A low insertion of the segment 8 hepatic vein into the middle hepatic vein calls for caution in the final part of the liver transaction. This segment 8 hepatic vein should be preserved for venous outflow the right anterior segment of the remnant right liver. Inadvertent damage of the vein also results in torrential bleeding.

Liver Implantation in Live Donor Liver Transplantation

Rey-Heng Hu

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National Taiwan University Hospital, Taiwan

During live donor liver transplantation, implantation of the liver graft is a last important procedure to assure the success of the operation. The sequences of the reconstruction are about the same for both right lobe and left lobe implantation. However, there are some minor, but important tips which differ between the them.

For right lobe implantation, the large v5 and v8 should be reconstructed with vascular graft at the bench table at first. Then, the implantation is accomplished with the following sequence: right HV, inferior HV, v58 vascular graft, PV, HA, and at last bile duct reconstruction. In different transplant centers there are some variations in the technique of v5,8 hepatic vein reconstruction.

For the left lobe implantation, it is more technique demanding as compared to right lobe implantation. Usually there is no need for middle HV reconstruction. However, for the first step of left HV reconstruction, it is important to widen the recipient HV orifice into IVC to prevent later stenosis or kinking of HV. For the next step of PV reconstruction, some degree of rotation between donor and recipient PV is crucial to prevent twisting of PV when the abdominal wall is closed. Sufficient length of HA is needed to prevent stretching and occlusion of the HA when the liver enlarges and rotates in later days. Bile duct reconstruction may be performed by either native CBD or Roux-en-Y limb according to different disease etiologies.

There are different opinions about whether to put stent for bile duct anastomosis and to set up peritoneal drains at the end of operation. Each arms has its pros and cons.

The major steps of either right or left lobe liver implantation are the same, but there are some pivotal differences between them. Some modifications do exist among different transplant centers. Each surgeon should be familiar with all these modifications as back-up procedures during their daily practice.

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[VIDEO SYMPOSIUM] FROM THE STANDARD TO THE ADVANCED

16:10-17:40

How to use hyper-reduced left lateral segment or S2 monosegment in pediatric living donor liver transplantation

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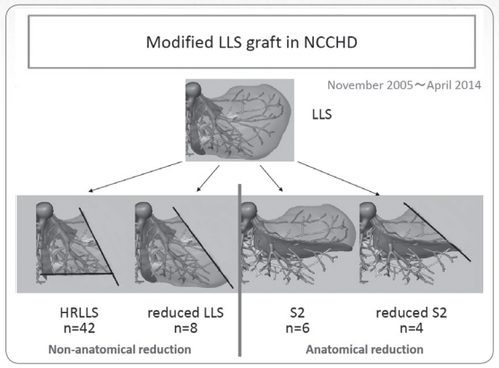
Introduction

Living donor liver transplantation (LDLT) was introduced in Japan in 1989 as a life-saving procedure for a patient with biliary atresia due to the absolute scarcity of organs available for deceased donor transplantation (1). The shortage of deceased organ donors led to the development of unique technical, physiological and logistical innovations in LDLT (2, 3). These techniques have expanded the potential donor pool and decreased waiting list mortality in the setting of pediatric liver transplantation (LT) (4). There have been technical and immunological refinements in the Japanese pediatric LDLT program, such as resolving graft size matching and overcoming blood type mismatches. The Kyoto group reported that the use of small-for-size grafts, defined as grafts with a graft-to-recipient body weight ratio (GRWR) less than 0.8%, is associated with small-for-size syndrome, the development of massive ascites, renal insufficiency, persistent cholestasis, coagulopathy and infectious complications in patients with lower grafts and reduced patient survival, especially in adolescents, most likely due to enhanced parenchymal cell injury and reduced metabolic and synthetic graft capacity (5). Meanwhile, large-for-size grafts are used in neonatal and infantile LDLT. The main problems associated with large-for-size grafts include the small size of the recipient's abdominal cavity, size discrepancies between vascular calibers and insufficient blood supply to the graft. Further reducing the left lateral segment (LLS) increases the possibility of supplying an adequate graft size, while hyper-reduced LLS or S2 monosegment has been introduced to mitigate the problems of large-for-size grafts with GRWRs estimated to be over 4.0% (6,7,8,9).

Patients and Methods

We analyzed our data for pediatric LDLT with modification of LLS (n=60, 22%) between the inception in November 2005 and April 2014.



Characteristics of Modified LLS

	HRLLS, reduced LLS (n=50)	S2, reduced S2 (n=10)	p
Age at Transplantation	6.7 months (0~17)	6.3 months (0~14)	Ns
Body weight	5.9kg (2.6~9.5)	6.5 kg (2.6~10)	Ns
Original LD	BA 36, ALF 10, Metab 4	BA 7, ALF 1, Metab 2	Ns
Donor (Father/ Mother)	23/ 25 (Aunt 2)	3/ 7	Ns
Donor Age	33.3 years (20~62)	33.6 years (28~38)	Ns
Donor weight	60 kg (38~81)	61kg (47.7~84.4)	Ns

Nowadays, we mainly use these 4 types of the graft. Conventional and non-anatomical Hyper reduced LLS, and reduced LLS graft. And segment 2 and reduced segment 2 graft, which might be rather anatomical than conventional hyper reduction.

Results

If we compare conventional, non anatomical reduction, such as HRLLS and reduced LLS and anatomical reduction, such as reduced segment 2 or segment 2 graft, there are no diffrence about duration of operation and blood loss. And more importantly we do not have any donor complications with these kind of graft modification.

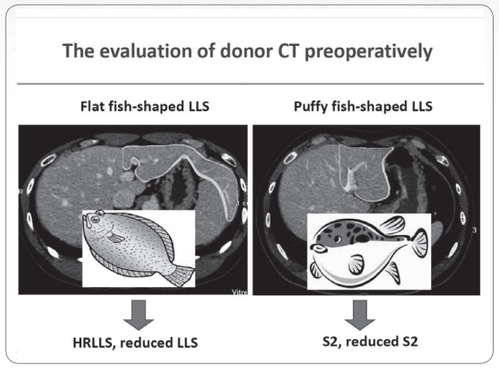
Characteristics of donor operation
non-anatomical vs. anatomical reduction

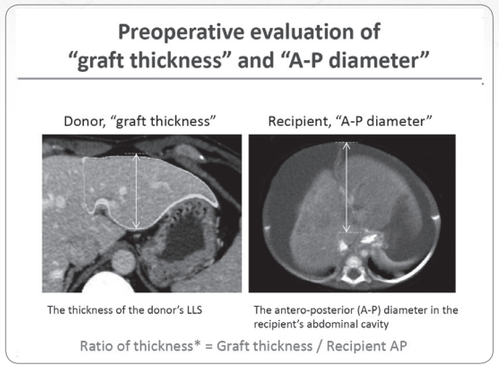
Graft type	HRLLS, reduced LLS (n=50)	S2, reduced S2 (n=10)	*p*-value
Operative time, min	333±60	324±47	n.s.
Blood loss, ml	256±271	228±146	n.s.
Complications Clavien-Dindo classification ≧grade II	0	0	

Appropirate GRWR by effective reduction

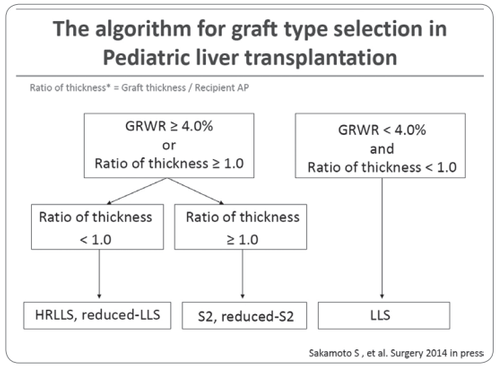
Graft type	HRLLS, reduced LLS (n=50)	S2, reduced S2 (n=10)
GRWR, % before reduction	5.16 (2.71-13.39), 290g	4.68 (2.49-7.67), 290g
GRWR, % after reduction	2.74 (1.27-4.00), 159g	2.38 (1.34-3.45), 151g
Reduction rate, %	**37% (15-82)**	**40% (37-56)**

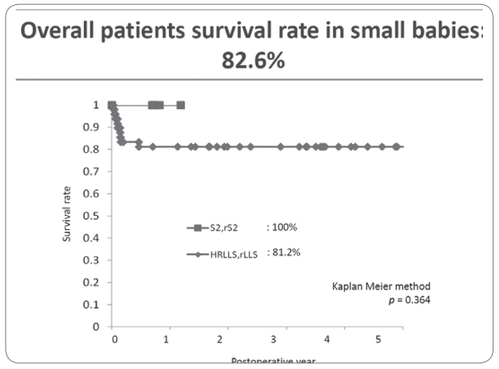
Both of the graft can made reduction rate of nearly 40% and GRWR can be successfully reduced from over 4% to less than 4%. We have to think about algorism for graft selection. There are significant morphological variations in the LLS. If the graft shape is flat fish type, you can make modification as HRLLS graft. But if the graft looks puffy fish type, you woulld be better to think about using S2 graft. We use preoperative graft thickness and Antero-Posterior diameter to graft accomodation





This is the algorithm we recommend if we have the small babies who need LTx. If the GRWR is over 4.0% or Ratio of thickness is less than 1.0%, we recommend HRLLS graft. If the ratio is over 1.0%, better to use S2 graft. Our current survival shows much better patient survival with HRLLS graft, because of successful reduction of GRWR. But more importantly, S2 graft shows 100% patient survival, unless the follow-up period is less than 2 years.





Conclusion

Modified LLS is suitable graft for small babies. Any liver suitable for transplantation into a baby might be suitable for reducing, these technical modification is not conclusive in anatomical aspects. Preoperative/ Intraoperative anatomical evaluation might be crucial for successful outcome. Also, we do not know whether we could apply this technique (especially S2) for Deceased Split LT. You should have active paediatric liver transplantation programme, though most centres should be able to do it. But the recipient, in neonates in this instance, is already marginal recipient. Meticulous treatment strategy would be necessary to save the babies with modified LLS.

References

1) Nagasue N, Kohno H, Matsuo S, et al. Segmental (partial) liver transplantation from a living donor. Transplant Proc. 1992;24:1958-9.
2) Tanaka K, Uemoto S, Tokunaga Y, et al: Surgical techniques and innovations in living related liver transplantation. Ann Surg 1993:217:82-91.
3) Makuuchi M, Kawasaki S, Noguchi T, et al. Donor hepatectomy for living related partial liver transplantation. Surgery. 1993;113:395-402.
4) JD Goyet, V Hausleithner, R Reding, et al. Impact of innovative techniques on the waiting list and result in pediatric liver transplantation. Transplantation 1993; 56: 1130-1136.
5) Kasahara M, Fukuda A, Yokoyama S, et al. Living donor liver transplantation with hyper-reduced left lateral segments. J Pediatr Surg 2008:43:1575-1578
6) Kasahara M, Sakamoto S, Shigeta T, et al. Reducing the thickness of left lateral segment grafts in neonatal living donor liver transplantation. Liver Transpl 2013;19:226-228
7) Mizuta K, Yasuda Y, Egami S, et al. Living donor liver transplantation for neonates using segment 2 monosubsegment graft. Am J Transplant 2010;10:2547-2552.
8) Sakamoto S, Kanazawa H, Shigeta T, et al. Technical Considerations of Living Donor Hepatectomy of Segment-2 Grafts for Infants. Surgery 2014 in press
9) Kasahara M, Sakamoto S, Umeshita K, Uemoto S. Exp Clin Transplant. 2014;12:1-4
10)
11) Hashikura Y, Makuuchi M, Kawasaki S, et al. Successful living-related partial liver transplantation to an adult patient. Lancet 1994;343:1233-1234.
12) Inomata Y, Uemoto S, Asonuma K, et al. Right lobe graft in living donor liver transplantation. Transplantation 2000;69:258-264.
13) Sainz-Barriga M, Schdeller L, Costa MG, de Hemptinne B, Troisi RI. Lack of a correlation between portal vein flow and pressure: toward a shared interpretation of hemodynamic stress goveing inflow modulation in liver transplantation. Liver Transpl 2011;17:836-848.

Legends for figures

Figure 1. Recipient survival curves following living donor liver transplantation

Figure 2. Graft survival according to GRWR(%) in the recipients under 1 year old (n=296)

GRWR: Graft-to-recipient weight ratio

Figure 3. Monosegment graft (Segment 2)

Figure 4. Recipient survival curves following pediatric living donor liver transplantation according to graft type

LLS: left lateral segment

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16:10-17:40

Laparoscopic major donor hepatectomy

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Since the first indication for laparoscopic liver resection was made in 2008 in Louisville by panel of experts, laparoscopic liver resection has progress much since and increasing number of centers are performing major hepatectomy by laparoscopic approach. However, application of laparoscopic skills in living donors is still in its infancy. Laparoscopic approach in living donor has developed mainly in 2 different tracks; lap assisted (or hybrid) and purely (or totally) laparoscopic approach. Laparoscopic assisted has gained much popularity because it is less technically demanding whereas totally laparoscopic approach has been performed in a much lesser extent due to its technical sophistication. Less than 10 institutions around the world have ever performed totally laparoscopic living donor hepatectomy and the total cumulative number is still less than 100. Totally laparoscopic living donor has been mainly performed in pediatric LDLT because it uses the left lateral section and thus is safer compared to adult LDLT where the right liver is mainly used. According 2 comparative studies in pediatric LDLT, totally laparoscopic approach seems to be feasible in experienced hands. However, there is currently no cases series reported for adult LDLT by totally laparoscopic approach and one of the main issues is the safety of the donor since there has been donor death reported even in open settings.

I herein present a video of totally laparoscopic extended right hepatectomy of donor and briefly review our experience of 20 consecutive cases. We tried to perform laparoscopic donor hepatectomy in the exact same manner as in open hepatectomy. Median operation time was 7 hrs 41 min (range 11h 24m – 5h 25m), warm ischemic time was 6 min 2sec (2m – 11m11s), and hospital stay 12.3 days (8-26) Estimated blood loss was 105mL (50-300mL) and no patient required transfusion. There were 2 cases of conversion (both portal vein injury) and the overall complication rate of Clavien grade 2 or higher was 30%. Most of the complication occurred in patients with anatomic variation such as trifurcation of portal vein or type B/C bile duct anatomy. When only the patients with normal anatomy are included, there was only 1 case of complication (bile leakage) with an overall complication rate of 7%. There was no mortality.

Although laparoscopic donor hepatectomy for adult LDLT is still challenging, when adequate selection of patient is done, the outcome may be non-inferior to that of open. Most donors are young healthy patients, and deserves to have the best quality of recovery. Totally laparoscopic approach may afford these self-sacrificing donors a better chance of quality of life after an altruistic courageous donation.

16:10-17:40

Portal flow reconstruction in LDLT for patient with extensive PVT

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Background: Liver transplantation (LT) used to be contraindicated in patients with portal vein thrombosis (PVT), but with the advent of innovative surgical techniques this is no longer the case. Here, we introduce our LT strategies and postsurgical management methods, and assess their outcomes in adult patients with preexisting PVT.

Patients and Methods: We performed 380 consecutive adult LTs, including 356 living donor LTs (LDLTs) and 24 deceased donor LDLTs (DDLTs) between April 2006 and September 2014. Seventy-four of 380 (19%) patients had preexisting PVT, including 25 cases of grade I, 30 cases of grade II, 17 cases of grade III, and 2 cases of grade IV; 65 patients (18%) underwent LDLT and 9 patients (38%) underwent DDLT.

Results: Our preferred treatments for PVT were consisted of 50 cases of thrombectomies/ thromboendovenectomies in 50 patients, replaced grafts in 12, jump grafts in 10, and reno-portal anastomoses in 2. Post-transplant PV complications occurred in 10 (14%) of 74 cases, which were treated by surgery, anticoagulant therapy, retransplantation and/or interventional radiology. Post-transplant survival rates of patients with preexisting PVT at 1 year and 5 years were comparable to a PVT-free cohort.

Conclusion: The excellent survival rates in patients with PVT who underwent LT could be attributed to our LT strategies, which included surgical techniques, diligent follow-ups, and timely treatment of postoperative complications to maximize PV patency.

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[VIDEO SYMPOSIUM] FROM THE STANDARD TO THE ADVANCED

16:10-17:40

Adult Living Donor Liver Transplantation for Budd-Chiari Syndrome: IVC replacement and Atrio-Caval Anastomosis

Sung-Gyu Lee

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Asan Medical Center, Ulsan University, Korea

Budd-Chiari syndrome is associated with a predisposition to thrombosis or stenosis of the major hepatic veins and/or IVC at any point proximal to the right atrium. According to the location of IVC stenosis, a different approach such as cavoplasty only in both sides or IVC replacement with cadaveric donor's IVC or artificial vascular graft might be necessary. At our institution, IVC replacement with a large-caliber artificial interposition vascular graft between right atrium and infrahepatic IVC during LDLT was first introduced in 2006 for Budd-Chiari syndrome with diseased stenotic retrohepatic vena cava, and thrombotic obstruction of the suprahepatic IVC extends almost to the junction of the right atrium and intrapericardiac IVC. Under those situation, cavoplasty on both sides as insisted by other group is not practical because dissection of the retrohepatic IVC results in a lot of bleeding, and often the paper-thin IVC wall is prone to be torn away and unable to use without venoplasty or reinforcement. In addition, exposure of the suprahepatic vena cava to the junction of the right atrium is not feasible without sternotomy or at least pericardiotomy, and the outcomes of reuse of fibrotic suprahepatic IVC segment after cavoplasty is still questionable. All 6 patients who underwent IVC replacement between atrium and suprarenal IVC at the AMC are alive at median follow-up of 65 months (range, 14–77 months) without IVC stenosis or thrombotic complications.

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Adult right living-donor liver transplantation with special reference to reconstruction of the middle hepatic vein

Nobuhisa Akamatsu, Yasuhiko Sugawara, Sumihito Tamura, Norihiro Kokudo
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INTRODUCTION: MHV reconstruction in right living - donor liver transplant recipients is a topic of debate
METHOD: 253 consecutive recipients with a right liver graft were divided into three groups: an extended right liver graft (ERLG) group (n=47) in which the MHV trunk was included in the graft, a modified right liver graft (MRLG) group (N=114) in which the MHV tributaries were reconstructed with cryopreserved homologous veins, and a simple right liver graft (RLG) group (n=92) in which the MHV tributaries were sacrificed. Graft regeneration, graft function, and long-term outcome were compared between groups.
RESULTS: The volume of the anterior sector was significantly impaired in the RLG group compared to the other two groups ($p<0.001$ for both), whereas the volume of the posterior sector was significantly improved in the RLG group ($p<0.001$ for both), indicating that volume regeneration in the anterior sector was impaired by MHV deprivation and compensated for by volume regeneration in the posterior sector. The regeneration rate of the anterior sector was significantly different among groups: it was highest in the ERLG group (92%), moderate in the MRLG group (71%), and lowest in the RLG group (52%; $p<0.001$ for all comparisons). No difference in graft function or survival was detected among groups. In the MRLG group, the patency of V5 was significantly worse than V8 ($p=0.007$). In MRLGs with occluded MHV tributaries, regeneration of the anterior sector was significantly impaired in comparison with MRLGs with patent MHV ($p<0.001$).
CONCLUSION: When MHV tributaries were not reconstructed or were occluded, regeneration of the anterior sector was severely impaired. Poor regeneration, however, was not correlated with delayed functional recovery or long-term outcome. Reconstruction of the MHV tributaries with cryopreserved homologous veins resulted in a satisfactory short-term outcome, but occlusion occurred frequently over the long-term, especially in V5.

PP-1013

outcomes of endo-radiological approach for the management of bile leaks after right lobe living donor liver transplantation with duct-to-duct anastomosis

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INTRODUCTION: Bile leak is a major complication after right lobe living donor liver transplantation (RLDLT) and can result in significant morbidities and occassional mortality. Non-surgical means could have some role for the management of this complication. The aim of the present study is to determine the outcomes of Endo-radiological approach for the management of this complication at a high volume centre.
METHOD: A retrospective study was performed on all adult patients who received RLDLT at our centre from January 2001 to December 2013. There were 496 RLDLT performed during the study period.168 patients were excluded because of non-DDA bile duct reconstruction.
RESULTS: There were some 12 out of 328 patients developed postoperative bile leaks during this study period. The overall leak rate was 3.7%.5 out of these 12 patients had a successful endoscopic retrograde cholangiography (ERC) and stenting together with percutaneous drainage of biloma (endo-radiological approach) without the necessity of laparotomy. There was no mortality associated with bile leaks. All patients are alive except one died from HCC recurrences 37 months after initial transplant.
CONCLUSION: Endo-radiological approach should be the first line management of bile leaks in patients with DDA as bile duct reconstruction after RLDLT if clinical conditions allow.

PP-1015

Living donor liver transplant vs. Cadaveric liver transplant survival in relation to MELD score

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INTRODUCTION: MELD score (Model for End Stage Liver Disease) is universally used to priorities patients on the liver transplant waiting list. It is potentially used to predict survival as well. There has been conflicting evidence on using living donor liver transplantation (LDLT) in patients with high MELD score. We herein showing a retrospective analysis of survival data in these two categories of patients and comparing survival between LDLT and Deceased Donor liver Transplantation (DDLT) in a single center experience.
METHOD: We retrospectively reviewed our records from 2001 to April 2014 for LDLT and DDLT of KFSH. Date reviewed includes the number of patients for LDLT and DDLT, age, sex, MELD score and survival. Only adults are included in this analysis. Patients were categorized into MELD score above and below 25. Kaplan Meier analysis was used for survival and Log-rank Chi-Square test was used for comparison with p value of below.05 used for significance.
RESULTS: Total number of transplanted patients at KFSH was 491. There were 222 patients for LDLT and 269 patients for DDLT. Age ranges between 15 and 80 with a median of 53. For DDLT, there were 290 males and 201 females. Attached table for the actual survival data.
The overall 1, 3 and 5 years Kaplan Meier survival of LDLT & DDLTwhen comparing survival experience of the 2 groups (MELD above and below 25), there was no significance difference (Log-rank Chi-Square test, p-value= 0.177). There were also no significance difference in survival of 2 groups of LDLT (p-value = 0.097) and DDLT (p-value=0.923)
CONCLUSION: Our survival data indicates that there is no difference between the survivals of the two groups (DDLT vs LDLDT), nor that high meld score has a negative impact on survival. Larger cohort of patients may be needed to confirm these findings.

PP-1016

Cryopreserved aortic graft for middle hepatic vein tributary reconstruction of a right hepatic graft in adult living donor liver transplantation: a case report

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INTRODUCTION: Orthotopic liver transplantation is the treatment of choice for most terminal liver diseases in adults and children. In adult living donor (right lobe) liver transplants (LDLT), the removal of the middle hepatic vein (MHV) with the graft and reconstruction carried out in the donor are of great importance.
METHOD: A 44-year-old male patient with hepatitis B-related end-stage liver failure is reported of whom 34-year-old brother was evaluated as a donor candidate. At routine preoperative screening tests, neither the patient nor the donor candidate was found to have any pathological findings that might interfere with the transplantation. The donor candidate was assessed by multislice computed tomography for a standard liver volume measurement and anatomical structure evaluation and extended right hepatectomy including MHV was planned. MHV of the donor removed together with the graft was reconstructed to the common orifice of MHV- left hepatic vein using a cryopreserved aortic graft.
RESULTS: Upon completion of all anastomoses and applying perfusion into the graft, it was observed that the graft had a very well perfusion. Any area of congestion did not occur. In the early and late post-operative periods, controls via Doppler ultrasonography revealed that right hepatic vein (RHV) and MHV were open.
CONCLUSION: If MHV is removed with the graft in adult LDLT, appropriate reconstruction in the donor is also an important issue. Reconstruction carried out without creating tension and folding in the right hepatic vein is crucial for avoiding congestion and of great importance for the prevention of graft dysfunction.
For a tension-free reconstruction, graft interposition is required most of the time. Most commonly used grafts are cryopreserved iliac vein, iliac arteries, aorta, and polytetrafluoroethylene (PTFE).

PP-1017

Lessons learned from outcomes of 188 children with biliary atresia: experience from a single center in mainland China

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INTRODUCTION: Few literatures were published to describe the surgical treatment for biliary atresia (BA) in mainland China. In this study, we aim to summarize our single-center experience in liver transplantation (LT) for biliary atresia (BA), thereby introducing the current status of surgical treatments for BA in mainland China.
METHOD: From October 2006 to December 2012, a total of 188 children with BA were analyzed retrospectively, of whom 122 children (64.9%) were eventually treated with LT. Stage I (2006.10-2010.12) comprised the first 74 patients, while stage II (2011.1-2012.12) comprised the remaining 114 patients. Characteristics of children between the two stages were compared, and operative outcomes were investigated in LT recipients.
RESULTS: The 188 children were aged from 3 to 144 months (median: 8 months). One hundred and fifteen patients (61.2%) were born in rural areas. From stage I to stage II, proportions of patients referred by pediatricians (43.2% vs.71.1%, P<0.001) and of patients who previously received a Kasai procedure (KP) (32.4% vs.44.7%, P=0.092) obviously increased, and significantly more parents were willing to treated their children with LT (73% vs.86%, P=0.027). One-, 3-, and 5-year patient and graft survival rates after LT were 83.6%, 80.0%, and 76.9%, respectively. Surgical complications (16/25, 64.0%) were the main reason for posttransplant mortality. Grafts from living donor (102/122, 83.6%) were the most commonly used graft type. For living donor liver transplantation (LDLT) recipients, the incidence of surgical complications was significantly reduced (34.1% vs.15.5%, P=0.029) and survival rates of patients and grafts greatly improved (75.0% vs.87.8% in 3 year; P=0.107) from stage I to stage II.
CONCLUSION: In mainland China, most BA patients could not receive a timely KP due to various socioeconomic factors. However, favorable midterm outcomes after LT were achieved as centers gained greater technical experience.

PP-1018

Biliary anastomosis and biliary complications following living donor liver transplantation in Mongolia

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INTRODUCTION: Biliary complications (BC) after living donor liver transplantation (LDLT) are reported in up to 32%. We retrospectively reviewed the biliary reconstruction after 16 LDLT.
METHOD: Mongolian Liver Transplantation Team performed 16 cases of LDLT in First Central Hospital with cooperation of Asan Medical Center, and 10 cases were performed successfully in Asan Medical Center. There were 11 male (42.3%) and 15 female (57.7%) patients, ranging from 1 to 61 years old.14 patients (53.8%) had HBV induced LC from that 4 of which (15.3%) also had HDV.5 patients (19.2%) had HCV induced LC.6 patients (23.0%) had HCC due to HBV, 2 patient had biliar cirrhosis due to biliary atresia.4 patients (15.3%) were C class and 22 (84.6%)

patients were B class by Child Pugh classification. Their score ranges from was 6 to 23 points by MELD and PELD. Fourteen right hemi liver grafts and 2 left lateral section grafts were transplanted. Bile duct anastomoses were performed as duct-to-duct (DD) or bilioenteric anastomosis (RYHJ).

RESULTS: After right hemiliver LDLT, a total of 92.4% of BC was observed, with an incidence of 81.25% in case of DD anastomosis and 18.75% in case of RYHJ. After duct to duct anastomosis, strictures were successfully treated endoscopically in 100%; insufficiencies mainly required reoperations. The result of our surgery first year survival rate was 96.1%, which is same other centers.1 (3.8%) patient dead related to toxic hepatitis 1 year post LDLTx.

CONCLUSION: BC still account for a high percentage of morbidity and mortality after LDLT. DD anastomoses are performed more frequently and are feasible in cases with simple biliary anatomy; RYHJ is the gold standard for the reconstruction of multiple bile ducts.

PP-1019

Low-dose antiviral treatment for hepatitis C virus following living donor liver transplantation without splenectomy

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INTRODUCTION: Patients with hypersplenism after liver transplantation (LTx) have low tolerance to early initiation of combined antiviral treatment with full-dose interferon (IFN) and ribavirin (RBV) for the recurrent hepatitis C. Thus we perform LTx without splenectomy and initially treat recurrent hepatitis C with low-dose IFN/RBV and persist the treatment for the extended period. The purpose of this study is to evaluate the long-term result of antiviral treatment for hepatitis C virus (HCV) following living donor liver transplantation (LDLT) without splenectomy.

METHOD: We studied 23 adult recipients who underwent LDLT for HCV related liver cirrhosis. Antiviral treatment was initiated with low-dose pegylated IFN alpha2b (1.0ug/kg/week) and RBV (300mg/day) promptly after pathological diagnosis as hepatitis C. IFN/RBV was continued for at least 24 months after the serum HCV-RNA became negative with dosage adjusting. If recipient was null responder, antiviral treatment was not canceled.

RESULTS: The median age of the patients was 57.7y (39-68). The median Model for End-Stage Liver Disease score was 12.4 (5-24). Eighteen patients received antiviral treatment. Median platelet count at the initiation of antiviral treatment was $11.5x10^4$/ul (range 4.1-31.4 $x10^4$/ul). The treatment was initiated at average of postoperative 4.1months (range 0.7-12.1). Even though, dose reduction was temporarily needed in all patients, HCV-RNA was not detected in 11 patients (61.1%) at average 12.4months (range 0.9-34.9). These 11 patients achieved sustained virological response (SVR). During follow-up period (median 55.3months: 14.3-107.2), there was no Relapser in the SVR group and mild fibrosis of liver parenchyma was detected only in 2 of 7 patients (28.8%) who did not achieve SVR. At one year after LTx, platelet count was preserved (median 8.4 $x10^4$: $2.2x10^4$-$14.7x10^4$.

CONCLUSION: Low dose and long-term persistence IFN/RBV therapy following LDLT without splenectomy is feasible with acceptable outcome.

PP-1020

Increasing the rate of living donor liver transplantation in absence of deceased organ donation: Impact on waiting time and short-term patient outcome

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INTRODUCTION: In Egypt, a country with highly prevalent HCV, where living donor liver transplantation (LDLT) is only allowed; the problem of long waiting lists is of major concern. In this article, we discuss the impact of increasing the frequency of LDLT on patient outcome and waiting time.

METHOD: All LDLT cases performed between 2004 and 2014 were included. The program has passed through 3 phases; the sporadic phase, when cases were scheduled according to availability, the weekly phase; when cases were scheduled in a weekly basis, and the current biweekly phase; where the cases are being performed in a biweekly basis. Patients were divided into 2 groups, the first group with cases in sporadic and weekly phases (S-W group) and the second is the biweekly group (BW).

RESULTS: Three-Hundred cases were included in the study, 270 (90%) of them were males. The Median age was 50 years. In spite of doubling the number of cases performed per week, the median waiting time in BW group was significantly longer than that of S-W group (247 versus 123 days, $p < 0.001$). There was no significant difference in the post-operative complications except for post-operative hemorrhage, was more in BW group. The incidence of 90-days mortality was 16.6% and 16.3% in S-W group and BW group respectively ($p = 0.995$).

CONCLUSION: Although increasing the frequency of LDLT was safe in terms of morbidity and mortality, waiting time problem will continue in absence of deceased organ donation and plans to increase specialized transplant units capable of performing this technically demanding procedures.

PP-1021

A case report of severe post-transplant lymphoproliferative disease after living donor liver transplantation

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INTRODUCTION: Post-transplant lymphoproliferative disorder (PTLD) is a well-known complication after transplantation.

METHOD: He again developed liver dysfunction post 7 months. He was diagnosed as acute cellular rejection and the steroid pulse therapy introduced resulted in little improvement. He gradually developed a high fever, and right axillary lymphadenopathy appeared. Chest computed tomography (CT) was performed revealing small lung nodules and axillary lymphadenopathy. Because his serological status for Epstein-Barr virus was positive, PTLD was highly suspected and immunosuppression treatment was withdrawn with little improvement. One week later, he developed tachycardia. Chest CT was re-performed revealing an infiltration to the left cardiac chamber. For diagnosis, axillary lymph node biopsy was performed and during the procedure, he developed ventricular tachycardia (VT).

RESULTS: Immunohistological staining revealed PTLD of T lymphocytes, and chemotherapy was introduced on the same day he developed VT. After two cycles of tetrahydropyranyl, adriamycin, cyclophosphamide, vinctirtine and etoposide treatment, he completely recovered.

CONCLUSION: This is a first case report of severe PTLD with VT, and our case implies the feasibility of chemotherapy after the appearance of dissemination symptoms.

PP-1024

A case report of liver metastasis which was successfully treated by IMRT after LDLT

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INTRODUCTION: After liver transplantation, the occurrence of cancer is reported to be high because of immunosuppression.

METHOD: We experienced a case of liver metastasis which was treated successfully treated by intensity modulated radiation therapy (IMRT) after living donor liver transplantation (LDLT).

RESULTS: The patient was 60 year old male. He was refereed to the clinic because of hepatitis B in 1996. In March 2006, hepatocellular carcinoma was diagnosed in S5 and S6 lesion, and hepatectomy and RFA were performed as a treatment. In March 2007, recurrence of hepatocellular carcinoma was diagnosed in S1, S4 and S8 lesion, and TACE was performed as a treatment. In May, the recurrence was diagnosed again, and for the treatment of liver cirrhosis LDLT was performed using right lobe graft. After LDLT, he was treated of acute cellular rejection with steroid pulse therapy. Immunosuppression regimen consisted of prograf, prednisolone, and cellcept for the first three months and prograf only thereafter. In Nov 2008, choledochojejunostomy was performed for the treatment of biliary stricture. In Nov 2012, colonoscopy was performed for the screening test of bloody stool, and rectum cancer was diagnosed. In Feb 2013, low anterior resection was performed. After 3 months, liver metastasis was diagnosed by CT exam. Because of the position and history of abdominal surgery, IMRT was selected for the treatment. After 1 year, recurrence of liver metastasis was diagnosed by PET-CT exam, and IMRT was repeated for the treatment. There is no recurrence up to date.
CONCLUSION: Under immunosuppression regimen, de novo malignancy is one of the most serious complication. From our experience, IMRT might be a treatment option for liver metastasis.

PP-1025

Subcutaneous drain after empyema gall bladder surgery in an obese patient

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INTRODUCTION: Several studies have demonstrated the safety and efficacy of a subcutaneous drain in reducing local effusion under the skin[1]. Prophylactic use of subcutaneous drains in obese patients undergoing cholecystectomy is found to reduce the seroma formation significantly[2]. In empyema gall bladder, in an obese patient, if we close the skin after cholecystectomy, we see massive pus in the subcutaneous space after few days. In many centers, they have protocol of suturing the skin after few days. But we can close the skin if we keep a drain under the skin as we have observed in our case.
METHOD: Patient was a 28 years old lady with repeated attacks of Ac. Cholecystitis over a period of 14 days. She had Body Mass index of 30. Her liver functions tests were normal. White cells counts were 14000/cmm. Ultrasound was showing 1.5 cm stone impacted in the neck of the gall bladder. It was decided to start the surgery by open technique. On opening the abdomen, Omentum was found to be encasing the gall bladder from fundus till common bile duct. Aspiration of gall bladder was done which was showing frank pus. After cholecystectomy abdomen was closed over a drain. An additional drain was placed under the skin which was removed on day 4. There was very little purulent discharge from the wound which settled itself.
RESULTS: In empyema Gall bladder in obese patients, skin can be closed over a subcutaneous drain at the end of the procedure
CONCLUSION: Prophylactic drainage of wounds is aimed to reduce the wound complications and thereby morbidity. Obese patients with empyema gall bladder are at more risk. By the technique like the one we have just mentioned, it will help in early discharge of the patient from the hospital without any secondary suturing of the wound.

PP-1026

Perioperative predictors of neurologic complications after liver transplantation

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INTRODUCTION: Along with the improvement of long-term survival after liver transplantation, the awareness of postoperative neurologic complications has increased.

Neurologic complications of various degrees are common in approximately one-third of the transplant recipients and are associated with a significant morbidity and potential mortality.
METHOD: 288 consecutive adult recipients were enrolled retrospectively from August 2001 to February 2014. The neurologic complications occurring in the first 30 days postoperatively were evaluated and the potentially associated risk factors were all analyzed categorically including recipient, donor, donor-recipient, surgery and surgeon related variables.
RESULTS: Among the 288 recipients, there were 193 transplant procedures with partial grafts and 95 with whole grafts.142 (50%) patients experienced at least one of the neurologic complications, such as encephalopathy, seizure, drug neurotoxicity, vascular insults, infections of central nervous system, central pontine myelinolysis and image-confirmed posterior reversible encephalopathy syndrome. The neurologic complications occurred significantly more frequently in patients with higher Child score, elevated tacrolimus level on postoperative day 7, preoperative hepatic encephalopathy, poor psychosocial status, which were also reported by presently available published data. Other risk factors were intra-abdominal infection, recipient age < 28 or > 60 years, body mass index < 21.7 or > 27.6, donor age < 22 or > 39 years, male-to-male gender match, and graft-to-recipient weight ratio < 0.9 or > 1.9; however, esophageal variceal bleeding seemed to have protective effect. The AUC of the ROC curve of all the covariates was 0.885%.
CONCLUSION: The neurologic complications after liver transplantation occurred in approximately 50% of patients. The early awareness of all the associated risk factors can reduce the incidence of neurologic complications and is also essential for accurate diagnosis with timely intervention.

PP-1027

Save the liver of prisoners in Nepal

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INTRODUCTION: The main propose of this study was to prevent the liver disorders of prisoner in central jail of Kathmandu, Nepal. Awareness raising and sensitization for protection of liver activities were the main theme of the study to assess the current condition of prisoners' health in the prison. Currently there are more than 2500 prisoners imprisoned in the jail.
METHOD: Simple descriptive survey type of study conducted to assess the liver condition of prisoners among 250 prisoners through direct interview method. Questionnaire have developed for interview through consultation with varies expertise of hematologists, policy makers, and other related prison expertise with the permission of department of prison management, ministry of Home Affairs.
RESULTS: 80% of prisoners have found various liver simple to complex type of liver disorders among them 5% have found Hepatitis B who were ex-drug users, 25% have found cirrhosis of liver who were ex-users of alcohol and other 50% have found minor disorders of liver disorders such as infective hepatitis A due to contaminated water, poor sanitation etc.
CONCLUSION: Current condition of prisoners' liver is high risk for their health threat as well as communicable disease due to infective hepatitis such as hepatitis A and B as well. Immediate preventive and curative intervention should be needed in the issues to protect and manage the liver of prisoners from both government and non government side respectively.

PP-1029

Living donor liver transplantation with resection of extrahepatic bile duct for diffuse biliary papillomatosis

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INTRODUCTION: Diffuse involvement of the biliary system with intraductal papillomatosis carries a high risk of malignant transformation. This condition is difficult to manage because complete surgical resection is very demanding. We herein present a case of intraductal

papillomatosis treated by living donor liver transplantation and extrahepatic bile duct resection, avoiding pancreatoduodenectomy with the aid of intraoperative choledochoscope to secure the distal bile dcut margin.
METHOD: The patient was a 67-year-old male showing diffuse involvement of the whole biliary system with papillomatosis. Preoperatively, multiple biopsies under retrograde cholangioscopic examination revealed diffuse involvement of the biliary system with villotubular adenoma with focal high grade dysplasia with no evidence of overt adenocarcinoma. Because we couldn't be sure that there was really no malignant tumor and because there was diffuse involvement of both the intrahepatic as well as extrahepatic bile ducts with papillomatosis, we decided to perform resection of extrahepatic dile duct in addition to liver transplantation.
RESULTS: We used modified right lobe graft from his son and graft-recipient-seight-ratio was 1.07. Fortunately, intraoperative choledochoscope confirmed the terminal segment of intrapancreatic CBD being free of tumor, so we could avoid pancreatoduodenectomy. Final pathologic diagnosis was the same as the preoperative biopsy result, and distal bile duct margin was tumor negative. Tthe patient recovered without any complication and he is doeing well without any evidence of recurrence 3 months after the surgery.
CONCLUSION: We suggest that living donor liver transplantation can be a good therapeutic option for diffuse intraductal papillomatosis. Intraoperative choledochoscope was very helpful in secureing the distal margin of the extrahepatic bile duct in biliary papillomatosis and avoiding unnecessary pancreatoduodenectomy.

PP-1030

Modified left lobe graft from borderline remnant liver volume donor in pediatric liver transplantation: A case report

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INTRODUCTION: Pediatric living liver transplantation remains the technically challenged surgical procedures. The use of left lobe graft including middle hepatic vein (MHV) is the viable option for older pediatric patients and usually safe for donor.
METHOD: Case report
RESULTS: We report living donor liver transplantation in 7-year old boy (body weight 17 kg, height 103 cm) who was suffered from decompensated cirrhosis suspected from progressive familial intrahepatic cholestasis. The only suitable liver donor was his parents, 45-year old woman (body weight 59 kg, height 165 cm). Preoperative donor liver biopsy showed neither fatty liver nor fibrosis. The donor liver CT volumetric analysis revealed lateral sector 165 ml, medial sector 130 ml, anterior sector 281 ml, posterior sector 290 ml and total liver volume(TLV) 866 ml. Preoperatively, we planed to use left lobe graft including MHV which resulted in acceptable congested free remnant liver volume 33.5% TLV and graft recipient weight ratio 1.73. During the donor operation, we found that the posterior sector was small. Temporary occlusion of MHV and hepatic artery was performed to assess the congested area. For the donor safety, we preserved the proximal part of MHV for segment 8 drainage and harvested left lobe graft with distal part of MHV. At back-table preparation, we use iliac vein from deceased donor for reconstruction by direct anastomosis to distal MHV, and then was joined to superior fissure vein and left hepatic vein resulting in only one wide orifice. Postoperatively, the donor had transient mild liver insufficiency. Unfortunately, the donor was gradually recovered and discharged at 8th postoperative day. The recipient had good recovery without surgical complications.
CONCLUSION: In conclusion, the use of reconstructed left lobe graft with distal part of MHV (Modified left lobe graft) could be an alternative graft from borderline remnant liver volume donor in pediatric liver transplantation.

PP-1031

Treatment with a vascular stent for hepatic artery pseudoaneurysm following liver transplantation

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INTRODUCTION: Hepatic artery pseudoaneurysm is a rare, life-threatening complication of liver transplantation with incidence 1 ~ 2%. Once the diagnosis is established, management is aimed at achieving effective occlusion of the aneurysm to prevent rupture, if possible, preserving the arterial supply to the graft. It is a great challenge to surgeons.
METHOD: This 54-year-old man received living donor liver transplantion due to liver cirrhosis and HCC nine months prior to the finding.
RESULTS: In the follow-up CTA study, stenosis with involvement of two segmental arterial branches and a pseudoaneurysm was found. We performed hepatic arterial catheteriziation and percutaneous transluminal angioplasty with stenting to exclude the pseudoaneurysm was performed. The patient and the graft remained stable up to now.
CONCLUSION: Angiography remains the definitive investigation. Outcome is dependent on graft function at presentation and on establishing the diagnosis prior to rupture. Early recognition and management may improve survival. Treatment options of pseudoaneurysm include catheter-based minimally invasive endovascular treatments such as coil embolization or covered stent prosthesis, retransplantation or ligation of the hepatic artery. We suggest vascular stent treatment to exclude the pseudoaneurysm be a good option to preserve the graft.

PP-1032

Hard venous outflow reconstruction in LDLT with right lobe liver graft. Case report.

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INTRODUCTION: Multiple hepatic veins (HV) required for reconstruction may be a reason of denial in living liver donation. Enlarged donor population as a result of evolution of venous outflow reconstruction (VOR) techniques is one of ways of extension of LTx number. Our study object is a case of living related liver transplantation with right lobe graft from 46 years age gentleman to his 39 years age brother with HBV+HDV liver cirrhosis.
METHOD: Right hepatic vein (RHV), right middle hepatic vein (RMHV), right inferior hepatic vein (RIHV) required for VOR found in pre-OP donor US and CT angiography. Two large HV found more without prospective VOR: middle hepatic vein 4 mm diameter in dividing location and S8 (by Quinaud) branch 4 mm diameter. Cadaveric iliac vessel grafts (CVG) AB0 identically for recipient were harvested. In donor liver resection the S8 brunch transected with 8 mm size. Totally 4 veins were required for VOR.
RESULTS: The graft RHV anastomosed into recipient RHV stump. The graft RMHV and S8 branch anastomosed into one CVG both by end-to-side technique and the CVG anastomosed into recipient inferior vena cava (IVC) by end-to-side technique. The RIHV anastomosed into the other one CVG by end-to-end technique and the CVG anastomosed into recipient IVC by end-to-side technique. Totally 4 graft HV reconstructed for outflow with 2 CVG. Valid flow by US and CT angiography was found on post-OP follow up.
CONCLUSION: Venous outflow reconstruction is very important, hard, and necessary point of LDLT. Hard because requires the cadaveric vessels grafts harvesting and preservation. Hard because become extended on-bench procedure and implantation time. As a result become extended the ischemia time. Hard because an addition of anastomoses number increases the thrombosis risk. And necessary point because the progress in venous outflow reconstruction technique is associated with enlargement of number of LTx.

PP-1033

Development of liver transplantation in Syzganov's National Scientific Center of Surgery

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INTRODUCTION: In the Republic of Kazakhstan, development of liver transplantation program began in December 2011, and by September 2014 in five centers of the country, over 50 operations. The main challenge to the widespread adoption of liver transplantation is the poor development of post-mortem donation.
In this regard, were forced to begin the program of development of LDLT in the absence of experience of liver transplantation. At the same time, this fact showed that the overall level of development of medicine in the country is high enough for the implementation of such complex surgery.
METHOD: In our center, there have been 16 recipients of liver transplants for adults with end-stage liver disease. Of these, 13 (81, 25%) - LDLT, 3 (18.75%) - the whole liver from DDLT. The etiology of the disease: 10 (62.50%), cirrhosis of HBV and HCV, in one case - PBC (6.25%), secondary BC (6.25%), idiopathic LC (6.25%). Men were 3 (18.75%), 13 women (81.25%). The severity of the patients was assessed by MELD score and ranged from 13 to 25.
RESULTS: From the beginning of the development program of liver transplantation, there is an improvement in both the immediate intraoperative performance and overall results of the treatment of the target group of patients. At present, the greatest period of follow-up after liver transplantation is 32 months. Of the 16 operated recipients, 11 (68.7%) lead a normal life, receive minimal doses of immunosuppressive drugs. Among recipients with liver cirrhosis of viral etiology, there were no cases of recurrent infection of viral hepatitis.
CONCLUSION: Preliminary results indicate that the development of liver transplantation program in Kazakhstan has good prospects. The development of a liver transplant from postmortem donors is preferred.

PP-1034

Role of tissue C4d in differentiation between acute rejection and HCV recurrence after living donor liver transplantation

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INTRODUCTION: Liver biopsy represents the gold standard for diagnosis of both acute rejection and HCV recurrence after liver transplantation; nevertheless discrimination can be highly difficult due to a quite similar display of alterations in liver specimen. Therefore a specific marker expressed only in rejection but not in HCV recurrence would be a great asset to differentiate patients with clinically suspicious symptoms in order to validate rejection diagnosis.
METHOD: A case control study on 24 patients who had received liver transplantation with the suspicion of either acute rejection or HCV disease recurrence, patients were classified according to pathological finding into two groups, Group 1: patients with rejection (n=12), Group 2: patients with HCV recurrence (n=12), The C4d was evaluated by immunohistochemical staining of the formalin-fixed, paraffin-embedded tissue and c4d staining in different liver compartments and re-evaluation of patients within one month of treatment
RESULTS: C4D staining of all the studied tissue compartments (Sinsuoids, portal vein endothelium, hepatic vein endothelium, arterial internal elastic lining (IEL) portal stroma, bile ducts)had high specificity (100 %)and positive predictive value (100%) in diagnosis of rejection except portal vein endothelium. (specificity 91.7%, positive predictive value 88.9%).
CONCLUSION: Tissue C4D staining was almost present in rejection cases only, this was statistically significant in all studied tissue compartments except hepatic vein endothelium and arterial internal elastic lining. Therefore, C4D is considered a new marker that can differentiate acute rejection from HCV recurrence.

PP-1035

MELD score and living donor liver transplantation; what have we learned so far?

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INTRODUCTION: MELD score was validated as predictor of mortality for cirrhotic patients awaiting liver transplantation (LT). We assess the impact of MELD score on patient survival and morbidity post living donor liver transplantation (LDLT).
METHOD: Retrospective study, Between February 2008 and January 2014, 169 adults with ESLD had living donor liver transplantation. Nine patients were excluded, the remaining 160 patients divided into two groups. Group 1 includes 124 patients with MELD < 20. Group 2 include 36 patients with MELD > 20. We compare both groups as regard operative data (including operative time and intra-operative blood requirement), early post-operative course (including ICU stay, hospital stay, incidence of infection and other morbidity like renal impairment, cardiovascular, respiratory and neurological complications) and Patient survival up to 1 July 2014.
RESULTS: Eleven patients died during this study (6.5%): 3/38 patients (2.4%) in group 1 and 8/36 patients (22%) [P=0.02]. Mean hospital stay 30 ± 14 and 29 ± 18 days in 1st and 2nd groups respectively [P=0.937]. Mean ICU stay in group 1 and 2 was 7 ± 3 and 9 ± 4 days [P=0.315]. Mean operative time in group 1 and 2 was 11.1 ± 2 and 10.6 ± 1.4 hours [P=0.292]. mean volume of blood transfusion and cell saver re-transfusion were 8 ± 4 unit and 1668 ± 202 ml respectively in group 1 in comparison to 10 ± 6 unit and 1910 ± 679 ml respectively in group 2 [P = 0.09 and 0.167]. The infection was 39.4% and 45.4% in group 1 and 2 respectively [P=0.790]. The systemic complications in group 1 and 2 were 34.2% and 45.5% [P=0.869]
CONCLUSION: MELD> 20 can predict poor overall survival post LDLT. No significant relation between MELD score and intra-operative blood requirement, hospital, and ICU stay or post LDLT morbidity.

PP-1036

Modified right liver grafts vein reconstruction for LDLT using the cryopreserved iliac vessels and artificial vascular grafts

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INTRODUCTION: In 1999 the first successful operation case of adult-to-adult LDLT using modified right lobe graft and reconstruction of middle hepatic vein's tributaries was performed by Dr. Lee S. G. in Asan medical center, Korea.
METHOD: Mongolian LT Team performed 16 cases of LDLT with cooperation of Asan Medical Center, and 10 cases were performed in Asan Medical Center.11 male (42.3%) and 15 female (57.7%) patients, ranging from 1 to 61 years old.14 patients (53.8%) had HBV induced LC.5 patients (19.2%) had HCV induced LC.6 patients (23.0%) had HCC due to HBV, 2 patient had biliar atresia.4 patients (15.3%) were C class and 22 (84.6%) patients were B class by Child Pugh classification.
As for reconstruction of vessels 2 cases (7.6%) are performed with Gore-Tex, 1 case (3.8%) with recipient's umbilical vein, and 15 cases (57.7%) with cryo-preserved cadaveric iliac artery and 6 (26.1%) cases with iliac vein. From that 12 cases had 1 tributary of S5, 7 cases had 2 tributaries of S5, 12 cases had 1 tributary of S8 and 6 cases had 2 tributaries of S8.
RESULTS: The first year survival rate was 96.1%.1 (3.8%)

patient dead related to toxic hepatitis 1 year post LDLTx. There were no HAT (0%), no PVT (0%), one (3.8%) patient congestion s5, 1 (3.8%) patient splenic vein thrombosis. All vascular complications treated by medication.

CONCLUSION: From 26 cases of LDLT that we have performed within two and a half years there were no complications.

It is a good idea to use comparison result of research of liver anatomy of Mongolians and result our surgical studies.

It is necessary for us to improve our radiological techniques and start using 3D CT, Liver Volumemeter to determine and collect additional information such as unique anatomical features, size and volume of donor liver.

PP-1038

Initial experience of pediatric living donor liver transplantation from Thailand

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INTRODUCTION: The first cadaveric liver transplantation (LT) in Thailand was performed at King Chulalongkorn Memorial Hospital (KCMH) since 1987. LT activity has progressed very slowly, almost 600 cases were performed until present. The main obstacles were the shortage of organ donor and the lack of financial support especially in pediatric patients. To solve these problems, the pediatric living donor liver transplantation (LDLT) was begun at KCMH in July 2008. The initial experience was reported herein.

METHOD: The data of 22 pediatric LDLT patients between July 2008 and June 2014 were retrospectively reviewed and analyzed. The immunosuppression for the former 9 cases were 3 drugs regimen which consisted of calcineurin inhibitor, antimetabolites, and steroid whereas the latter 13 cases were 2 drugs regimen without antimetabolites.

RESULTS: There were 11 males and 11 females. The average age was 2.5 years old (7 months- 13 years). Biliary atresia was the most common indication (86%). There were 2 cases of ABO incompatibility which were performed in patient less than 1 year old. The most common graft type was left lateral section (86%). The mean operative time was 612 minutes. The most common complication was acute cellular rejection (32%), all of them occurred in patients with 2 drugs regimen, followed by infection, vascular complications, and bile leak. The 1, 3, and 5 year patient survival were 100%, 92.85%, and 92.82% respectively.

CONCLUSION: The initial outcomes of pediatric LDLT at KCMH were favorable and could ameliorate the problem of organ shortage in pediatric patients. The 3 drugs regimen should be used to prevent acute cellular rejection.

PP-1039

Animal model of living donor liver transplant in swine without using venovenous bypass

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INTRODUCTION: A model of living donor liver transplant (LDLT) was developed to investigat the home-made internal shunt (IS), which could be useful in the liver trasnplantation.

METHOD: Two swines were prepared around 25kg, including one for donor and the other for recipient. The donor liver was dissected and the right partial graft was taken for the recipient. The upper end of inferior vena cava (IVC) was anastomosed first with artifical vessel, 15mm in diameter. Home-made IS was used for reducing the portal occlusion time less than 30 minutes during anhepatic phase. Then anastomosed the low end end of IVC with distal end of artifical vessel. The 3rd arm of IS was inserted to the artifical vessel for draining venous flow of low body. The hepatic vein of partial liver graft was anstomosed the artfical vessel. Thereafter, the portal vein anastomosis was completed. Finally completion of hepatic arteyr and bile duct was done.

RESULTS: The vital sign of both swines were stable wiitout blood tranfusion after LDLT.

CONCLUSION: Home-made IS without VV bypass could be designed for reduing portal occulsion time. Then the swine would be survvied after operation. This animal model of LDLT is feasible in swine.

PP-1040

Management of hepatic artery complications after A-A living donor liver transplantation including urgent re- transplantation: a single center experience

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INTRODUCTION: Arterial revascularization of a graft after Hepatic artery thrombosis (HAT) following living donor liver transplant (LDLT) can be challenging. Lack and chronic shortage of cadaveric livers have led surgeons to alternative approaches.

METHOD: From October 2001 till July 2014 800 adult living donor liver transplantation (LDLT) were performed in Ain Shams Organ Transplant Center. Confirmation of hepatic artery complications was achieved by Duplex US and CT angiography. We report our experience with management of Hepatic artery complications after LDLT.

RESULTS: 776 recipients received right lobe graft while 24 patients received Left lobe graft

Hepatic artery anastomosis was performed using 29 recipients Left HA, 761 Right HA, 8 splenic A and 2 LT gastric artery.

Over all hepatic artery complications occurred in 17 patients (2.1%)

Early HAT occurred in 9 patients (1%). One patient was successfully urgently retransplanted within 48 hours using right lobe graft with left gastric artery. Two of them died after re-exploration.

late HAT occurred in another 4patients (0.5%).2 recanalized with anticoagulant after 5 and 7 months respectively. The 3rd patient died from multiple intra hepatic abscesses. The 4th patient developed recurrent cholangitis and localized intra hepatic biliary abscesses at segment VIII which was successfully managed surgically by liver resection. Three patients developed hepatic artery stenosis (0.4%) successfully treated by interventional radiology, one died from rupture artery during dilatation and Bleeding from site of anastomosis occurred in one patient.

CONCLUSION: Arterial reconstruction using left gastric artery is feasible. Emergency LR is life saving in cases of HAT.

PP-1041

Optimizing outcome of living donor liver transplantation for hepatocellular carcinoma: crossing borders

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INTRODUCTION: Liver transplantation emerged as rewarding therapy to cure hepatocellular carcinoma (HCC). Extensions of Milan criteria have been proposed with encouraging results.

METHOD: 820 Egyptian patients underwent LDLT; 216 (26%) patients were transplanted for HCC and were retrospectively reviewed to determine prognostic factors for recurrence. Patients were classified within Milan, up to 7, and beyond all.

RESULTS: 154 patients (71%) were fulfilling Milan criteria, 33 patients (15.5 %) were up to seven, and 29 (13.5%) were beyond; maximum tumor burden 14.5 cm in one. AFP was < 100 in 180 patients, 100-500 in 18 patients, and >500 in 8 patients. One hundred and forty four (67%) are alive till December 2013, 138 (64%) being recurrence

free. HCC recurrence occurred in 31 patients (14%), 19 patients were within Milan criteria, 7 were up to 7, and 5 were beyond all.76 patients had bridging and 35 had downstaging. Overall survival was 1, 3, 5 years 87%, 72%, 65% within Milan, up to 7 and beyond all respectively with Recurrence free survival 1, 3, 5 years 96, 87, 80% respectively. No difference regarding the recurrence rate among different groups.

CONCLUSION: Within community with high incidence of HCC, stretching the limits could be justified based on tumor characters and its biological behavior. Successful bridging and downstaging allow for better inclusion of patients beyond Milan criteria.

PP-1042

Up dated status of deceased donor liver graft allocation for high-urgency adult patients in a Korean high-volume transplantation center

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INTRODUCTION: The number of deceased organ donors in Korea was gradually increasing to reach 8 per million population. This study intended to analyze the status of urgent deceased donor (DD) liver transplantation (LT) in Asan Medical Center.

METHOD: A retrospective study was performed with 4-year study period of 2010 to 2013.

RESULTS: During the study period, 328 adult patients were enrolled for urgent LT as status 1 in 56 (17.1%) and status 2A in 272 (82.9%). In status 1, liver grafts were initially allocated to 33 (58.9%) and 6 were excluded from LT due to clinical improvement (4 from acute liver failure and 2 from initial graft dysfunction), thus 27 (48.2%) actually underwent LT. In status 2A, 168 (61.8%) underwent LT within 2 weeks of priority waiting period and only 5 of 104 patients who did not receive LT survive to date. According to ABO blood group of actual LT cases, the allocation probability was in 66% (66 of 100) in group A, 58.6% (58 of 99) in group B, 61.5% (24 of 39) in group AB and 52.2% (47 of 90) in group O. Mean waiting period for LT was 5.7±2.1 days. During this period, urgency proportion of living donor LT was less than 5% and a small number of non-urgent patients underwent DDLT.

CONCLUSION: Deceased donor incidence around 8 per million population contributed to meet the demand for urgent DDLT with 60% probability, thus further increase of deceased donor number is necessary to improve organ shortage.

PP-1043

Adverse outcomes and associated factors after liver transplantation for liver donors: a nationwide study

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INTRODUCTION: The perioperative outcomes after liver transplantation for liver donors were not completely understood. This study evaluated factors associated adverse events after liver transplantation for liver donors.

METHOD: Reimbursement claims from the Taiwan's National Health Insurance were used to investigate the outcomes after liver transplantation for 2091 liver donors aged 18 years and older in 2004-2012. Preoperative sociodemographics and coexisting medical conditions were collected. The adjusted odds ratios (ORs) and 95% confidence intervals (CIs) of postoperative 30-day adverse events (such as septicemia, pneumonia, stroke, acute myocardial infarction, acute renal failure, deep wound infection, postoperative bleeding, urinary tract infection, and mortality) and associated factors were calculated in the multivariate logistic regressions.

RESULTS: Liver donors aged 60-69 (OR 4.37, 95% CI 1.53-12.5), and ≥70 (OR 13.3, 95% CI 4.73-37.2) years had increased risk of adverse events after liver transplantation. Preoperative epilepsy (OR 18.7, 95% CI 2.06-170), pulmonary tuberculosis (OR 7.77, 95% CI 1.94-31.2), liver cirrhosis (OR 2.87, 95% CI 1.33-6.20), hypertension (OR 2.26, 95% CI 1.06-4.81) were associated with adverse events after liver transplantation for liver donors.

CONCLUSION: For liver donors, older age, epilepsy, pulmonary tuberculosis, liver cirrhosis, and hypertension were associated with adverse outcomes after liver transplantation.

PP-1044

Living liver donors, the value and outcome of team work

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INTRODUCTION: Saudi Arabia is one of the leading liver transplant countries in Middle East. Waiting. We will present and evaluate the experience of King Faisal Specialized Hospital and research center in liver donor surgery

METHOD: Retrospective study for living liver donors, which were done in KFSH&RC, Riyadh, KSA between 1/2011 to 12/2013.

RESULTS: A total of 305 completed liver transplants; 228 living donor liver transplants and 77 cadaveric liver transplants were done between 1/2011 to 12/2013 in King Faisal Specialist Hospital and Research Centre, Riyadh-Saudi Arabia.125 for adult living donor liver transplant and 103 for pediatric living donor liver transplant. The donors were mostly males, 69% (n=157). Age ranges between 18 and 42 years with the median = 27.4 years. The donors' morbidity was 10.6% (n=7) in 2011, 22.4% (n=17) in 2012 and 8.2.5 (n=7) in 2013. Biliary complications were the most frequent morbidities in living liver donors, makes 48.6% of all morbidities. The grafts were 52% (n=118) Right lobes, 41% (n=84) Left lateral segments and 7% (n=16) Left lobes with morbidity rates 13.6%, 12.8%, 18.8%, respectively in (2011-2013). Right donor hepatectomy was not followed by a higher morbidity rate than left lobectomy or left lateral segmentectomy (P<0.8841).

CONCLUSION: LDLTx in Saudi Arabia is a growing activity because the experience and number of cases are increasing each year. Team stability, cooperation and harmony are vital to decrease the complication rate. This study demonstrates the safety of donor hepatectomy and Right donor hepatectomy was not followed by a higher morbidity rate than left lobectomy or left lateral segmentectomy

PP-1045

Veno-arterial extracorporeal membranous oxygenation resuscitation for patient with acute lung injury during liver transplantation: a case report

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INTRODUCTION: Extracorporeal membranous oxygenation (ECMO) is used in the treatment of severe respiratory failure that is potentially reversible, including transfusion-related acute lung injury (TRALI), which is recognized as part of acute respiratory distress syndrome (ARDS). As a treatment for ARDS, ECMO does not cure the underlying disease, however, with ECMO, TRALI usually improves within 96 h with respiratory support. ECMO for TRALI-induced lethal hypoxemia is useful for providing time to allow the injured lung to recover.

METHOD: We present a case of acute-on-chronic liver failure complicated with acute lung injury and life-threatening hypoxia during living donor liver transplantation (LDLT) treated with veno-arterial (VA) ECMO.

RESULTS: A 53-year-old male patient, who was diagnosed of chronic hepatitis B related liver disease with acute exacerbation and type 1 hepato-renal syndrome, underwent urgent LDLT. During operation, patient encountered profound bleeding (blood loss: 28000cc), which need massive blood transfusion, then refractory hypoxia occurred intra-operatively despite intensive mechanical ventilation with 100% of inspired oxygen and

positive end-expiratory pressure. Veno-arterial type of ECMO was applied via right femoral artery and femoral vein, then arterial O2 saturation maintained more than 92%. The day after operation, he concurrently received continuous veno-venous hemodialysis (CVVHD) from left femoral vein to achieve fluid balance. Subsequent weaning from ECMO was successfully performed at Day 5 and CVVHD was off at Day 6. Until now, one month after LDLT, the patient recovered well without supplemental oxygen or renal replacement therapy.

CONCLUSION: The present case demonstrates that ECMO rescue therapy can provide critical support to recipient with refractory pulmonary dysfunction during perioperative period.

PP-1046

Medical expenditure and length of stay for liver donors after transplantation in Taiwan

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INTRODUCTION: Limited information was available on consumption of medical resource for liver donors after liver transplantation. This study evaluated factors associated medical expenditure (ME) and length of stay (LOS) after liver transplantation for liver donors.

METHOD: The claims data from the Taiwan's National Health Insurance were used to calculate ME and LOS after liver transplantation for 2091 liver donors aged 18 years and older in 2004-2012. Information on perioperative sociodemographic factors and medical conditions were collected. We used multivariate logistic regressions to calculate adjusted odds ratios (ORs) and 95% confidence intervals (CIs) of factors associated with increased ME and prolonged LOS.

RESULTS: The mean of ME and LOS after transplantation for liver donors were 8908 US dollars and 17.9 days, respectively. Males (OR 1.40, 95% CI 1.07-1.83), age ≥70 years (OR 67.0, 95% CI 7.82-574), liver cirrhosis (OR 10.5, 95% CI 5.07-21.8), pulmonary tuberculosis (OR 7.19, 95% CI 1.09-47.2), and diabetes (OR 6.43, 95% CI 1.58-26.2) were associated with increased ME. These factors were also associated with prolonged LOS. The ME and LOS increased with the increasing number of medical conditions.

CONCLUSION: Older age, males, liver cirrhosis, pulmonary tuberculosis, and diabetes were risk factors for increased ME and prolonged LOS after liver transplantation for liver donors.

PP-1047

Indonesia first adult living donor liver transplantation in Cipto Mangunkusumo Hospital Jakarta Indonesia

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INTRODUCTION: Nowadays, the liver transplantation becomes the standard treatment of choice in pediatric and adults with end liver diseases.

METHOD: report result of living donor liver transplantation (LT) in Cipto Mangunkusumo Hospital, Jakarta Indonesia

RESULTS: There were seven living donor LT were carried out in 4 pediatric (male) and 3 adults (male). The program commenced in December 2010, the team was supported by first affiliated Hospital Zhejiang University LT team, Hangzhou China. In the last 3 pediatric cases, the team was supported by NUSH Singapore LT team. Management of LT in adult cases was the first LT done in Indonesia. Indication of LT for pediatric includes biliary atresia (2) and autoimmune liver disease (2), whileas in adult is HCC and hepatitis B. All donors were genetically related and there was no operative complication found; as they live healthy back to their routines and works following 2 weeks hospitalized. There were also no post–operative mortality, all the children. The first adult case survived with a good quality of life, but the other two died a year later due to rejection. Prolonged ascetic and hyperspleenism were noted as the most complication,

which were successfully managed, conservatively. All the pediatric recipients received the left lateral lobe from adult donors, and the adult received adult liver segment 5, 6, 7, 8 with preservation of the medial hepatic vein. The graft to recipient ratio was 0.9% and 1%.

CONCLUSION: LDLT can be carried out with a good result in our hospital and more adult cases are required to pass the learning curve. To build an excellent liver transplantation center in Indonesia, the international collaborative is needed.

PP-1048

Peri-transplant change in AFP level is a useful predictor of hepatocellular carcinoma recurrence following liver transplantation

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INTRODUCTION: Pretransplant alpha-fetoprotein (AFP) is a useful tumor marker predicting recurrence of HCC. Little is known, however, about the relationship between changes in AFP concentration and prognosis. This study investigated the clinical significance of change in peri-transplant AFP level as a predictor of HCC recurrence.

METHOD: Data from 125 HCC patients with elevated pretransplant AFP level who underwent LT between February 2000 and December 2010 were retrospectively reviewed.

RESULTS: Patients with AFP normalization within 1 month after LT were classified into the rapid normalization group (n=97), with all other patients classified into the non-rapid normalization group (n=28). Tumor recurrence was observed in 17 of the 25 patients (17.5%) with rapid normalization; of these, 11 had high and six had normal AFP levels at recurrence. In contrast, tumor recurrence was observed in 24 of the 28 patients (85.7%) without rapid normalization, with all 24 having high AFP levels at recurrence. Multivariate analysis showed that non-rapid normalization (HR=4.41, p<0.001), sex (HR=3.26, p=0.03), tumor size (HR=1.15, p=0.001), and microvascular invasion (HR=2.65, p=0.005) were independent risk factors for recurrence-free survival.

CONCLUSION: Rapid normalization of post-LT AFP level at 1 month is a useful clinical marker for HCC recurrence. Special strategies are needed for patients who do not show rapid normalization.

PP-1049

Results of ABO incompatible liver transplantation with simplified protocol in a single center experience

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INTRODUCTION: ABO incompatible (ABOi) living donor liver transplantation (LDLT) has become a feasible option for patients with end-stage liver disease due to development of various desensitization strategies. However, there has been no united desensitization protocol for ABOi LDLT. We have established simplified protocol without splenectomy and local infusion therapy and analyzed the outcomes.

METHOD: We analyzed 19 ABOi LDLT cases that had been performed between Jan 2012 to Dec 2013, without splenectomy and local infusion. We used single dose of rituximab (375mg/m^2) 10 days before transplantation and several series of plasmapheresis according to the recipients' isoagglutinin titer to the target titer of 1:32.

RESULTS: Total 19 recipients received ABOi LTs from living donor. The mean initial IgM and IgG anti-ABO titers were 76.63±78.81 (range 8~256) and 162.53±464.1 (0~2048). We performed preoperative plasmapheresis to 16 recipients (mean number of sessions 3.58, range 1-10). Postoperatively, 9 patients received plasmapheresis (mean 1.84, range 1~14). One case of mortality occurred due to pneumonia (5.3%). There were 4 cases of acute rejections (21.1%), and all of them were treated successfully with

steroid pulse or thymoglobulin. Antibody mediated rejection, and graft failure did not occur. Total 6 cases of postoperative complications (31.6%), including 3 cases of infections were occurred. There were 2 cases of biliary anastomotic stricture (10.5%) and 1 case of portal vein stenosis (5.3%).
CONCLUSION: ABOi LDLT using simplified protocol can be safely performed without increased risk of antibody mediated rejection and other complications.

PP-1050

Surveillance protocol for hepatocellular carcinoma recurrence after living donor liver transplantation

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INTRODUCTION: This study intended to establish an actual risk-based long-term screening protocol for hepatocellular carcinoma (HCC) recurrence after liver transplantation (LT).
METHOD: The study population were 334 HCC patients who underwent primary living-donor LT with follow-up period ≥5 years. Their medical records were reviewed retrospectively.
RESULTS: Overall 10-year survival rate was 67.5% with 4.8% perioperative mortality. HCC recurred in 68 (21.4%) of 318 survived patients during a mean follow-up period of 77 months. Cumulative HCC recurrence rate was 20.7% at 5 years and 22.2% at 10 years. Annual recurrence rate was 11.4%, 6.6% and 2.0% during first, second and third years, respectively. In 'within-Milan' group, annual incidence of HCC recurrence was higher during first 3 years, and thereafter only 6 cases of sporadic recurrence happened over 11 years; in 'beyond-Milan' group, recurrence was very common during first 3 years, but no more after 3 years. AFP (alpha-fetoprotein) rise became an initial clue to perform further imaging study to diagnose recurrence in 43 (63.2%), whereas recurrence was detected incidentally on routine imaging study in other 25 (36.8%) showing no AFP rise. Initial sites of HCC recurrence were graft liver in 26, lung in 16, abdominal cavity in 10, bone in 6, brain in 1, and multiple metastasis in 6. Median post-recurrence survival period was 10 months with 3-year survival rate of 13.2%. There was a close correlation between pretransplant AFP level and AFP rise after HCC recurrence.
CONCLUSION: In conclusion, annual risk of posttransplant HCC recurrence was significantly different depending on Milan criteria. Patients beyond Milan criteria is indicated for frequent follow-up with tumor marker tests and imaging studies for first 3 years, and those within Milan criteria is recommended to follow up for 10 years, primarily with tumor marker tests.

PP-1051

Tailored prophylaxis protocol against de novo hepatitis B for liver transplantation using hepatitis B core antibody-positive donors

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INTRODUCTION: Liver transplantation using anti-HBc positive donors carries risk of de novo hepatitis in non-HBV-associated recipients. We investigated the natural courses of de novo HBV infection in patients who did not receive any prophylactic measure, by which we tried to formulate the tailored prophylaxis protocol achieving maximal cost-effectiveness.
METHOD: From our institutional database of LT, we selected 75 adult LT recipients who did not diagnosed of HBV infection but received anti-HBc-positive liver grafts. Living donor LT was 63, pretransplant evaluation showed anti-HBs positivity in 56 and anti-HBc positivity in 48. These patients were identified through a cross-sectional study and followed up more than 3 years.
RESULTS: 6 patients underwent primary high-dose HBIG therapy, but 1 patient showed de novo HBV infection after 13 months. In 52 anti-HBs-positive patients, 12 lost anti-HBs-positivity after 1 year and 5 of them showed de novo HBV. In 17 anti-HBs-negative patients who did not receive HBIG, 5 showed anti-HBs-positivity after 1 year and 4 patients showed de novo HBV. Any patients who showed sustained anti-HBs titer > 100 IU/L regardless of booster HBV vaccination did not show de novo HBV. All of 10 de novo HBV patients received antiviral treatment and showed excellent virological responses. During this study, all of the patients who showed anti-HBs titer ≤ 200 IU/L forcefully underwent any prophylactic measure including vaccination, antiviral and HBIG, by which no further de novo HBV has occurred during 3-year follow-up.
CONCLUSION: For non-HBV-associated recipients receiving anti-HBc-positive graft, patients showing sustained high anti-HBs titer > 500-1000 IU/L requires only monitoring; if the titer is not so high, the first prophylactic option may be booster vaccination and bi-monthly monitoring to maintain anti-HBs titer > 100 IU/L; if vaccination does not raise anti-HBs titer sufficiently, antiviral or HBIG therapy seems to be mandatory with frequent HBV surveillance.

PP-1052

Impact of serial change of donor specific antibodies on the graft outcomes after liver transplantation

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INTRODUCTION: This study aimed to investigate the acute rejection rate and graft function after liver transplantation according to pre-transplantation donor specific antibody (DSA) status and changing pattern of DSA after liver transplantation.
METHOD: This study was prospectively designed observational study from March 2011 to October 2013. Forty patients were enrolled in this study. Singe antigen bead assays were performed to detect DSA all patients at pre-transplantation, post-transplant-7, 14, 21, 3rd month and 6th month.
RESULTS: There were four patients (10%) with acute rejection and eleven patients (27.5%) with biliary complication. Four patients (10%) were positive on DSA before transplantation and one of them was converted to negative on DSA after transplantation. Three patients who had no DSA before transplantation showed de Novo DSA after liver transplantation. Two of four patients with acute rejection were positive on DSA. One of four patients with acute rejection showed pre-transplant DSA and de Novo DSAs were detected in another one acute rejection patient. Seven patients of eleven patients with biliary complication showed no DSA and the others demonstrated de Novo DSA after transplantation (p=0.039). Biliary complications occurred in two of three patients with de Novo DSA. Figure showed the change pattern of mean fluorescent intensity (MFI).
CONCLUSION: De Novo- DSA after transplantation can be associated biliary complication and the patients with high MFI showed more biliary complication. Further study with large sample size and long-term follow-up are needed.

PP-1053

Biliary complication after liver transplantation according to biliary reconstruction methods

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INTRODUCTION: Despite improvement of operative techniques and long term outcomes, biliary complication remains as a severe obstacle in living donor liver transplantation.
METHOD: Medical records of 245 adult liver recipients who underwent living donor liver transplantation between September 2005 and December 2013 were

retrospectively reviewed. Biliary complications according to the biliary reconstruction methods were analyzed. Biliary reconstruction types were Roux-en-Y hepaticojejunostomy (RYHJ), single duct-to-duct(SDD) anastomosis and multiple duct to duct anastomosis(MDD) including two bile duct to one bile duct, separated two bile duct, made one to one and triples

RESULTS: Of the 245 recipients, 90 (36.7%) patients had biliary complications including anastomotic bile leakages (n=12), non-anastomotic bile leakages (n=4), anastomotic biliary stricture (n=66), non-anastomotic biliary stricture (n=4). The incidences of anastomotic biliary complications were 0% in RYHJ group, 31% in SDD group and 42.9% in MDD group. (p=0.030). If graft liver containing multiple bile duct orifices, there was no significant difference of biliary complication rate between RYHJ group and MDD group (p=0.503). One patient underwent exploratory laparotomy because of internal herniation in RYHJ group

CONCLUSION: RYHJ have lower biliary complication rate than duct to duct anastomosis. But time consuming on procedure, non- physiologic passage, source of an ascending infection and internal herniation should be considered.

PP-1054

Successful treatment of diffuse portal vein thrombosis after splenectomy following living donor liver transplantation patient

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INTRODUCTION: Splenectomy is performed after living donor liver transplantation(LDLT) for various reasons. Portal vein thrombosis(PVT) is rare but dreaded complication after splenectomy in LDLT recipients that can compromise patient and graft survival. We recently experienced a case of acute and diffuse PVT after splenectomy in LDLT recipient who was successfully treated with thrombectomy and anticoagulation therapy.

METHOD: The patient was a 56-year-old female who underwent LDLT using modified right lobe graft on June 2, 2006. Recently she developed thrombocytopenia and splenomegaly. We performed splenectomy to resolve thrombocytopenia. On postoperative fifth day, she complained pain on her left shoulder. A CT scan showed diffuse portal vein thrombosis.

RESULTS: The patient was taken immediately to the operating room. We opened splenic vein stump and Fogarty thrombectomy was attempted under intra-operative ultrasound guiding. After thrombectomy, portogram revealed recanalization of the splenic vein and main portal vein but still remained intra-hepatic PVT. An interventional radiologist put the McNamara thrombectomy catheter into intra-hepatic portal vein via inferior mesenteric vein. After several times of aspiration thrombectomy, portogram showed completed recanalization of intra-hepatic portal vein. We put the stent into spleno-mesenteric junction to prevent recurrent PVT. Systemic heparinization was started immediately after operation and was converted warfarin and antiaggregation therapy. A postoperative Doppler ultrasound and CT scan showed patent portal vein.

CONCLUSION: This case showed that PVT after splenectomy can be treated with surgical thrombectomy, intra-operative interventional procedure and systemic anticoagulation therapy. Routine Doppler ultrasound and CT scan after splenectomy might enable early detection and treatment of PVT.

PP-1055

Usability of 3-dimensional virtual reconstruction software (Dr. Liver) for pre- and intraoperative determination of living donor liver transection and vascular reconstruction

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INTRODUCTION: In living donor liver transplanataion

accurate assessments of liver graft volume and anatomical variation are mandatory for the preoperative planning of safe donor hepatectomy and successful recipient implantation

METHOD: we used commecial 3-D virtual reconstruction software "Dr. LIVER" for preoperative evaluation of living donor anatomy and volumetrics by using computed tomography images in consecutive 50cases of adult LDLT. The predicted liver resection volumes revealed a significant correlation with the conventional manual volumetry and the actual value(all $p<0.01$) the drainage area by the individual branches of the middle.

RESULTS: This software may contribute to the preoperative planning of safe donor hepatectomy and implantation with satisfactory graft viability. accurate preoperative aeeseements of hepatic volumetrics are needed for surgeons to risk stratify and properly select patients for major hepatic resections including donor hepatectomy.

CONCLUSION: The software "Dr. LIVER", which was developed by Korean liver surgeons, represents a reliable step towards a greater accuracy in hepatic volumetrics and improved safety in liver surgery

PP-1056

Portal vein stent insertion above portal anastomosis level as a considerable risk factor for biliary anastomotic stricture in adult living donor liver transplantation

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INTRODUCTION: Portal vein stenting(PVS) plays important role in the resolution of portal vein steno-occlusive disease in liver transplantation. PV stenting of 290 cases have been performed until a recent date in our center. But, in the early period of PVS we experienced high incidence of biliary anastomotic stricture (BAS) after stent was inserted above the level of PV anastomosis site.

METHOD: Data for this study were retropectively collected from medical records until December, 2013 for 49 patients who underwent adult single living donor liver transplantation (LDLT) and PVS above anastomosis level from 1998 to 2008.

RESULTS: PV stent was inserted in different timing and methods; simultaneously with transplantation operation; 59.2% (29 patients), percutaneously after transplantation; 22.4% (11 patients), and operatively after transplantation; 18.4% (9 patients). These patients in PVS group showed higher incidence of BAS than none-PVS group in the same period: 49% (24/49) and 28.1% (393/1398), p=.007. The median period for occurrence of BAS after PVS was 133.5 days. The period from transplantation to BAS was not significantly different between subgroup of 29 patients in PVS simultaneously with transplantation operation and none-PVS group of 393 patients. Among PVS group, there were no statistical significances of previously stuidied risk factor for BAS between BAS group and none-BAS group.

CONCLUSION: PVS above anastomosis can lead to BAS and it is seem to be caused by mechanical effect. In order to reduce BAS incidence, we have had the strategies such as portal venoplasty and PVS below anastomosis level.

PP-1057

Hepatocytes transplantation from living donor reduced-graft procedure for a baby with ornithine transcarbamylase deficiency: Potential cell source for hepatocytes transplantation

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Hepatocyte transplantation (HT) has been indicated in patients with metabolic liver disease as an alternative or bridge to liver transplantation (LT) in children. Limitation to wide application of HT is availability of hepatocytes. We performed HT for 11-days baby with ornithine transcarbamylase deficiency (OTCD), using cryopreserved hepatocytes from segment III of liver reduced-graft procedure in a living donor surgery.

The patient showed drowsiness and apnea at the age of 3 days. Further examination revealed hyperammonemia (1, 940μg/dl). OTCD was suspected because of evidence of orotic aciduria. Despite the intensive treatment including conventional medication with continuous hemodiafiltration, several episodes of hyperammonemia followed. Due to the small body weight (2, 550g), HT was indicated.

The donor was unrelated volunteer with same blood type, who underwent previously reduced left lateral segmentectomy. Segment II was used as a monosegmental liver graft for his son with end-stage liver disease, and hepatocytes isolated from the remnant segment III was cryopreserved for HT. Hepatocytes were transplanted from umbilical vein at the age 11 and 13 days. Amount of transplanted hepatocyte was 7.4x107 cells/body and 6.6x107 cells/body with a viability of 89.1% and 82.6%, respectively. The baby has been doing well with protein restriction, medication for OTCD and immunosuppression (tacrolimus and low dose steroid) with stable serum ammonia level of 40μg/dl. Five months after HT, he underwent living donor LT from his mother. During the 8 months of follow-up after LT, he did well with no complication.

Hepatocyte isolated from the remnant liver from living donor reduced-graft procedure deserves consideration as a method to extend the pool of available cells for transplantation.

PP-1059

Diagnosis and treatment of late posttransplant hepatocellular carcinoma recurrence after 5 years

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INTRODUCTION: Most hepatocellular carcinoma (HCC) recurrences following liver transplantation(LT) occur within first 3 years, but it happens sporadically after 5 years. This study intends to review the clinical features of late HCC recurrence and to establish its long-term screening protocol.

METHOD: The study population were 334 patients with HCC who underwent primary LT with follow-up period of >5 years.

RESULTS: Overall 10-year patient survival rate was 67.5%, with 4.8% perioperative mortality. HCC recurred in 68 (21.4%) of 318 surviving patients. HCC recurrence rate was 20.7% at 5 years and 23.2% at 10 years. Annual recurrence rate was 11.4%, 6.6%, and 2.0% during the first, second, and third year, respectively. In patients within Milan criteria, annual incidence of HCC recurrence was highest during first 3 years, while thereafter 6 cases of sporadic recurrence occurred after 5 years; in patients beyond Milan criteria, no late recurrence was found after 5 years. Increases in alpha-fetoprotein (AFP) were determined to be an initial indication to perform further imaging studies to diagnose recurrence in 4. There was a close correlation between pretransplant AFP level and AFP rise after HCC recurrence. Initial recurrence site was extrahepatic in 5 and intrahepatic in 1. Their median survival period after recurrence was 18 months.

CONCLUSION: We suggest that patients within Milan criteria are indicated for regular follow-up over 10 years, primarily with tumor marker tests.

PP-1060

Role of endoscopic screening for de novo gastric cancer in Korean liver transplant patients

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INTRODUCTION: De novo malignancy is not uncommon after liver transplantation (LT). Gastric cancer is one of the most common malignancy in Korean general population as well as in Korean LT recipients.

METHOD: Among 3300 adult recipients who performed LT from January 1999 and December 2012, we identified 26 cases of gastric cancer through routine cancer screening with gastrofibroscopy and imaging studies.

RESULTS: Mean patient age was 54.65 years (range: 44-65) and male were 24 patients. After a mean period of 60 months posttransplantation (range: 6 - 128 months), 26 cases of de novo gastric cancer was detected through routine endoscopic screening with imaging studies in 17 and work-up with clinical symptoms in 9. Routine screening found early gastric cancer in 14 and advanced gastric cancer in 4. Of them, 8 underwent endoscopic mucosal resection (EMR) and 10 did open surgery including one case of repeat resection after EMR. In contrast, in 8 patients with symptoms, only one had early gastric cancer. EMR was performed in 2 patients, but they underwent repeat surgery due to advanced tumor. Other 6 patients underwent open surgery and one received palliative stenting only. No significant surgical complication occurred after cancer treatment. Systemic chemotherapy was given to 4 patients with advanced gastric cancer. Two patients currently administer immunosuppresants including m-TOR inhibitor. Overall 3-year patient survival rate after gastric cancer diagnosis was 80.8%.

CONCLUSION: LT recipients must be checked periodically for various de novo malignancies throughout their lives, especially for cancers common in the general population. Annual-to-biannual endoscopic screening depending on stomach status contributed to detection of early gastric cancer, by which survival outcome would be improved.

PP-1061

Ad integrum functional and volumetric recovery in right lobe living donors: fact or fiction?

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INTRODUCTION: The partial livers' ability to regenerate both as a graft (in the recipient) and remnant (in the donor), justifies right lobe (RL) LDLT. Few studies have objectively demonstrated and quantified the rate and extent of functional recovery and regeneration, and predictors of the same. We studied functional and volumetric recovery of the remnant left liver (RLL) during the first year post right lobe donor hepatectomy using radiological and biochemical parameters.

METHOD: Prospectively collected data in 91 consecutive RL donors was used to analyse recovery of normal liver function (defined as prothrombin time [PT] ≥ 70% of normal and total bilirubin [TB] ≤ 20μmol/L), liver volumetric recovery (RLL /total liver volume [TLV]), and RLL growth (liver volume - preoperative RLL/ preoperative RLL) during the first year post donation. The relationship between, and predictors of functional and volumetric recovery were also studied.

RESULTS: The mean RLL was 35.1%. Normal liver function was regained by post operative day [POD] 7 in 47 donors (51.6%), and by POD 30, 90, 180 and 365 in 86%, 92%, 93%, and 96% donors, respectively. Mean liver volumetric recovery was 64%, 71% and 85%; whereas the percentage liver growth was 85%, 105%, and 146%, by POD 7, 30, and 365, respectively. Preoperative PT ($p = 0.01$), RLL/TLV ratio ($p = 0.03$), MHV harvesting ($p = 0.02$), and post operative peak TB ($p < 0.01$) were independent predictors of functional recovery, whereas donor age ($p = 0.025$), RLL/TLV ratio ($p = 0.01$), and TLV/ body weight ratio ($p = 0.004$) predicted regeneration.

CONCLUSION: One year after RL donor hepatectomy, unlike liver function which returns to normal in 96% donors, ad integrum volume recovery is achieved only in 85%. Function prevails over volume in determining post donation recovery. Predictive factors of regeneration, especially those that are modifiable pre-donation like donor age, PT, and remnant liver volumes on CT volumetry could help in better and safer donor selection.

PP-1062

Clinical analysis of recurrent hepatocellular carcinoma after living donor liver transplantation

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INTRODUCTION: This study aimed to analyze the clinical outcomes and factors influencing the outcomes in the recurrene of hepatocellular carcinoma (HCC) after living donor liver transplantation (LDLT).
METHOD: We retrospectively reviewed 50 patients with HCC recurrence among 285 patiens who underwent LDLT for HCC from October 2000 to December 2013 at our transplant center.
RESULTS: Most HCC recurrences (n = 42) occured within 2 years, with 33 patients experiencing HCC recurrence within 1 year.34 patients did not meet the Milan criteria at transplantation, and 24 patients were positive microvascular invasion. In univariate analysis, microvascular invasion (p = 0.048), time to recurrence < 6 months (p < 0.001), multiple recurrence (p < 0.001), brain metastasis at the time of recurrence (p = 0.003), and palliative treatment for recurrent tumors (p < 0.001) were significantly asscіated with poor survival after HCC recurrence. Time to recurrence < 6 months (p = 0.048) and palliative treatment for recurrent tumors (p = 0.015) were independent risk factors for poor overall survival after HCC recurrence in multivariate analysis. In palliative treatment group, combination therapy with sirolimus and sorafenib was significantly associated with good overall survival (p = 0.017).
CONCLUSION: In conclusion, because almost all recurrent cases belonged to the high risk group and recurred within 2 years, the high risk group should undergo close follow-up for early detection and be treated with curative intent as possible.

PP-1063

Safety of right-lobe living donor liver transplant from donors with Gilbert syndrome

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INTRODUCTION: Donor safety is the most important consideration of living donor liver transplantation evaluation. Some candidates with normal liver function test have isolated indirect hyperbilirubinemia related to Gilbert Syndrome.
There is a debate on the use of living-liver donors with Gilbert syndrome. Case reports and small case series demonstrated safety of use of donors with Gilbert syndrome. Our aim is to review the donor safety of liver donation from Gilbert and the effect on the recipients.
METHOD: Between January 2001 and Septemer 2014, two hundred and twenty two living-donor liver transplants using right-lobe grafts were performed in our hospital. Donors with Gilbert syndrome were defined as those whose serum bilirubin level was greater than 20.5 μmol/L (1.2 mg/dL). Fifteen of 222 (6.7%)right-lobe living-donor liver transplants (LDLT) were performed using donors with Gilbert syndrome, data on the age, gender, body mass index (BMI), total and direct bilirubin before donation, post-operative maximum bilirubin (PMB), total liver volume, percentage of remaining liver volume, donor and receipt outcome.
RESULTS: The mean follow up period is 75 months (4-138), the mean age was 25 (18-32), all male, mean BMI was 23 (18-27), mean per-operative total bilirubin was 28 (18-34), mean per-operative direct bilirubin was 6 (1-10), mean PMB total was 85 (50-122), mean PMB direct was 23 (11-45), all has right lobe hepatectomy with a mean remaining volume of 36% (30-43). No mortality in the donors, one recipient died of hepatic artery thrombosis at post-operative day 7, all other recipients are alive. To our knowledge, this is world second largest series of right lobe liver donors with Gilbert syndrome.
CONCLUSION: Right lobe living donor liver transplantation from donor with Gilbert disease is safe for donors with excellent outcome in the recipients.

PP-1064

Cross-auxiliary double domino donor liver transplantation: conceptual innovation in liver transplantation

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INTRODUCTION: Auxiliary liver transplantation with a living related partial graft or cadaveric liver graft was initially introduced as a temporary or permanent support for patients with potentially reversible fulminant hepatic failure, and its indications have been extended to liver-based metabolic disorders. As a conceptual change in a liver transplant, two domino donors from different liver-based metabolic disorder patients can implement a metabolic function complementary each other in the same recipient.
METHOD: The recipient was a 32-year-old female diagnosed of familial amyloid polyneuropathy (FAP), and the two domino liver donors all received living donor liver transplantation from their parents (lateral left lobe graft), one was diagnosed of Wilson's disease (a 4-year-old female child with Wilson's disease who developed the central nervous system symptoms like hyperactivity and tremor, 14.5Kg) and the other was OTCD (a 3-year-old female child with Ornithine carbamyl acyltransferase deficiency, 15.5Kg). We divided the o into two stages. Complex techniques were used to perform an innovative outflow reconstruction. For each domino liver, the three major hepatic veins (right, middle and left) joined together to obtain a single orifice. The venous outflow tract was reconstructed using a longitudinally opened iliac vein graft from a cadaveric donor to prolong the outflow tract for the piggyback transplantation. The transplantation procedure was made in standard techniques
RESULTS: During the follow-up period, fortunately, the recipient obtained a normal metabolic function of copper and blood ammonia, which verified the metabolic complementation of the two domino livers by the manner of cross-auxiliary in the same recipient.
CONCLUSION: We make the hypothesis into actuality, a Cross-Auxiliary Double Domino Donor Liver Transplantation can be a conceptual Innovation treatment method.

PP-1065

Outcomes of living and deceased donor liver transplant recipients according to the MELD score

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INTRODUCTION: Living donor liver transplantation (LDLT) has developed as an alternative to decease donor liver transplantation (DDLT) to overcome the critical shortage of deceased organ donations. However, the evidence supporting a LDLT for high model for end stage liver disease (MELD) score recipient is weak. We compared the outcomes of LDLT and DDLT according to MELD scores.
METHOD: Living donor liver transplantation (LDLT) has developed as an alternative to decease donor liver transplantation (DDLT) to overcome the critical shortage of deceased organ donations. However, the evidence supporting a LDLT for high model for end stage liver disease (MELD) score recipient is weak. We compared the outcomes of LDLT and DDLT according to MELD scores.
RESULTS: Recipient characteristics were similar between LDLT and DDLT, with the exception of higher MELD score in DDLT group (19.85 vs.13.52, p<0.001). The DDLT donors were significantly older than LDLT donors (42.55 vs.31.48, p<0.001). Hepatocellular carcinomas were present in 57.4% of the recipients (60.8% in LDLT vs.51.6% in DDLT, p=0.063). The median follow-up was 32 months (range, 0 to 105 months). LDLT demonstrated significantly better patient survival than DDLT in low MELD group (86.9% vs.74.8% at 5 years, p=0.006). Survival after LDLT was not inferior to DDLT in high MELD group (72.1% vs.57.3% at 5

years, p=0.265).
CONCLUSION: LDLT provided similar survival to DDLT in high MELD score recipients. Thus, when deceased donor organs are scare, a high MELD score should not be a contraindication to LDLT.

PP-1066

Predictors of survival in patients with hepatocellular carcinoma accepted for living donor liver transplantation beyond the "size-number" criteria

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INTRODUCTION: Most selection criteria for LT in cirrhotic patients with hepatocellular carcinoma (HCC-cirr) are based on tumour size and number, yet the best pre-operative imaging wrongly stages HCC in upto 20%. Besides, expanded criteria have shown similar results. Given the 'no competition' situation in LDLT, we accept HCC-cirr patients irrespective of tumour number and size, provided there are no extrahepatic metastases or major vascular invasion.
METHOD: Of 1142 adults who underwent LDLT till 2012, 203 had HCC-cirr (confirmed on explant histopathology), with 47% and 37% beyond Milan and UCSF criteria on imaging, respectively. Patient, disease, tumour characteristics, and long-term outcomes were studied to determine the predictive factors for OS and DFS.
RESULTS: The operative mortality was 6.9%. After a mean follow up of 34 months (6-96 months) in the remaining 189 patients, 85% are alive, 74% among these without recurrence. Of 36 (19%) with HCC recurrence (at median 13.5 months), 16 died. The OS and DFS at 1, 3 and 5 years were 95%/82%/68%, and 90%/71%/59%, respectively. On multivariate analysis, pre-LT alpha fetoprotein (AFP) ≥200 ng/ml (3-yr OS 74% vs 88% for patients with AFP < 200 ng/ml; p = 0.004 and 3-yr DFS 64% vs 75%; p = 0.0001), tumours beyond UCSF criteria (3-yr OS 66% vs 90% for patients within UCSF; p = 0.009 and 3-yr DFS 40% vs 87%; p = 0.004), and presence of microvascular tumour invasion [MVI] (3-yr OS 74% vs 83%; p = 0.003 and 3-yr DFS 55% vs 86%; p = 0.003) were bad prognostic factors for both OS and DFS.
CONCLUSION: Good outcomes are obtained using our expanded selection criteria irrespective of tumour size and number. Pre-transplant AFP ≥200 ng/ml, tumours beyond UCSF criteria on imaging, and presence of MVI are poor prognostic factors for both OS and DFS. Incorporating these prognostic markers in the decision-making process may have important implications for further improving outcomes, pre-LDLT downstaging, and meticulous follow-up for recurrence.

PP-1067

Is systemic heparinization necessary during living donor hepatectomy?

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INTRODUCTION: Systemic heparinizaton has traditionallly been performed in most transplant centers during living donor hepatectomy (LDH) due to the possibility of graft vascular thrombosis during the warm ischemic period, which could impair graft function or cause graft loss. However, no consensus on the use of systemic heparin during LDH has yet emerged. The aim of the present study was to compare donor and recipient outcomes with reference to systemic heparinization and to determine if systemic heparin need not be administered to living donors.
METHOD: We analyzed the outcomes via retrospective review of 137 LDHs performed in our institution from January 2011 to October 2013; 79 donors received systemic heparinization (group I) whereas 58 did not, but the liver graft was flushed with a heparinized perfusate (group II). Patient demographics, intraoperative parameters, laboratory data, postoperative complications, and survival rates were compared between the two groups.
RESULTS: The overall complication rates did not differ significantly between the two groups but postoperative bleeding requiring red blood cell transfusion occured more frequently in group I than group II (7.6% versus 0.0%, p=0.032). The incidence of graft vascular thrombosis was similar in postoperative period. Moreover, no difference in either posttransplant graft function or survival rate was apparent betwee the two groups. The rates of decrease in donor hemoglobin, hematocrit, and platelet count levels during early postoperative period were significantly higher in group I compared to group II.
CONCLUSION: Omission of systemic heparinization during LDH is both feasible and safe, with no adverse effect on donor or recipient outcomes.

PP-1068

HBV and HCV reactivation after LDLT in Mongolia

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INTRODUCTION: Liver cirrhosis (LC) and hepatocellular carcinoma (HCC) are considered as leading causes of death in the Mongolia. Mongolia is the country wich estimated with high prevalence of HBV and HCV as well as among the population HCV≥10, HBV≥7-8 is the ultimate cause of liver disease (WHO
METHOD: 169 patients have been involved in our study after Living Donor Liver Transplantation (LDLT) in Mongolia, Korea and India. The aim was the comparison of HBV and HCV reactivation and result of viral treatment.
RESULTS: We are following up 169 patients who have been performed the LDLT. By diagnose, LDLT were as followings: 101 patients with HBV-LC, 40 patients with HCV-LC, 2 patients with Cryptogenic LC, 1 patient with Alcoholic-LC, 3 patients with Biliary atresia, 54 patients with HCC.
HBV reactivated in 5 (4.9%) of 101 patients as well as 1 of them given HBV-Ig and other 4 patients haven't been given. We treated the reactivation patients with double dose of entecavir plus tenofovir, after that HBsAg detected negative. In each case, we have given HBV-Ig 4000 units and developed anti-HB.
HCV reactivated in 33 (82.5%) of 40 cases and 7 cases of them with high activation /≥20*10^6IU/ml/ were treated by Peginterferon /135mg-180 mg/ + ribavirin /400-800mg/. SVR was in 1 case and relapse occurred in 3 patients, another 3 patients were EVR and treatment is being carried.
CONCLUSION: After liver transplantation, HBV in 5/4.9%/ and HCV in 33/86.5%/ reactivated respectively. As result of 2 fold dose of entecavir + tenofovir, HBsAg detected negative after treatment. As result of Peg-IFN+Ribavirin, SVR /+/ in 1 case, relapse in 3 cases and 3 cases are expecting the treatment result.

PP-1070

Long-term outcome of 10-year pediatric survivors after living-donor liver transplantation

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INTRODUCTION: The aim of the study is to determine health-related profiles of 10-year pediatric survivors after liver transplantation at a single center.
METHOD: The study was a retrospective analysis characterizing patients who alive 10 years among patients with living-donor liver transplantation (LDLT) from 1994 to 2014 at Seoul Asan Medical Center. From the study period, 101 children was identified. Patients who had died (n=19) and patients from whom data for 10-yr anniversary follow-up visit was not available were excluded from analysis.
RESULTS: A total of 79 10-year survivors was identified, all of whom received daily immunosuppressant therapy. Cumulative survival rate of graft at 10 year was 95.1% and those of acute and chronic rejections were 51.6% and 3.7%, respectively. Autoimmune hepatitis and de novo hepatitis B were noted in 2 (2.5%) and 9 (11.4%) patients, respectively. Co-morbidities associated with the post-LT course included post-transplantation lymphoproliferative disease (n=9, 11.3%), renal dysfunction (n=2, 2.5%), hypercholesterolemia (n=2, 2.5%), and diabetes mellitus

(n=9, 11.3%). Impaired linear growth (Z-score <-2) was carried by 30 (38%) patients. Six (7.6%) experienced seizure postoperatively, however, no moderate-to-severe mental retardation was noted. Only 46 (58.2%) patient had normal linear growth without any health-related problems. The absence of health-related problems was associated with normal linear growth (P=0.03, Chi-square test).
CONCLUSION: Despite long-term survival after LDLT, a variety of health-related problems may affect quality of life among 10-year pediatric survivors. To prevent impaired growth in long-term survivors, optimized health-care may be essential.

PP-1071

Influence of graft size matching on outcomes of infantile living donor liver transplantation

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INTRODUCTION: It is well accepted that the graft-to-recipient weight ratio (GRWR) correlates significantly with posttransplant outcomes for adult patients, but whether size mismatching between grafts and recipients would impact outcomes of living donor liver transplantation (LDLT) in infants or small children remains unclear.
METHOD: From October 2006 to December 2013, 132 infantile LDLT recipients weighing no more than 10kg met the study criteria and were retrospectively analyzed in this study. The entire cohort was categorized into 3 groups by GRWR: GRWR<2.5% (group A, n=23), 2.5%≤GRWR<4.0% (group B, n=87), and GRWR≥4.0% (group C, n=22). Perioperative data and posttransplant outcomes were compared among group A, B, and C.
RESULTS: The median age of the 132 children was 10.2 months (range from 4.5 to 34.6 months) at the time of transplant. GRWR varied from 1.84% to 5.40% (median: 3.06%). Baseline characteristics of children were similar among group A, B and C. Differences of alanine aminotransferase, aspartate aminotransferase, total bilirubin and albumin were all not prominent within 90 days after LT among the 3 groups except that alanine aminotransferase on postoperative day 1 (P=0.044) and postoperative day 3 (P=0.046) were significantly higher in group C. As for posttransplant complications, hepatic artery thrombosis (P=0.047) and wound infection (P=0.027) were significantly more common in group C, while the incidence of wound dehiscence was higher in group A (P=0.036). No significant difference was observed in terms of survival rates of patients and grafts (91.3% vs.87.3% vs.86.4% in 1 year, P=0.552) among groups A, B and C.
CONCLUSION: Safety criteria of GRWR for children are totally different from those for adults. Our data showed that GRWR within the range between 1.8% and 4.8% was reasonable and would not cause noticeable adverse events for infantile LDLT recipients weighing no more than 10kg.

PP-1072

An incidence of delirium among the patients who underwent liver transplantation(LT) in ICU

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INTRODUCTION: Delirium as an acute mental disturbance characterized by confused thinking and disrupted attention. There is always the risk of having delirium for the patients who have undergone liver transplantation(LT). We aimed to find out the potential factors that might cause delirium as well as to investigate correlation between an incidence of delirium and LT.
METHOD: 135 patients who underwent LT during the period April to August 2013 at a single medical center were enrolled. The CAM-ICU scale was used to diagnose delirium. Preoperative, postoperative, biological, physical, environmental and hemodynamic factors were included as potential risk factors for developing delirium.
RESULTS: The comparison between delirium group and non-delirium group showed meaningful results: Age(p=.000), Visual impairment(p=.004), Family support(p=.015), Preoperative consciousness level(p=.006), Reason for admission(p=.003), Intubation history(p=.000), Application of a restraint(p=.000), hemodialysis(p=.000), Application of a sedative drug(p=.000).94.8 percent of the patients who were diagnosed as delirium were aged fifty and over, and 26.3 percent among them were age sixty and over.63 percent of delirium group scored twenty and over at The MELD.73.7 percent of them recovered within twenty-four hours, but delirium recurred among the patients who recovered from it after 11.8 hours in average. The average length of ICU stay for delirium group was 16.3 days, which was about three times longer than non-delirium group's 5.7 days. Also, 57.9 percent of the patients from delirium group returned to ICU after they had transferred to general ward because of infection and respiratory problem.
CONCLUSION: Only with the exact understanding about delirium and medical staffs' delicate approach the disease can be prevented and cured. Through this research, characteristics and features of delirium and the factors that can potentially cause delirium are confirmed. It is expected that this research can be used for the ICU education purpose and the ICU environment improvement.

PP-1073

Single center experience of conversion from twice-daily tacrolimus to once-daily tacrolimus in stable liver transplant recipients

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INTRODUCTION: Patient's adherence to immunosuppressant regimen after organ transplant is important to preserve graft function and simplifying regimen is one of the methods to improve adherence. In this study, our experiences of conversion from twice daily (bid) to once daily (qd) tacrolimus in stable liver transplant recipient were reviewed and the proper conversion regimen was investigated.
METHOD: Between November 2011 to August 2012, conversion regimen was applied in 32 stable liver transplant recipients. The medical records were reviewed retrospectively. Tacrolimus trough level, dosage and laboratory findings were evaluated at the time of preconversion, conversion and 1 to 12 months after conversion.
RESULTS: Conversion from bid to qd regimen was based on 1:1 proportion in 16 patients and dose escalation in 16 patients. The mean age at the time of conversion was 55 years (range = 18 ~ 72 years). Mean conversion time after transplant was 56.8 months (range = 21 ~ 94 months). Nine patients had returned to bid regimen and 7 patients who need to return to bid regimen within 6 months were considered as conversion failure. Trough level decreased significantly after conversion in patients with conversion based on 1:1 proportion, while increased slightly without statistical significance in patients with dose escalation. At the time of 1 year after conversion, increased dosage compared with qd regimen was required for preserving trough level and graft function in 14 patients.
CONCLUSION: Based on our results, tacrolimus qd regimen can be applied safely in stable liver transplant recipients, however dose escalation should be considered for preserving proper trough level.

PP-1074

The outcome and sinusoidal functions of the graft in living donor liver transplantation using elderly donor

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INTRODUCTION: To expand the donor pool, marginal donors such as elderly ones are considered to use. The aim of this study was to elucidate the outcome of living donor liver transplantation (LDLT) using elderly donor graft and the

sinusoidal function in the graft.
METHOD: Between 1997 and 2013, a total of 161 adult recipients underwent LDLT. The graft survival, prognostic factors of survival, graft failure after LDLT were examined between young donor (<50, n=112) and elderly donor (≥50, n=49). The expression of Kupffer cell represented by CD68 positive cell in the graft age was examined in the young and elderly donor.
RESULTS: There were significant differences of patient 1/3/5 year survival rates between each group (young donor: 83.1/79.2/73.8 %, elderly donor: 73.1/59.3/50.5%) (p=0.01). There was significantly worse survival in elderly donor than young donor especially in HCV recipient. Multivariable analysis showed independent factor as sepsis and donor age for survival and as donor age, sepsis and DM for graft failure after LDLT. The CD68 positive cells in younger donor (twenties) were significantly expressed than those in elderly donor. The graft survival rate of the group with less number of CD68 positive cells in the graft was significantly worse even in the elderly donor group after LDLT.
CONCLUSION: The outcome of LDLT with elderly donors was significantly worse than that with young donors. These results might be related to the less expression of Kupffer cells in the graft which can lead to the impaired recovery of liver function and the infectious disease after LDLT.

PP-1076

Ethics in living donor liver transplantion

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INTRODUCTION: The problem in transplantation is shortage of organs. Especially in Asia, deceased organ transplantation is very limited in number. So living donor transplantation is good solution of the problem. The present key points in living donor transplantation is donor safety which is closely related to value of organ donation of the donor. Endeavors on living donor liver transplantation(LDLT) has improved the results, but still there are debates on legitimacy in LDLT in other points. Ethics on LDLT is important in the time that LDLT is going to be set-up as a standard method in chronic liver disease.
METHOD: This paper reviewed of articles on ethics in LDLT in different countries.
RESULTS: Because of differences in ethics on LDLT in each countries, multidirectional approaches suitable to each circumstances will be needed but endeavors for LDLT will lower ethical barriers in each countries
CONCLUSION: Consideration of ethics in LDLT will make doctors have prudence on their efforts and make donors confirm the value of their decision.

PP-1077

Technical knacks to enhance luminal patency of interposed synthetic graft in living donor liver transplantation using modified right liver graft

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INTRODUCTION: Due to shortage of vein allograft, synthetic grafts such as polytetrafluoroethylene (PTFE) have been used for reconstruction of middle hepatic vein (MHV) tributaries of right liver graft during living donor liver transplantation. We previously reported the merits of composite patch graft to reduce tissue reaction and to facilitate end-to-side anastomosis. With accumulation of surgical experience, we found that unique location of V8 anastomosis close to the graft right hepatic vein (RHV) often led to buckling transformation of PTFE graft and subsequent luminal stenosis and thrombosis.
This study intended to assess the efficacy of newly developed technical knacks to overcome such buckling-associated patency complications.
METHOD: There were two recent modifications as follows: when V8 was <1.5 cm apart from graft RHV, we made unification venoplasty of RHV and V8; otherwise, we made V8 composite patch long to provide some redundancy working as a short side branch. Their 3-month patency rate was compared with that of historical control group with conventional MHV reconstruction.
RESULTS: In 60 cases of control group with V8 anastomosis located within 3 cm from graft RHV, 3-month patency rate was 85% with 4 cases of early MHV stenting. Modified design was applied in 30 patients, in which no vascular complication in V8-RHV unification venoplasty group (n=5) and redundant V8 group (n=25) showed 3-month patentcyrate of 96% with 1 case of early MHV stenting (modification versus control: p=0.09).
CONCLUSION: Our technical modification on V8 reconstruction appears to be effective to improve the patency of MHV reconstruction.

PP-1081

Budd Chiari syndrome: transplantation and beyond

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INTRODUCTION: Budd–Chiari syndrome (BCS) presents as a spectrum of vascular disease requiring liver transplantation (LT) and innovative techniques to establish vascular flow. With vast experience in LRLT we share our experience in managing these patients.
METHOD: We follow the stepwise protocol with anticoagulation, vascular intervention and finally LT. All patients underwent work-up for coagulation defects (protein C/S; Leiden V, antithrombin III) along with screening for myeloproliferative disorders, JAK-2 mutation and CT liver angiogram.
RESULTS: 17 patients with BCS underwent LRLT, of whom 5 had protein C and S deficiency. Indications for transplantation were hepato-pulmonary syndrome, blocked MHV stent and cirrhosis. Donor with protein S deficiency with more than 40% inhibition value was accepted for Right lobe graft. All patients underwent surgery by abdominal approach with porta-first technique. The operative time as well as the blood loss was higher. Five patients had portal vein thrombosis requiring thrombectomy. Liver was explanted in all cases with individually clamping the hepatic veins and dividing them without the need for caval clamping. Associated thrombus in the cava was dealt with Thrombectomy, Thrombectomy and dilatation of the cava, Cavotomy and interposition onlay graft to restore the lumen (7cm long and 1.5 cm wide circumferential Gortex graft along 180 degrees). In one case spontaneous recannalisation was observed. Post-operatively all the patients received heparin for 2 weeks and all are doing well. Patients with protein C/S deficiency are off anticoagulation, and rests are on coumarin anticoagulation. Two patient required balloon dilatation of hepatic vein due to non compliance of anticoagulation.
CONCLUSION: LT for BCS is feasible by innovative inflow and outflow restorative technique. Selected patients can be managed off anticoagulation. Non-compliant patient can be managed with invasive radiological interventions. Donor with protein S deficiency can be suitable in selected cases.

PP-1082

The possibility of radiotherapy as downstaging to living donor liver transplantation for hepatocellular carcinoma with portal vein tumor thrombus

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INTRODUCTIONS: Hepatocellular carcinoma (HCC) tends to be multifocality and vascular invasion, like portal vein (PVTT). Sorafenib can be usually treatment of choice for advanced HCC because several trials confirmed the safety and efficacy. But Sorafenib is less effective in patients with advanced HCC, like PVTT or extrahepatic disease. These advanced HCC patients are excluded for liver transplantation (LT), according to Milan criteria. Traditionally radiotherapy (RT) was believed not effective

for HCC but after developed conformer RT, there are several trial about RT as bridge to LT. Purpose of our study is to compare the efficacy of LDLT following RT in advanced HCC with PVTT with that of RT alone and identify the overall survival rates after LDLT in patients with advanced HCC underwent radiation.

METHODS: Between May 1996 to March 2013, total 1360 patients treated by LT in our institution. Thirteen patients had history of RT and those of 5 recipients had PVTT. We analyze these patients retrospectively. To confirm the value of LDLT following RT in PVTT, we did matched study, according to sex, age, tumor size and number, dose of RT, level of AFP and location of PVTT.5 recipients are enrolled to RT with LT group and 10 patients who were enrolled RT alone group. Objective tumor response is evaluated with CT and/or MRI according to modified RECIST criteria and outcomes is estimated by disease free survival (DFS) and overall survival (OS).

RESULTS: Table 1 is shown clinical characteristics of both groups and there is no statistically difference between both groups. In these 5 LDLT following RT group, the interval periods between RT and LT was about 180 days and mean value of MELD score was 18. All LT was done by LDLT and mean operation times are 588 minutes. During operation, mean amount of transfusion are 3.4 pints and all cases are done by duct to duct anastomosis. During follow-up periods, in LDLT following RT group, 2 recipients shown disease progression, but in RT alone group, all patients are shown tumor ingrowths or intra-, extra-hepatic metastasis. LDLT following RT group`s OS was 1055 days and that of RT alone group`s was 367 days and there was significant statistically difference (Table 4 and Figure 1).

CONCLUSIONS: LDLT following RT can be treatment of choice for PVTT in selective patients like low AFP level, branched type of PVTT, and good tumor response, and we suggest that this warrants further testing in a randomized, controlled, multi-centre trial. And when bile duct anastomosis in RT recipients, hepaticojejunostomy was recommended to prevent biliary complication.

Table 1. Clinical characteristics of 15 patients included in the study

	RT+LDLT (n=5)		RT alone (n=10)		*p*-value
Median age, year (range)	50 (44 – 57)		51 (46 – 61)		0.440
Sex, Male (%)	5 (100)		9 (90)		0.591
Tumor size, cm (range)	3.6 (2.3 – 7.5)		3.0 (1.2 – 7.0)		0.953
Number of Tumor	1 (1 – 4)		2 (1 – 4)		0.859
PVTT of Main trunk, n (%)	2 (40)		6 (60)		0.608
Dose of RT, Gy (range)	35 (35 – 40)		35 (33 – 50)		0.859
Initial AFP (range)	29.2 (3.0 – 907.9)		262.3 (4.1 – 23761.2)		0.254
Decreased rates of AFP after 3 months, % (range)	71.0 (-65.1 – 309.6)		-35.0 (-99.8 – 467.9)		0.368
RT response after 3Ms by Modified RECIST	CR	2	CR	3	N/A
	PR		PR	5	
	SD	1	SD	2	
	PD	2	PD		

NOTE. The p values were calculated using the Mann-Whitney U tests for continuous variables and Fisher's exact tests for categorical variables.

PP-1083

Donor age over than 55 years old in Living Donor Liver Transplantation

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BACKGROUND: The significance of donor age in living donor liver transplantation (LDLT) has not been fully evaluated, present study was to evaluate the influence of donor age on graft function and outcomes in recipients and donors.

PATIENTS AND METHODS: We included 93 adult recipients who underwent LDLT from May 1996 to September 2013. According to the age of donor, recipients were divided into two groups: older >55 years of age and younger ≤55 years of age.

For each patient with older donor graft (donor age >55), a patient with younger donor graft (donor age ≤55) matched by Graft to Recipient body weight ratio, Child-Pugh class, Model for end stage Liver disease score and existing of hepatocellular carcinoma was selected.

We collected retrospectively patient characteristics, and posttransplant clinical outcomes and survival were compared between two groups.

RESULTS: Baseline characteristics were not different between the two groups, except for more number of male donors in the younger group. The frequencies of allograft rejection, Biliary complication, vascular complication and laboratory results of recipients after transplantation were similar in the two groups.

Hospital stay and post operation complications of the older donor group were not significantly higher than those of the younger donor group(P=0.27 and P=1.00, respectively).

Macrosteatosis in the older age group of donor is significantly higher than in the younger age group(11.35%±9.91 vs. 7.35%±8.2, P=0.04). But both group had the macrosteatosis rate of less than 30. There was no significant differences in mortality within 60 days after LDLT between 2 groups(4.8% vs 6.5%, P=1.00).

The cumulative 2-year survival rates were 80.9% in younger age group and 75.4% in older group of donor without substantial difference(P=0.279).

CONCLUSION: The surgical outcomes of recipient using older donor livers were comparable to those using younger donor livers for LDLT and safety of the donor over the age of 55 is similar to the donor of 55 years old or less.

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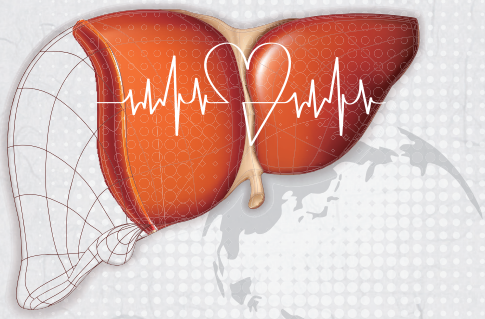

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