



Malaysian Society of Transplantation

# 20<sup>TH</sup> ANNUAL SCIENTIFIC MEETING OF THE MALAYSIAN SOCIETY OF TRANSPLANTATION

NOVOTEL HOTEL MELAKA

12<sup>TH</sup> – 13<sup>TH</sup> MAY 2017



**Transplant Today**

## Key topics:

- 1) Surgeons in Transplantation
- 2) Ethics & Legal Issues in Transplant
- 3) Revitalising Life Donor Transplantation
- 4) Hepatitis & Transplantation
- 5) Increasing Deceased Donor

In collaboration with:



Ministry of Health of Malaysia

# SOUVENIR PROGRAMME



## CONTENTS

Message from the President of the Malaysian Society of Transplantation	4
Message from the Organising Chairman	5
Malaysian Society of Transplantation Council Members	6
Organising Committee	7
Faculty Members	8
General Information	9
Scientific Programme	10
Directory of Meeting Rooms	13
Directory of Exhibition Booths	14

## SPEAKER ABSTRACTS

### Day 1 (Friday)

EMOSS – how to improve kidney allocation: Should we revisit?	16
Monitoring after Allogeneic Stem Cell Transplantation: Role of Chimerism Analysis	17
Current Indications and Controversy of Autologous Stem Cell Transplantation	18

### Day 2 (Saturday)

Transplant for Chronic Hepatitis C – When and What to treat	20
Commercial Overseas Transplant: Why Should We Care?	21
Public Perception and Awareness on Organ Trading	22
Medical Optimization of ALF and ACLF	23
Anaesthesia and Liver Transplantation	25

Immunosuppression in Pregnancy	26
The Saga of An Unsuccessful Corneal Graft	27
Descemet Membrane Endothelial Keratoplasty	28
Increasing living organ donation rates: how can we make it possible?	29
GIFT : How can we improve?	30
Updates in Donor Management and Maintenance	31
Improving Coordination for Organ Transportation	32
Counseling Pre and Post Transplant	33
Medications Adherence and Drug Interactions	34
Poster Presentations	35
Free Papers – Oral Presentation	62
Acknowledgements	63



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NOVOTEL HOTEL MELAKA | 12<sup>TH</sup> – 13<sup>TH</sup> MAY 2017



### MESSAGE FROM THE PRESIDENT OF MST

On behalf of the Council, Malaysian Society of Transplantation, I wish to extend a warm welcome to this year's annual scientific meeting which is held in the historic World Heritage City of Malacca. This, being the 20th annual meeting, should reflect the coming of age of the organ transplantation program in Malaysia which began in 1975 with the first live donor kidney transplantation in Hospital Kuala Lumpur.

While there were considerable developments in many aspects of the transplant program in this country, including the national and institutional organisational structure, clinical and administrative governance, and the formation of central databases for the organ pledgers and the national deceased donor kidney transplant recipient list, several others remain in the back burner. The latter include the stalled tabling of the revised organ transplant legislation, the administrative inertia to establish dedicated transplant teams and a clear incentivised career professional pathway for various solid organ transplant program. While the sistership twinning program between Royal Prince Alfred Hospital, Sydney and Hospital Kuala Lumpur had received a boost with the upgrading of the link by the International Society of Nephrology from tier 3 to the higher tier 2 status, the meaningful bottom line of all these initiatives and recognition should be reflected in the actual significant increase in the number and rate of organ donation and organ transplantation in this country. This remains frustratingly elusive and made worse by the explosion of renal failure patients on dialysis treatment.

Going beyond the borders of Malaysia, we are very much aware of the much higher transplantation rate in other Asian and Western countries. There must be useful lessons from these successful models for us to emulate, adapt or adopt. While this is being studied or researched, we continue to remain concerned with the continuing efflux of Malaysian citizens who went overseas to obtain organ transplants via commercial arrangements and in other circumstances, dubious means. Some of these issues will be covered and discussed in this year's meeting.

We hope, many more local professionals, policy makers, organisations and the society at large will see the importance of having a successful transplantation program locally. It is also our hope that, the delegates who attend this meeting will develop more interest and acquire more useful knowledge to promote and advance the cause of transplantation in the country. 'Transplant Today', being the theme of this year's meeting, is a reflection of the physical crossroad which confronts the transplant program locally. I hope, delegates can gain something useful from this meeting and emerge with a clear and correct direction to ensure the survival and success of organ transplantation program in Malaysia.

For the record, MST Council wish to thank the Organising Committee, the speakers, session chairpersons, delegates, Ministry of Health Malaysia and the corporate sponsors for making this year's meeting possible and successful.

With best wishes

A handwritten signature in black ink, appearing to read 'Ghazali'.

**Datuk Dr Ghazali Ahmad**

President

Malaysian Society of Transplantation

2016-2018



## MESSAGE FROM THE ORGANISING CHAIRMAN

On behalf of the Organizing Committee, I am delighted to welcome all delegates to the 20th Annual Scientific Meeting of the Malaysian Society of Transplantation.

As the largest annual symposium (in Malaysia) devoted to the dedicated discussion on transplant of various subspecialties - I hope this two-day symposium will provide participants with a invaluable opportunity and platform for sharing and exchange of ideas, gain insight and keep up-to-date with the latest studies and research materials, discover novel opportunities as well as challenges, as well as catch up with friends and form new acquaintances and collaboration – in further enhancing our understanding, knowledge and practice – whether as physicians, surgeons, pharmacist, pathologist the procurement team and everyone working in support of ensuring transplantation in Malaysia moves forward to the next level.

The theme for this year's meeting is 'Transplant Today' which is designed to explore new idea, research and clinical applications for transplant in future directions in terms of diagnosis, interventions and research.

The program for this year's symposium features a range of keynote addresses from our distinguished international as well as local speakers who will hopefully shed some light on the new subject-matters at the various sessions lined up.

It is the hope and aim of the MST to organise such an event to include a broad mix of stimulating discourse and assemble experts from various fields and specialities to share their ideas & experience. We have also tried to structure a program that is balanced in terms of innovative solutions research topics as well as sessions offering a more specific clinical focus, among others, on the treatment of complex disorders.

May I take this opportunity on behalf of MST, to express our gratitude and appreciation to all speakers who have taken their time off to be here, all participants and not forgetting everyone involved in organizing the 20th Annual Scientific Meeting

Finally, we are also looking forward to each of you taking the opportunity to fully participate at this year's symposium to also discover, explore and enjoy our beautiful historical city, Melaka!

*Haniza Tan Sri Omar*  
**Dr. Haniza Tan Sri Omar**

*Organizing Chairman  
20th Annual Scientific Meeting  
Malaysian Society of Transplantation*



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## MST COUNCIL MEMBERS (2016 – 2018)

President	:	Datuk Dr. Ghazali Ahmad
Vice President	:	Dr. Rafidah Dato' Abdullah
Honorary Secretary	:	Dr. Hirman Ismail
Honorary Treasurer	:	Dr. Muhd Zanapiah Zakaria
Committee Members	:	Dr. Chandramalar T. Santhirathelagan Dato' (Mr.) Mohd Nazeri Nordin Dr. Wong Chew Ming Dr. Haniza Tan Sri Omar Dr. Mohamad Zaimi Abdul Wahab Dr. Muhamamd Iqbal Abdul Hafidz

## ORGANISING COMMITTEE

*Organising Chairman*

Dr. Haniza Tan Sri Omar

*Committee Members*

Dr. Hirman Ismail

Dr. Muhd Zanapiah Zakaria

Dr. Chandramalar T. Santhirathelagan

Dr. Muhamamd Iqbal Abdul Hafidz

Dr. Mohamad Zaimi Abdul Wahab

Dr. Sharifah Shahnaz Syed Abdul Kadir

Puan Rohayah Hamzah

Cik Rashidah Hamzah



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NOVOTEL HOTEL MELAKA | 12<sup>TH</sup> – 13<sup>TH</sup> MAY 2017

## FACULTY MEMBERS

### OVERSEAS SPEAKERS

Albert Chan Chi Yan

James Yan Yue Fung

Lionel Rostaing

### NATIONAL SPEAKERS

Ahmad Suhaimi Amir

Ashari Yunus

Azizul Awaluddin

Chan U-Teng

Chandramalar T. Santhirathelagan

Chang Kian Meng

Diana Mohd Shah

Ezalia Esa

Ghazali Ahmad

Manisekar K. Subramaniam

Manjulaa Devi Subramaniam

Maszely Minhad

Mohamed Ezani Md Taib

Mohd Nazeri Nordin

Omar Sulaiman

Ong Tee Chuan

Roshan Rohit

Rosnawati Yahya

Shamala Retnasabapathy

Tan Soek Siam

Tengku Alini Tengku Leh

Wong Hin Seng

Zakaria Zahari

## GENERAL INFORMATION

### **Conference Venue**

Novotel Hotel Melaka  
No. 1A, Jalan Melaka Raya 2, Taman Melaka Raya, 75000 Melaka  
Tel : (6) 06-2898222 Fax : (6) 06-2892829

### **Secretariat Room**

The secretariat room is located at Eureka Room, Level 3.

### **Speakers Preview Room**

The speakers preview room is located at Eureka Room, Level 3.

### **Operating hours**

11th May 2017, 1500 – 1800 hrs  
12th May 2017, 0700 – 1700 hrs  
13th May 2017, 0700 – 1630 hrs

### **Registration Counter**

The registration counter is located Foyer Melaka Ballroom, Level 3.

### **Operating hours**

11th May 2017, 1500 – 1800hrs, Thursday  
12th May 2017, 0700 – 1800hrs, Friday  
13th May 2017, 0700 – 1630hrs, Saturday

### **Lecture Sessions**

Seating is on a first-come, first served basis. Please arrive at least 5-10 minutes before the session begins to avoid interrupting the presentation.

### **Smoking and cellular phones**

Smoking is strictly prohibited in the meeting rooms. As a courtesy to all participants and speakers, cellular phones and other electronic devices must be operated in silent/vibrated mode throughout the scientific programme. No phone conversations are permitted in the meeting rooms.

### **Disclaimer**

The organizer is not responsible for accidents, losses or damages as well as delays or alterations in the programme.

### **Conference Secretariat**

Puan Rohayah Hamzah  
Suite 2-8, Level 2, Medical Academies of Malaysia  
210, Jalan Tun Razak, 50400 Kuala Lumpur.  
Tel : 603 – 40241522  
Fax : 603 – 40226882



20<sup>TH</sup> ANNUAL SCIENTIFIC MEETING OF THE  
MALAYSIAN SOCIETY OF TRANSPLANTATION  
NOVOTEL HOTEL MELAKA | 12<sup>TH</sup> – 13<sup>TH</sup> MAY 2017

SCIENTIFIC PROGRAMME

<b>Programme Day 0 : 11 May 2017, Thursday</b>		
1500 – 1800 H	Pre-Registration <i>Melaka Raya Ballroom Foyer, Level 3</i>	
<b>Programme Day 1 : 12 May 2017, Friday</b>		
	<i>Melaka Raya Ballroom 1</i>	
0830 – 0845 H	Welcoming address by the President of MST	
0845 – 0930 H	<b>Plenary 1</b> New Innovations in Adult Living Liver Transplant (Assoc. Prof. Dr. Albert Chan Chi Yan)	
0930 – 1015 H	<b>Plenary 2</b> A Career Pathway for Transplant Surgery (Dr. Roshan Rohit)	
<b>1015 – 1045 H</b>	<b>Tea Break</b>	
	<i>Melaka Raya Ballroom 2</i>	<i>Melaka Raya Ballroom 1</i>
	<b>Symposium 1 – Hepatopancreaticobiliary</b>	<b>Symposium 2 – Nephrology</b>
1045 – 1115 H	Live Liver Donor Transplantation – Potential and Challenges (Dr. Manisekar K. Subramaniam)	EMOSS – how to improve kidney allocation: Should we revisit? (Dr. Wong Hin Seng)
1115 – 1145 H	Controversies and Ethical Issues in Liver Transplantation (Assoc. Prof. Dr. Albert Chan Chi Yan)	DSA –Significance and Management (Dr. Rosnawati Yahya)
1145 – 1215 H	Paediatric Liver Tumours – Are they transplantable? (Dato' Dr. Zakaria Zahari)	mTOR-I in Solid Organ Transplantation – What is New ? (Professor Lionel Rostaing)
<b>1215 – 1315 H</b>	<b>Novartis Lunch Symposium</b> <i>Melaka Raya Ballroom 1</i>	
<b>1315 – 1430 H</b>	<b>Friday prayers</b>	
	<i>Melaka Raya Ballroom 1</i>	<i>Melaka Raya Ballroom 2</i>
	<b>Symposium 3 – Haematology</b>	<b>Free Papers</b>
1430 – 1500 H	What can happen next? - Complications of Allogeneic Stem Cell Transplantation (Dato' Dr. Chang Kian Meng)	
1500 – 1530 H	Monitoring after Allogeneic Stem Cell Transplantation : Role of Chimerism Analysis (Dr. Ezalia Esa)	
1530 – 1600 H	Current Indications and Controversy of Autologous Stem Cell Transplantation (Dr. Ong Tee Chuan)	
<b>1600 – 1630 H</b>	<b>Tea break</b>	
<b>1700 – 1800 H</b>	<b>MST Council Meeting</b> <i>Boardroom, Level 3</i>	
<b>1900 – 2100 H</b>	<b>Faculty dinner</b>	

<b>Programme Day 2 : 13 May 2017, Saturday</b>		
0830 – 0915 H	<i>Melaka Raya Ballroom 1</i> <b>Plenary 3</b> Transplant for Chronic Hepatitis C – When and What to treat (Dr. James Yan Yue Fung)	
	<i>Melaka Raya Ballroom 1</i> <b>Symposium 4 – Ethics</b>	<i>Melaka Raya Ballroom 2</i> <b>Symposium 5 – Hepatology</b>
0915 – 0945 H	Commercial Overseas Transplant: Why Should We Care (Datuk Dr. Ghazali Ahmad)	Medical Optimization of ALF and ACLF (Dr. Tan Soek Siam)
0945 - 1015 H	Organ Trafficking and Trading in Malaysia - Is it Real? (ACP Maszely Minhad)	Anaesthesia and Liver Transplantation (Dr. Ahmad Suhaimi Amir)
1015 - 1045 H	Public Perception and Awareness on Organ Trading (Dr. Omar Sulaiman)	Immunosuppression in Pregnancy (Dr. James Yan Yue Fung)
<b>1045 - 1100 H</b>	<b>Tea break</b>	
	<i>Melaka Raya Ballroom 1</i> <b>Symposium 6 – Cardiothoracic &amp; Respiratory</b>	<i>Melaka Raya Ballroom 2</i> <b>Symposium 7 – Ophthalmology</b>
1100 - 1130 H	Lung Transplantation in Malaysia - What we achieved so far (Dr. Ashari Yunus)	The Saga of An Unsuccessful Corneal Graft (Dr. Chandramalar T. Santhirathelagan)
1130 - 1200 H	Bridges to Heart Transplantation (Dato' Dr. Mohamed Ezani Md. Taib)	Descemet Membrane Endothelial Keratoplasty (Dr. Chan U-Teng)
1200 - 1230 H	Overview of ECMO (Dato' Mohd Nazeri Nordin)	Back to Basics – Corneal Donation and Procurement (Dr. Shamala Retnasabapathy)
<b>1230 – 1400 H</b>	<b>Astellas Lunch Symposium 2</b> <i>Melaka Raya Ballroom 1</i>	
1400 – 1445 H	<i>Melaka Raya Ballroom 1</i> <b>Plenary 4</b> Increasing living organ donation rates: how can we make it possible? (Datuk Dr. Ghazali Ahmad)	

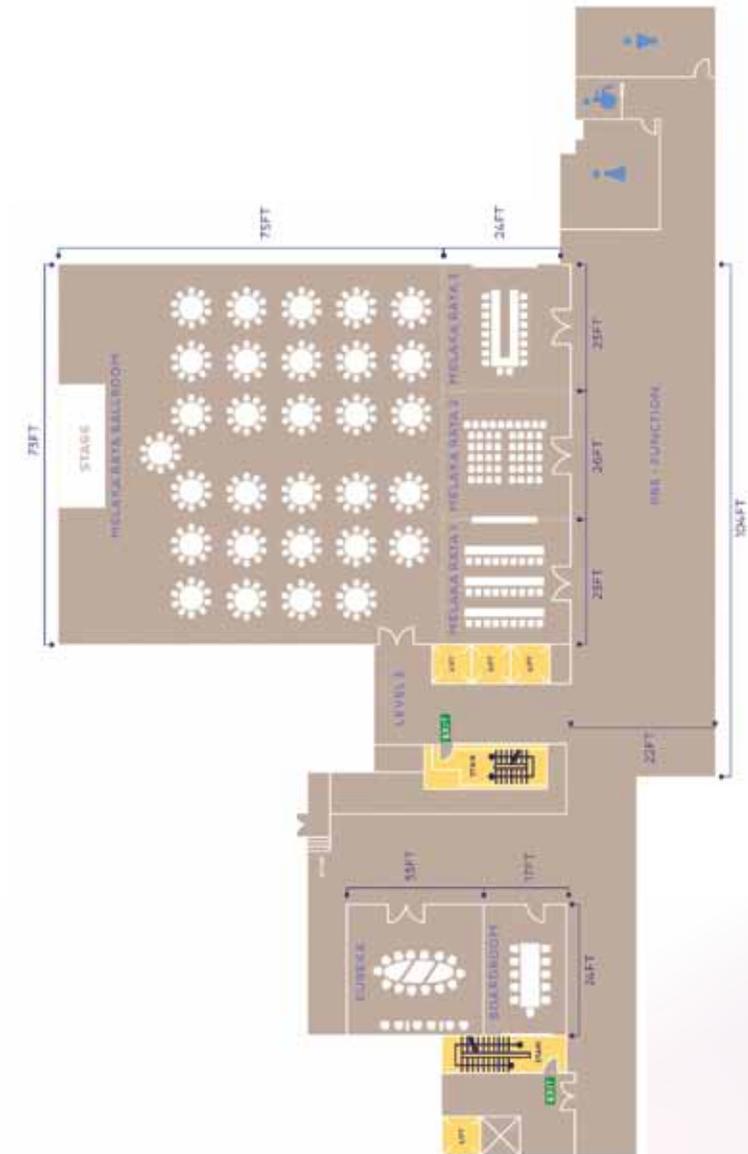


20<sup>TH</sup> ANNUAL SCIENTIFIC MEETING OF THE  
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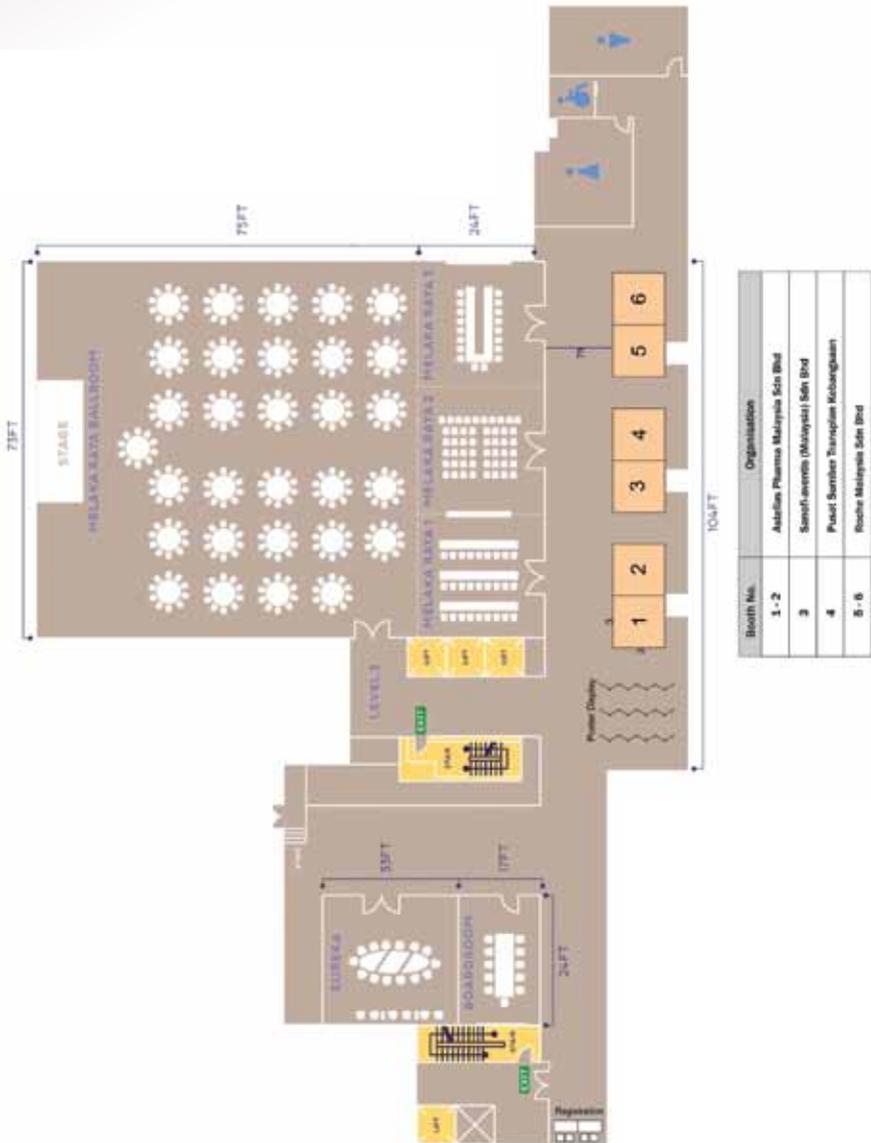
NOVOTEL HOTEL MELAKA | 12<sup>TH</sup> – 13<sup>TH</sup> MAY 2017

<b>Programme Day 2 : 13 May 2017, Saturday</b>		
<b>1445 – 1500 H</b>	<b>Award and Closing Ceremony</b>	
	<i>Melaka Raya Ballroom 1</i> <b>Workshop 1 – Deceased donation</b>	<i>Melaka Raya Ballroom 2</i> <b>Workshop 2 – Live donation</b>
1500 – 1530 H	GIFT : How can we improve? (Dr. Omar Sulaiman)	Roles of Live Donor Transplant Coordinator (Dr. Rosnawati Yahya)
1530 – 1600 H	Updates in Donor Management and Maintenance (Dr. Tengku Alini Tengku Leh)	Counseling Pre and Post Transplant (Dr. Azizul Awaluddin)
1600 – 1630 H	Improving Coordination for Organ Transportation (Dr. Diana Mohd Shah)	Medication Adherence and Drug Interactions (Ms. Manjulaa Devi Subramaniam)

## DIRECTORY OF MEETING ROOMS



## DIRECTORY OF EXHIBITION BOOTHS



SPEAKER ABSTRACTS  
(DAY 1)

## **EMOSS – how to improve kidney allocation: Should we revisit?**

*Dr Wong Hin Seng, FRCP(Edin)*

*Consultant and Head, Department of Nephrology, Hospital Selayang*

Allocation of deceased donor (DD) kidneys in Malaysia was formalized in 1998 with the establishment of the Malaysia Organ Sharing System (MOSS) and this was further upgraded to a web based allocation and is now known as electronic MOSS or eMOSS. By balancing equity, justices and utility; HLA matching, the PRA and waiting time were then chosen as criteria for allocating DD kidneys. Due to the logistic issues of HLA matching in this country and the lack of PRA status of patients in the waitlist, waiting time is currently the only criteria used for the allocation of DD kidneys in this country. This means that the patient who is in the active eMOSS list (fulfilled all the criteria) and has been on the dialysis for the longest duration will be identified as the recipient for the next available DD kidney.

Kidney allocation systems that emphasized on waiting time place minimal attention in providing the right kidney to the right person. This is one of the reasons why the main cause of graft loss is death with a functioning graft. Furthermore, with an extremely low DD renal transplant rate (3 per million population) in this country, recipients who have been selected to received DD kidneys would have undergone dialysis for at least 10 – 15years and would certainly have numerous co morbidities and multiple dialysis associated complications especially vascular calcification and severe cardiovascular disease.

Allocation of scarce resources like deceased donor kidneys should not only be fair but should also be optimally used and provide maximum benefit. By deemphasizing waiting time and by matching patient's and graft's estimated life years, organ wastage can be reduced and this may results in maximum utility and benefit. Kidneys with estimated long graft survival should not be allocated to patients with estimated shorter survival post transplant while older patients or patients with much shorter life span may still benefit from kidneys that are suboptimal and likely to be discarded. The concept of "old for old" and "getting the right kidney to the right person" has become increasing popular when it comes allocating of DD kidneys.

Revamping the eMOSS criteria that will take into account the condition of the DD kidney (Donor Kidney Profile Index) and the projected/estimated survival of potential recipients after transplant (Estimated Post Transplant Survival Score) will ensure that kidneys are utilized with maximal benefit. Other newer criteria that could be considered in the revamped eMOSS may include giving special points to living kidney donors, primary non function living kidney transplant recipients and organ pledgers.

## Monitoring after Allogeneic Stem Cell Transplantation : Role of Chimerism Analysis

*Dr. Ezalia Esa*

*Haematopathologist at the Haematology Unit, Cancer Research Centre, Institute for Medical Research Kuala Lumpur*

The main goal of post-transplantation monitoring in hematopoietic stem cell transplantation (HSCT) is to assess donor engraftment and to predict negative events, such as disease relapse, graft rejection and graft-versus-host disease. In this context, the sensitive and accurate methods of chimerism analysis following stem cell transplantation are pivotal in order to intervene with appropriate therapy. Chimerism is a dynamic process following allogeneic HSCT and its kinetics depend on the intensity of the conditioning regimen, sensitivity of different cell types to chemotherapy and radiation, the recipient's prior therapies, composition of the graft and other factors. Therefore the trend of mixed chimerism (MC) should be evaluated to define engraftment and relapse. Five methods, namely bone marrow cytogenetic, short tandem repeat-PCR (STR-PCR), single nucleotide polymorphisms-PCR (SNPs-PCR), AlleleSEQR and KimerDx assay are being performed in IMR for chimerism analysis. The analyses do provide information about the alloreactivity and/or tolerance induction of the graft, and thereby serves more likely as a 'prognostic factor' than as an indirect marker for minimal residual disease (MRD). In addition, chimerism analysis detects all recipient cells without distinguishing between malignant and normal host cells, while MRD detection with a disease-specific marker detects only the malignant cells. Chimerism testing is useful because it offers a universal way to detect residual recipient cells without the need to have a known disease-specific cytogenetic or molecular marker.

## **Current Indications and Controversy of Autologous Stem Cell Transplantation**

*Dr. Ong Tee Chuan*

*Consultant in Clinical Haematology & Head of Clinical Research Centre, Hospital Ampang*

Autologous Stem Cell Transplantation (ASCT) is an established effective treatment modality in a variety of Hematology malignancies. It is also a reasonable standard of care in certain chemosensitive solid tumours. The safety and effectiveness of ASCT in several autoimmune diseases have been explored. In the recent years, there is much publicity of stem cell therapy in media and this has generated much attention and hope by public for miraculous cure of many diseases. Some controversies of these new developments will be discussed.

SPEAKER ABSTRACTS  
(DAY 2)

## **Transplant for Chronic Hepatitis C – When and What to treat**

*Dr. James Yan Yue Fung*

*Consultant, Department of Medicine, Queen Mary Hospital, Honorary Clinical Associate Professor,  
Department of Medicine, The University of Hong Kong*

The management of chronic hepatitis C has been revolutionized within the last several years with the approval of direct acting antivirals (DAAs). In addition to the significantly higher rates of sustained virological response (SVR) that can be achieved with DAAs, the improvement in safety profile compared with IFN allows previously IFN-eligible patients to be considered for treatment. In the pre-transplant setting for patients on the waiting list, these include patients who have decompensated cirrhosis whereby no antiviral treatment option was available previously. As the SVR in the post transplant setting is high with DAA treatment, the decision to commence therapy on the waiting list is based on whether antiviral therapy can improve the symptoms and liver function, and in selected cases even alleviate the need for transplantation altogether. The length of waiting time is also an important factor, such that those with high MELD scores may be more suitable for treatment after transplantation. Transplantation should not be delayed because of antiviral therapy. Therefore, an adequate treatment length should be anticipated before embarking on DAA therapy for waitlisted patients. After transplantation, all viremic patients should be considered for DAA therapy in a timely manner to prevent fibrosing cholestatic hepatitis and the development of significant fibrosis and cirrhosis.

## Commercial Overseas Transplant: Why Should We Care?

*Datuk Dr. Ghazali Ahmad*

*Senior Consultant Nephrologist & Head of Nephrology Department, Hospital Kuala Lumpur*

Organ transplantation is one of the successes of modern medicine . Beyond the technical and surgical aspects involved , the understanding of the human immune system and the discovery of powerful and effective immunosuppressive agents have enabled allograft transplantation to be performed successfully. Not only transplantation is more effective and offer superior clinical outcome compared to dialysis for the treatment of end stage renal disease, the quality of life, degree of rehabilitation and overall cost of management are all in favour of transplantation. The success and effectiveness of transplantation, coupled with the scarcity of availability of organs for transplantation have given rise to the exploitation of the poor, unethical and criminal activities involving organ brokers and racketeers which treated human organs as a form of commodity for trading and marketing. As a result, organs needed for transplantation are illegally sourced and transplanted, with cash exchanges, elements of exploitation and criminality. When such transplants involved patients, who travelled overseas as tourists, they are defined as transplant tourism. In addition to the ethical issues and criminal elements involved, commercial overseas transplants may give rise to other negative impacts namely;

1. Transplantation is no longer performed and prioritised based on the concepts of utility and beneficence but mainly for the purpose of profiteering and maximising financial returns.
2. The criteria for accepting a live organ donation may be compromised, exposing the donor to increased surgical risks. The long-term care and follow up of these donors may also be compromised or absent thus exposing them to unprotected long term health risks.
3. Public trust and support for transplant program will be eroded.
4. Local transplant program will be compromised, undermined and adversely affected.

The remedy will require combination of efforts to discourage citizens from traveling abroad for commercial transplantation, criminalise organ brokerage and organ trafficking as a deterrence and introduce measures which can effectively fulfil self-sufficiency for organ transplant of the citizens in the long term.

## **Public Perception and Awareness on Organ Trading**

*Dr. Omar Sulaiman*

*National Transplant Resource Centre*

Organ trade is the trade of human organs, tissues or other body parts for the purpose of transplantation. There is global need or demand for healthy body parts for transplantation, far exceeding the numbers available. There is worldwide shortage of organs available for transplantation, yet commercial trade in human organs was at one point illegal in all countries except Iran. The legal status of organ trade, however, is changing around the world. For examples, in 2013, both Australia and Singapore legalized financial compensation for living organ donors.

The international community has issued many ordinances and declarations against the organ trade. Examples include the World Medical Authority's denouncement of organs for commercial use, the Council of Europe's Convention on Human Rights and Biomedicine and Declaration of Istanbul on organ trafficking and transplant tourism. This global initiatives have served as a helpful resources for establishing medical professional codes and a legal framework for the issue, but not provided the sanctions required for enforcement.

One of the primary reasons donors articulate for why they sell their organs is to pay off debt. The issue of organ trade continues to be the subject of much debate from a wide range of scholars. These debates have resulted in many proposed solutions addressing the high demand for organs and the rise in illicit trading.

## Medical Optimization of ALF and ACLF

*Dr. Tan Soek Siam*

*Senior Consultant Hepatologist and Head of Department of Hepatology, Hospital Selayang*

ALF and ACLF are parts of a spectrum of liver failures, as a simplistic overview these 2 types of liver failures which usually manifest by hepatic encephalopathy, jaundice and coagulopathy can be categorized into those without prior liver disease in ALF and those with prior diagnosed or undiagnosed significant liver disease or cirrhosis in ACLF. In both, clinicians need to anticipate and identify complications for aggressive intensive medical management which has been shown to salvage a substantial number of patients.

ALF although rare is a life threatening hepatology emergency due to rapid loss of hepatocyte functions. Western figures showed an incidence rate of less than 10 cases per million population and accounts for 5%-7% of liver transplantations annually. In our center we treat around 12 to 20 cases yearly although the actual incidence of ALF will be higher because some cases were not accepted either because too ill to be transferred or lack of intensive care facilities. The frequent complications are cerebral oedema, seizures, infections, bleeding and renal failure. The common causes of mortality are multi-organ failures (>50%), intracranial hypertension (highest risk in patients with shorter jaundice to encephalopathy interval) and infections. Frequent reviews and intensive monitoring are required as the syndrome evolves rapidly over short time. Prompt/ pre-emptive management of these complications influence the eventual outcome. Interventions and supports are required for electrolytes imbalance, body temperatures, nutrition, neurological, hemodynamics, renal and ventilation. There are only few randomized controlled studies to guide medical practice in ALF consequently most interventions are based on experience and intuition. Patient managements include maintaining serum sodium at 145-150 mmol/l as prophylaxis against intracranial hypertension, normoglycemia with enteral feedings, normocapnia, hypothermia (34-37C), low tidal volume ventilation, avoidance of benzodiazepines as sedation, maintaining MAP at 75 mmHg for adequate cerebral perfusion pressure, empirical broad spectrum antibiotics for suspicions of infection or for development of high grades encephalopathy and others. Nevertheless survival with medical treatment alone has been reported to improve from as low as 20% in the past to about 40%. Appropriate triage for liver transplant evaluation/listing based on prognostic models and optimization before transplant is important as sepsis or multi-organ failure predicts poor post transplant survival or even preclude liver transplant when an organ becomes available.

ACLF are characterized by an acute insult on a pre-existing liver condition which precipitates biochemical and clinical deteriorations culminating to hepatic decompensation and one or more extrahepatic organ failures. This condition is more common (up to 40% of hospitalized patients) and carries a high short term mortality (28 days mortality ranged from 22-77%). The management of ACLF consists of early recognition, prompt treatment of the precipitating insult to prevent further injury (eg anti-viral for hepatitis B reactivation, steroids for alcoholic hepatitis), attenuate

the inflammatory response and provide support for the ensuing organ failures. Similarly support and interventions are required for the renal, cardiovascular, respiratory and neurological systems. Predictive models for outcomes are evolving (MELD, CLIF-SOFA, CLIF-C ACLFs) but the commonly used Child-Turcotte-Pugh Score seems to be inadequate. In alcoholic hepatitis a combination of MELD score at admission and Lille score after one week of steroids help in treatment decision and predicts futility.

In ALF/ACLF patients with poor prognostic features, timely liver transplantation is the only effective therapy. The role of liver assist devices remained unclear for both ALF and ACLF.

## **Anaesthesia and Liver Transplantation**

*Dr. Ahmad Suhaimi Amir*

*Clinical Specialist in Anaesthesia and Intensive Care, Department of Anaesthesia and Intensive care Hospital Selayang*

The first liver transplant was done nine years later, again in the United States, on 1 March 1963 by Dr. Thomas Starzl on a 3 year old child of biliary atresia . Since then, one-year survival post-liver transplant has increased from 72% to 79% in 1998 to 85% to 90% in 2008 and ten-year survival has increased from 33% in 1998 to 53% in 2008 and 66% in 2010. The need for transplantation takes into account of multiple factors- the severity of hepatic dysfunction, aetiology as well as the natural history of the patient's disease. There are 3 phases in anaesthesia: Pre-anhepatic, Anhepatic and Reperfusion and each has its own specific issues that require intensive monitoring and appropriate management. Liver transplantation has evolved over the years in terms of preoperative preparation, preoperative monitoring and management, organ perfusion and fast tracking.

## **Immunosuppression in Pregnancy**

*Dr. James Yan Yue Fung*

*Consultant, Department of Medicine, Queen Mary Hospital, Honorary Clinical Associate Professor,  
Department of Medicine, The University of Hong Kong*

For female solid organ transplant recipients of the childbearing age, restoration of normal health and fertility after transplantation creates an opportunity for them to become pregnant. Despite the first report of a successful pregnancy after kidney transplantation published over 50 years ago, there remains a paucity of data regarding the use of immunosuppression in this important patient population. Due to the risk of rejection, immunosuppression must be continued before, during, and after pregnancy. Apart from the teratogenicity concerns during pregnancy, normal physiological changes during pregnancy may alter the pharmacokinetic and pharmacodynamic profile of immunosuppressive agents. After pregnancy, there is further concern with the potential harmful effects of exposing the infant to immunosuppressive drugs with breast-feeding. Therefore, the common and easier recommendation for clinicians would be to avoid breastfeeding altogether, regardless of the safety profile of the individual immunosuppressive agents being taken. It is therefore imperative that transplant clinicians work closely with the obstetrics team, and are familiar with the optimal management of immunosuppression during pregnancy. The many concerns the patients will likely have needs to be adequately addressed, so that well-informed decisions regarding planning for pregnancy, management during pregnancy, and breastfeeding after pregnancy can be made.

## **The Saga of An Unsuccessful Corneal Graft**

*Dr. Chandramalar T. Santhirathelagan*

*Consultant Ophthalmologist/Corneal Surgeon, Department of Ophthalmology, Hospital Sungai Buloh*

The saga of the unsuccessful corneal graft will delineate the immune privilege status in a corneal graft and discuss the possible reasons a corneal graft could undergo failure. The possible risk factors for graft failure will be discussed including the prognosis of a corneal graft based on the indication for corneal transplant. The factors associated with higher risk of graft rejection and types of immune corneal rejection will also be explored along with the clinical presentation. The management of corneal graft failure will be discussed to delineate the possible options of treatment.

## **Descemet Membrane Endothelial Keratoplasty**

*Dr. Chan U-Teng*

*Ophthalmologist, Hospital Sungai Buloh*

Descemet's membrane endothelial keratoplasty is a partial thickness corneal transplant. It is a promising alternative to full thickness corneal transplant in selected conditions with the a faster period of visual rehabilitation.

## **Increasing living organ donation rates: how can we make it possible?**

*Datuk Dr. Ghazali Ahmad*

*Senior Consultant Nephrologist & Head of Nephrology Department, Hospital Kuala Lumpur*

The first successful kidney transplantation took place in USA in 1954 involving a haploidentical twin live donor-recipient pair. In Malaysia, the first kidney transplantation which took place in HKL in 1975 also involved a live related donor-recipient pair. Globally, the rate of kidney transplants varied between countries not only in the actual numbers but also in the proportion of organ donation from either live or deceased donor sources (USRDS2016). Spain is highest internationally with organ donation rate from deceased donors at 39.5pmp while Turkey has the highest live organ donation rate at 45pmp. Apart from the promotion and maintenance of public understanding with regard to the benefits and clinical superiority of a successful kidney transplantation over dialysis, knowledge of the safety and ease of a live donor nephrectomy surgery, in addition of the long term safety of living with a single kidney post donor nephrectomy is important to encourage potential live kidney donors to come forward to undergo the necessary clinical investigations. Incentives or policies which protect donor health interestseg health insurance policy or health benefits coverage after organ donation may increase potential donor's confidence to proceed with their pledges to donate organs. These measures must however avoid direct financial inducement or incentives which may result in commercial transplantation, organ trading transplant tourism and human trafficking. Other schemes which have increased organ donation rate from live donors include transplantation across blood group barriers, transplantation of highly sensitised recipients, paired exchange program and altruistic donation including NEAD. National allocation policy for deceased donor transplantation may also have positive impact on live donor transplant program with incentives for donors or their first degree relatives who have pledged to be organ donors or have actually donated their organs as live donors. In such a scheme, such live donors, organ pledgers and their first degree relatives, will receive extra weightage on the waiting list for deceased donor transplantation if they happen to suffer from end stage organ failure states.

## **GIFT : How can we improve?**

*Dr. Omar Sulaiman*

*National Transplant Resource Centre*

Organ transplantation is well known the best treatment for those suffering from end-stage organ failure. Not only to survive but organ transplantation can improve quality of life and contribute the best to the society. Hence the demand is exceed the supply, ways are implemented in our current setting either to the public and also medical health professionals. One of the strategies to detect potential donors is via introduce the GIFT trigger card to medical staff reminding each others to detect, follow up and finally from potential donor become actual donor.

GIFT is GCS 3/15, Intubated and ventilated, Fixed and dilated pupils and Treatment is futile. It was introduced and implemented to 16 focus government hospitals in late 2015. By introduced GIFT card perhaps can increase our donor pool. Introduce GIFT trigger card not stop at this point, sustainable detection and maintaining the process of detection potential donor must be there.

## Updates in Donor Management and Maintenance

*Dr. Tengku Alini Tengku Leh*

*Department of Anaesthesia & Intensive Care, Hospital Tuanku Ja'afar, Seremban, Negeri Sembilan*

Key principles underpinning management of brain dead potential organ and tissue donors are:

1. Management of the adult brain dead potential donor follows generic intensive care principles to support and optimise organ function
2. Donor management seeks to optimise the number and function of organs retrieved for transplantation in order to maximise the outcome for the recipient
3. Frequent clinical assessment of organ function and response to interventions is key to optimal donor management
4. Time from brain death to retrieval surgery should be as short as possible.

Managing the physiological effects of brain death in the potential organ and tissue donor should follow the guideline with evidence based references and latest updates to ensure that organs retrieved have been optimised for transplantation, maximise the number of potentially transplantable organs, facilitate a controlled approach to retrieval surgery with a physiologically stable organ and tissue donor and most importantly to fulfill the wishes of the deceased and their family.

The management follows multiorgan systemic approaches, mainly the cardiovascular, respiratory, endocrine and metabolic, infection control with continuous monitoring, investigations and general care. This lecture will bring us into looking at the current practice and updates in donor management and maintenance around the globe and its suitability in Malaysia context.

## Improving Coordination for Organ Transportation

*Dr. Diana Mohd Shah*

*Medical Officer & Clinical Manager, National Transplant Resource Centre*

The singular description of Donor Coordination is often misleading. Donor coordination is a multitasking pursuit that not only involves the donor themselves but also the bereaving next of kin, recipient teams, procurement teams, the enforcement and judicial bodies and most importantly, the Logistics. With more than 25 million vehicles on the roads in Malaysia each day, the restricted cold ischaemic time and financial restraints, arranging for logistics can be a nightmare especially during festive holidays.

The current practice in Malaysia, procured organs are packed in sterile plastic bags with preservation fluid and ice and finally sealed in 'picnic cooler' boxes. They are then transported to transplants centers around Kuala Lumpur via air or road. The choice of transportation differs from organ to organ. Nevertheless, they share the same goal, which is to mobilise quality viable organs to recipient centers safely and timely for transplant surgery. Arranging for transportation depends on several factors: cold Ischaemic time, location of donor hospital, availability of travel warrants as well as festivities and disasters in the country.

Medical advancement in transplantation has solved the problem of cold ischaemic time with the usage of organ perfusors or transport systems. However with our current economic status, we need to push ourselves to think outside the box. Learning from other countries such as India, South Korea and Thailand, the future holds vast opportunities for us to improve our coordination in organ transportation.

## **Counseling Pre and Post Transplant**

*Dr. Azizul Awaluddin*

*Head of Department, Department of Psychiatry and Mental Health, Hospital Putrajaya*

There is an increasing trend in transplant surgery nowadays especially in kidney transplant programme in Malaysia. With the advancement technology and adequate preparedness for the affected parties, successful long term benefits can be achieved tremendously. Prevalence of psychiatric morbidity is well known amongst patients with end organ failure in which depression can be detrimental to the patients. Surgical procedures require significant understanding and determination leading to more well adaptive behaviour and patients with certain psychological issues need thorough and appropriate assessment . This is to assess both donor and recipient whether they have clear and well informed explanation prior to the decision to undergo this procedure. Presentation will focus on domain of assessment and the process of psychological assessment being conducted.

## Medications Adherence and Drug Interactions

*Ms Manjulaa Devi Subramaniam*

## Medications Adherence and Drug Interactions

*Ms Manjulaa Devi Subramaniam*

*Department of Pharmacy, Hospital Kuala Lumpur*

Transplantation provides a more normal life to most patients. Yet, many are burdened with a number of medications following the surgery. These medications include the immunosuppressive agents, anti-infectives, stress ulcer prophylaxis agents, and other maintenance medications for underlying chronic diseases. The prescription of multiple medications predisposes the patients to issues of medication adherence and drug interactions.

Adherence on long-term therapy can be defined as 'the extent to which a person's behavior including taking medication, following a diet, and/ or executing lifestyle changes, corresponds with agreed recommendations from a health care provider' (WHO, 2003).

Medication adherence, in particular deserves attention given its potentially devastating consequences. Variable rates of medication non-adherence between 22-78% have been reported among transplant patients. Reasons for non-adherence are complex, variable and sometimes can make assessment and intervention difficult. However, in the transplant program, doing nothing can be very costly. Non-adherence to the immunosuppressive agents following transplantation increases the incidence of acute and chronic rejection and thus shortening the allograft survival. Following this, the requirement for reinstatement of costly chronic renal replacement therapy arises and eventually may pose incumbent effect on morbidity and mortality. Patients must be encouraged to actively participate in their medication management to improve understanding, insight, adherence and ultimately the transplant outcome.

The necessity for poly-pharmacy increases the potential for serious drug interactions. Drug interactions represent 3-5% of preventable adverse drug reactions in hospital. Drug interactions, by definition, occur when substances alter the nature, the magnitude, or the duration of the pharmacologic effect of another drug. The commonest drug-drug interactions typically involve the cytochrome P-450 enzyme system (CYP450) and most notably 3A4, 2C19, and 1A2 iso-enzymes. The presence of serious drug interaction plays a key role in long-term allograft and patient survival. Care must be exercised when these agents are co-prescribed with the immunosuppressants as they possess the ability to alter the metabolism and excretion of the transplant medication.

## POSTER PRESENTATIONS

Venue : Ballroom Foyer

Index	Title / Author
PP 01	<p><b>Pregnancy outcomes in liver transplant recipients: A Single Tertiary Centre Experience</b>  <i>Sivesh K Kamarajah*<sup>1</sup>, Katherine Arndtz*<sup>1,2,3</sup>, Bridget Gunson<sup>1,3</sup>, Geoffrey Haydon<sup>1</sup> and Fiona Thompson<sup>1</sup></i>  <sup>1</sup> Liver Unit, University Hospitals Birmingham NHS Foundation Trust, Birmingham, UK, B15 2TH  <sup>2</sup> Institute of Immunology and Immunotherapy, University of Birmingham, UK, B15 2TT  <sup>3</sup> National Institute of Health Research (NIHR) Birmingham Liver Biomedical Research Unit</p>
PP 02	<p><b>Alternative Donors for Allogeneic Hematopoietic Stem Cell Transplantation – Experience from Hospital Ampang and Local Perspective</b>  <i>Ong TC, Sharifah Shahnaz SAK, Tan SM, Chang KM</i>  <i>Department of Hematology, Hospital Ampang</i></p>
PP 03	<p><b>Immune-based monitoring among renal transplant recipients</b>  <i>Lim SJ<sup>1</sup>, Kuan CS<sup>2</sup>, Ng KP<sup>1</sup>, Lim SK<sup>1</sup> and Maisarah Binti Jalalonnmuhalil<sup>1</sup></i>  <sup>1</sup> Institution: University Malaya Medical Centre  <sup>2</sup> Neogenix Laboratoire Sdn Bhd</p>
PP 04	<p><b>A Case Study: Increased Tacrolimus (FK506) Levels in Association with Severe Diarrhea Post Liver Transplant</b>  <i>Tan ST, Yoong BK, Koong JK, Stanley Khoo, Ruveena Rajaram, Kamarajan R.</i>  <i>Department of Surgery, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia</i></p>
PP 05	<p><b>Adult Living Donor Liver Transplantation – University Malaya Medical Center's First Experience</b>  <i>Yoong BK, Sanjiv Mahadeva, Lee WS, Koong JK, Koh PS, Kamarajan R.</i>  <i>Department of Surgery, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia</i></p>
PP 06	<p><b>Tacrolimus Intra-patient Variability: The Impact and Safety of Conversion from Prograf® to Advagraf® In Stable Kidney Transplant Recipients</b>  <i>Dheepa R, Wong HS, Suryati Y, Esther TZZ, Khairiyah I</i>  <i>Department of Nephrology, Hospital Selayang</i></p>
PP 07	<p><b>A successful unrelated double umbilical cord blood transplant for adult acute lymphoblastic leukemia: A case report</b>  <i>Anwar Malik I, Mahmud N, Cumarasamy C, Yusoff Z, Abu Amin N</i>  <i>Institution : Pusat Darah Negara</i></p>

PP 08	<p><b>Kidney Transplant in Highly Sensitized Patients: University Malaya Medical Center (UMMC) Experience</b></p> <p><i>Jalalonmuhamali M, Ng KP, Lim SJ, Lim SK</i>  <i>Division of Nephrology, University Malaya Medical Centre, 59100 Kuala Lumpur, Malaysia</i></p>
PP 09	<p><b>Accuracy of Estimated Post-Transplant Survival (EPTS) Score in Predicting Patient Survival Post-renal Transplant in Malaysia</b></p> <p><i>Phui VE<sup>1</sup>, Wong HS<sup>1,2</sup>, Suryati Y<sup>1</sup>, Esther T<sup>1</sup>, Goh CH<sup>1</sup>, Jasmine AR<sup>1</sup></i>  <i>1 Department of Nephrology, Hospital Selayang</i>  <i>2 Clinical Research Centre, Hospital Selayang</i></p>
PP 10	<p><b>Liver transplantation in acute liver failure at Selayang Hospital a Tertiary Referral Centre from 2004 - 2016</b></p> <p><i>YP Tan, Noor Aliza, CS Lim, Haniza Omar, SS Tan</i>  <i>Selayang Hospital</i></p>
PP 11	<p><b>Analysis on liver transplantation in Malaysia – 15 years single centre experience</b></p> <p><i>Haniza Omar. Noor Aliza Mutalib, Tan Soek Siam</i>  <i>Hepatology Department, Hospital Selayang</i></p>
PP 12	<p><b>Analysis on potential liver donation and outcome in Selayang Hospital - Tertiary Referral Centre</b></p> <p><i>Haniza Omar, Noor Aliza Mutalib</i>  <i>Hepatology Department , Hospital Selayang</i></p>
PP 13	<p><b>Single transplant centre experience: Survival outcome of deceased donor pediatric kidney transplantation at Hospital Selayang Malaysia</b></p> <p><i>Eddie WFS<sup>1</sup>, Wong HS<sup>1,2</sup>, Phui VE<sup>1</sup>, Suryati Y<sup>1</sup>, Esther TZZ<sup>1</sup>, Goh CH<sup>1</sup></i>  <i>1 Department of Nephrology, Hospital Selayang</i>  <i>2 Clinical Research Centre, Hospital Selayang</i></p>
PP 14	<p><b>Pre-emptive approach for Cytomegalovirus (CMV) infection in renal transplant recipients with Basiliximab induction- a single center experience in Malaysia</b></p> <p><i>BC Peng, NZ Nordin, MZ Abdul Wahab, Visvanathan R, R Yahya, G Ahmad</i>  <i>Nephrology Department, Kuala Lumpur Hospital</i></p>
PP 15	<p><b>Role of Pre EmptiveCMV monitoring: a boon or a burden?</b></p> <p><i>NZ Nordin, BC Peng, MZ Abdul Wahab, Visvanathan R, R Yahya, G Ahmad</i>  <i>Nephrology Department, Kuala Lumpur Hospital</i></p>
PP 16	<p><b>Evaluating the predictive value of the Kidney Donor Profile Index (KDPI) scores in graft outcome after deceased donor kidney transplant in Malaysia</b></p> <p><i>Phui VE<sup>1</sup>, Wong HS<sup>1,2</sup>, Chitra R<sup>1</sup>, Eddie WFS<sup>1</sup>, Khairul AR<sup>1</sup>, Haninatul YO<sup>1</sup></i>  <i>1 Department of Nephrology, Hospital Selayang.</i>  <i>2 Clinical Research Centre, Hospital Selayang</i></p>

PP 17	<p><b>Nursing care in preventing sudden Intra-Cranial Hemorrhage Post-LVAD Implantation</b></p> <p><i>Eng S.N, Lim Y.F, Nordin M.N, MdTaib M.E</i>  <i>Institut Jantung Negara (IJN), Kuala Lumpur, Malaysia</i></p>
PP 18	<p><b>Outcome of improvement steps implemented to reduce risk of infection during cardiac homograftprocurements</b></p> <p><i>Syed Nong SN, Chua LC,R, Mazalan SL, MdTaib ME, Nordin MN</i>  <i>National Heart Institute, Kuala Lumpur</i></p>
PP 19	<p><b>Evidence Based Practice: Usage Of Longitudinal Strain Analysis In Monitoring And Decision Making In Weaning Ecmo In Cardiogenic Shock</b></p> <p><i>Najmi Hakim*, Noor Fadzly Alias*, Amir Ikhwan*.</i>  <i>*Non Invasive Cardiovascular Laboratory, National Heart Institute, Kuala Lumpur.</i></p>
PP 20	<p><b>Relationship between ways of coping and resiliency among patients of heart transplantation in Malaysia</b></p> <p><i>Faeza Binti Hasnan, Tye Sue Kiat</i>  <i>National Heart Institute, Kuala Lumpur</i></p>
PP 21	<p><b>Organ donor pledger registry in Malaysia: Is it effective?</b></p> <p><i>Surendra NK<sup>1</sup>, Zakaria HN<sup>2</sup></i>  <i>1 National Transplant Registry</i>  <i>2 Hospital Kuala Lumpur</i></p>
PP 22	<p><b>Does Introduction of Diltiazem to Reduce Tacrolimus Dosage Safe in Post-renal Transplant Recipients?</b></p> <p><i>Choong CL<sup>1</sup>, Wong HS<sup>2</sup>, Lee FY<sup>3</sup>, Lee CK<sup>1</sup>, Kho JV<sup>1</sup>, Lai YX<sup>1</sup>, Vikneswaran T<sup>1</sup></i>  <i>1 Pharmacy Department, Selayang Hospital, Selangor, Malaysia</i>  <i>2 Nephrology Department, Selayang Hospital, Selangor, Malaysia</i>  <i>3 Clinical Research Centre, Selayang Hospital, Selangor, Malaysia</i></p>
PP 23	<p><b>Dose Response Relationship between Diltiazem and Tacrolimus in Renal Transplant Recipients : A Pharmacokinetic Study</b></p> <p><i>Choong CL<sup>1</sup>, Wong HS<sup>2</sup>, Lee FY<sup>3</sup>, Lee CK<sup>1</sup>, Kho JV<sup>1</sup>, Lai YX<sup>1</sup>, Vikneswaran T<sup>1</sup></i>  <i>1 Pharmacy Department, Selayang Hospital, Selangor, Malaysia</i>  <i>2 Nephrology Department, Selayang Hospital, Selangor, Malaysia</i>  <i>3 Clinical Research Centre, Selayang Hospital, Selangor, Malaysia</i></p>

## Pregnancy outcomes in liver transplant recipients: A Single Tertiary Centre Experience

Sivesh K Kamarajah\*<sup>1</sup>, Katherine Arndtz\*<sup>1,2,3</sup>, Bridget Gunson<sup>1,3</sup>, Geoffrey Haydon<sup>1</sup> and Fiona Thompson<sup>1</sup>

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**Background & Aims:** There are increasing reports of pregnancy in liver transplant recipients, but questions remain about the impact of transplantation and immunosuppression in pregnancy. The proportion of female liver transplant recipients is increasing, posing challenges in terms of future fertility, conception and successful pregnancy outcomes for both mother and child. The aim of this study was to investigate maternal and foetal outcomes, and graft morbidity in liver transplant recipients at our centre.

**Methods:** We interrogated the liver transplant database in Birmingham for women who had conceived post-liver transplantation and reviewed their electronic case notes for information relating to the pregnancy-related morbidity & outcomes.

**Results:** We identified 139 pregnancies in 83 women between August 1986 and May 2016. Median age at conception was 27 years (15 – 46 years). The outcomes of these pregnancies were: 69% live births, 19% miscarriages/still births and 9% ended in termination. Women who conceived more than one year post transplant had higher live birth rates than those who conceived before this time, ( $p=0.006$ ). Women taking tacrolimus had higher risks of premature delivery ( $p=0.045$ ) and caesarian section ( $p=0.03$ ) than those on cyclosporine. We found a shorter interval between transplantation and conception (0.027), more frequent use of tacrolimus rather than cyclosporin (0.001), and a higher incidence of cesarean section ( $p=0.025$ ) in women who conceived between 2001-2016 compared to the earlier cohort. Nine women conceived on MMF after 2000 with none seen in the earlier era.

**Conclusions:** Successful pregnancy is clearly possible after liver transplantation; however, our findings confirm that they can be high risk pregnancies, with lower live birth rates than the normal population and all cases require specialist hepatology and obstetric input.

## **Alternative Donors for Allogeneic Hematopoietic Stem Cell Transplantation – Experience from Hospital Ampang and Local Perspective**

*Ong TC, Sharifah Shahnaz SAK, Tan SM, Chang KM  
Department of Hematology, Hospital Ampang*

**Introduction:** Allogeneic Hematopoietic Stem Cell Transplantation (AlloHSCT) remains an important curative modality for various diseases of the bone marrow. For patient without Human Leucocyte Antigen (HLA) matched sibling donor, matched unrelated donor (MUD), cord blood and haploidentical related donor are established alternatives. We report our experience of using alternative donor for AlloHSCT in Hospital Ampang and an overview of local establishment for alternative donor registry.

**Objective:** To evaluate the feasibility of alternative donors in AlloHSCT and outcome. The practicality of local registry of alternative donor is also reviewed.

**Methods:** Records of all AlloHSCT performed in Hospital Ampang are reviewed, outcome of various sources of AlloHSCT is analysed. Information on local alternative donors is obtained from coordinator of National Stem Cell Coordinating Centre (NSCCC).

**Results:** 720 cases of AlloHSCT were performed from 1999 – 2016. 632 (87.8%) HLA matched sibling, 39 (5.4%) MUD, 40 (5.6%) haploidentical and 9 (1.3%) cord blood. Overall survival at 3 years is estimated at 58%, 35%, 33% and 30% respectively.

To date, NSCCC registered 27,542 voluntary donors and 6,648 cord blood. 1,979 requests were made by transplant centres to search for suitable stem cell. 14 cases of MUD transplant and 4 cases of cord blood transplant were performed.

**Conclusion:** HLA matched sibling remains the best donor option for AlloHSCT. Exploring alternative donor for AlloHSCT is however, necessary in many cases. Data from local centres are needed to strategize AlloHSCT in the future. As haploidentical related sibling as source of donor is a much cheaper and convenient option compares to international alternative donors, it is essential to obtain long term outcome of haploidentical AlloHSCT. Follow up on the utilization of local alternative donors is also important.

## Immune-based monitoring among renal transplant recipients

Authors: Lim SJ<sup>1</sup>, Kuan CS<sup>2</sup>, Ng KP<sup>1</sup>, Lim SK<sup>1</sup> and Maisarah Binti Jalalonmuhal<sup>1</sup>

1 Institution: University Malaya Medical Centre

2 Neogenix Laboratoire Sdn Bhd

**Introduction:** Transplantation teams have historically relied on crude markers such as therapeutic drug monitoring and clinical events to guide the management of immunosuppression therapy. In order to transition towards individualized patient management, transplant teams are looking to complement the existing methods with novel and objective markers of immune function that can aid in maintaining the optimal therapeutic window among transplant recipients. Quantiferon Monitor (QFM) is an immune based monitoring assay which can be used as an objective marker of net immune function among kidney transplant recipients.

**Objectives:** It is a cross sectional study to assess the relationship between IFN- $\gamma$  responses (QFM level) in kidney transplant recipients who had incidence of infection or renal allograft rejection compared to control group (kidney transplant recipients without infection and rejection).

**Methods:** A total of 141 samples of QFM from 114 renal transplant patients were assigned to 3 different groups according to the indication of the Quantiferon Monitoring [control group (n=71), infection/malignancy group (n=35) and biopsy proven allograft rejection group (n=35)]. The relationship of QFM level between the groups was examined.

**Results:** The mean level of control group, infection group, and allograft rejection group are  $138.48 \pm 190.42$ ,  $77.96 \pm 210.74$ ,  $100.65 \pm 174.56$  ( $P > 0.05$ ), respectively. However, subgroup analysis from infection group showed appropriate increment of QFM level with the resolution of cytomegalovirus/BK viremia.

**Conclusion:** Quantiferon Monitor (QFM) is a potential marker of net immune function among renal transplant recipients, especially those who are prone to have infection due to over immunosuppression.

## **A Case Study: Increased Tacrolimus (FK506) Levels in Association with Severe Diarrhea Post Liver Transplant**

*Tan ST, Yoong BK, Koong JK, Stanley Khoo, Ruveena Rajaram, Kamarajan R.*

*Department of Surgery, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia*

**Introduction:** Tacrolimus, though widely used in transplantation medicine for its immunosuppressive property, has complex intestinal metabolism that is not well understood. Its bioavailability depends on its absorption, in mainly upper gastrointestinal tract, and active secretion by the enterocytes. Diarrhea is often associated with decreased tacrolimus level, requiring increased dose. Rarely, increased trough level of tacrolimus is recognized as adverse effect of severe diarrhea.

**Objective:** Reporting of rare case of severe diarrhea associated with increase tacrolimus trough level in a post liver transplantation patient.

**Case Report:** A 27-year-old man with history of congenital biliary atresia underwent Kasai's Procedure at age of 6 months old developed biliary cirrhosis. Living donor liver transplantation was performed and patient was initially on both tacrolimus and mycophenolate mofetil post transplantation. The later was stopped due to its neutropenic side effect. Tacrolimus trough level was aimed to be kept at higher limit and increased to 3mg twice a day due to low through level (5.1 µg/L). Subsequently patient developed acute diarrhea associated with low-grade fever. Cytomegalovirus serology, stool culture for ova and cysts were negative. Patient tacrolimus trough level noted to be high (16.3 µg/L). Tacrolimus was withhold for a day and patient's symptom resolved spontaneously. The tacrolimus was restarted with a dose of 1mg twice a day and patient was eventually discharged well with 1.5mg of tacrolimus twice a day.

**Conclusions:** Tacrolimus dose adjustment and trough level maintenance could be challenging. High trough level might result in diarrhea, and dose adjustment is necessary for its resolution.

## Adult Living Donor Liver Transplantation – University Malaya Medical Center's First Experience

*Yoong BK, Sanjiv Mahadeva, Lee WS, Koong JK, Koh PS, Kamarajan R.*

*Department of Surgery, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia.*

**Introduction:** Liver transplantation (LT) is the treatment for acute fulminant liver failure, chronic liver failure and some hepatocellular carcinoma. In the case of low deceased organ availability, living donor liver transplantation (LDLT) became crucial for life saving. A LDLT program will not only provide timely treatment for patients, but also complement deceased donor liver transplantation (DDLT) by strengthening the transplantation service through experience, and encourage organ donation. A successful LT program requires appropriate infrastructure setup, good human resources, strong financial backup, experience mentors and supportive hospital

**Objective:** To share the experience of starting a LDLT program in University of Malaya Medical Center (UMMC)

**Method:** UMMC LDLT program was first proposed in year 2012. It was followed by gathering support from hospital authorities, acquiring appropriate equipment and concurrent training of the transplantation team members. After obtaining financial support to start the program from philanthropic donation in 2015, skill transfer training was achieved in Queen Mary Hospital Hong Kong in 2016. The first LDLT was performed on 10th January 2017 for a patient dying of biliary cirrhosis.

**Results:** The first LDLT was performed successfully in UMMC on the 10th of January 2017 using an extended right lobe graft. The donor and recipient surgery took 6 and 13 hours, and the patients are discharged 5 days and 34 days post-surgery respectively. Both patients are well and under follow up. Subsequent LDLT is under planning.

**Conclusion:** LDLT is a lifesaving procedure especially when deceased organ availability is low. Starting a LDLT program, though require extensive planning and excessive effort, is necessary and might complement the DDLT program.

## Tacrolimus Intra-patient Variability: The Impact and Safety of Conversion from Prograf® to Advagraf® In Stable Kidney Transplant Recipients

Dheepa R, Wong HS, Suryati Y, Esther TZZ, Khairiyah I  
Department of Nephrology, Hospital Selayang

**Introduction:** High intra-patient variability of tacrolimus is increasingly being recognized as a risk factor for rejection and poorer allograft outcome in kidney transplant recipients (KTR). There are suggestions that prolonged release tacrolimus (Advagraf®) may reduce intra-patient variability in KTR compared to standard tacrolimus (Prograf®).

**Objective:** To determine the safety and impact on intra-patient variability of tacrolimus concentration when switching stable KTR from Prograf® to Advagraf®.

**Methods:** This retrospective analysis evaluated KTR who had undergone renal transplantation from January 2000 to December 2016 and were converted from Prograf® to Advagraf®. Clinical and laboratory data were extracted from electronic medical records in the total hospital information system (Cerner Millennium). The percentage coefficient of variation (%CV) of the trough tacrolimus blood concentration was used to measure intra-patient variability.

**Results:** A total of 18 KTR underwent conversion from Prograf® to Advagraf® on a 1mg: 1mg basis. Ten (55.6%) KTR were male and 7(38.9%) were diabetics. Nine (50.0%) received their kidneys from living donors. At time of conversion, mean age of recipients was 46.55±15.45years and mean duration post-transplantation was 96.94±46.86 months.

The mean tacrolimus daily dose was 2.42±1.43 mg/day at conversion and increased significantly to 3.01±1.98 mg/day six months after conversion ( $p=0.013$ ). However, there was no significant change in mean tacrolimus trough levels before and after conversion.

The mean percentage coefficient of variation (%CV) of Advagraf® was 24.24±13.65% while it was 30.00±15.95% in Prograf®. Although the intra-patient variability was lower after conversion to Advagraf®, this did not reach statistical significance ( $p=0.154$ ).

There was no difference in allograft function before and after conversion [eGFR was 57.48±24.79mls/min/1.73m<sup>2</sup> pre-conversion vs 57.08±26.15mls/min/1.73m<sup>2</sup> at 6 months post-conversion, ( $p=0.846$ )] and no allograft rejection was reported.

**Conclusion:** Switching from standard formulation (Prograf®) to prolonged release formulation (Advagraf®) was safe but associated with a significantly higher daily tacrolimus dosage. There was no significant impact on intra-patient variability after conversion to Advagraf®. This study is limited by its small sample size and a larger multicentre study will be required to confirm this finding.

## A successful unrelated double umbilical cord blood transplant for adult acute lymphoblastic leukemia: A case report

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Pusat Darah Negara

**Background:** In 1988, the first umbilical cord blood (UCB) transplantation (UCBT) was performed in a 5-year-old boy with Fanconi anaemia in France. 9 years later, the first related UCBT in Malaysia was performed in a paediatric patient with  $\beta$ -thalassaemia major. With the preliminary aim to help paediatric patients, the National Cord Blood Bank was established in 2002, and the first unrelated UCBT was done in 2009 in a one-year-old girl with congenital amegakaryocytic thrombocytopaenia in Kuala Lumpur Hospital, who is currently well. Since then, 4 UCBTs had been performed, most recently in 2016.

**Case report:** A 13-year-old girl with pre-B Acute Lymphocytic Leukaemia was decided for a haematopoietic stem cell transplant (HSCT). A matched unrelated donor (MUD) search was done through the National Stem Cell Coordinating Centre.

Two CBU were compatible at 10/10 HLA loci. The total numbers of nucleated cells and CD34+ cells were  $938.2 \times 10^6/u$  and  $2.3 \times 10^6/u$  in the first unit and  $708.1 \times 10^6/u$  and  $6.1 \times 10^6/u$  in the second unit respectively. In December 2016, the two cryopreserved CBU was infused after appropriate chemo-conditioning according to protocol.

She engrafted by day 21, discharged by day 60 with outpatient follow up. Her total white blood cell count was  $13.5 \times 10^9/L$  with platelet levels of  $55 \times 10^9/L$  on day 81. She is currently well with no evidence of graft-vs-host disease (GVHD).

**Conclusion:** Unrelated UCBT is a reasonable alternative in patients needing HSCT without a matched sibling donor. Even though MUD bone marrow transplant (BMT) is an option, it may be unavailable or too time-consuming to find, as is the case of the above patient. UCB is relatively easy to collect, with almost no risks to the donor and is immediately available. It also has a lower incidence and severity of GVHD than MUD BMT, and this makes it an attractive option for HSCT.

## **Kidney Transplant in Highly Sensitized Patients: University Malaya Medical Center (UMMC) Experience**

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**Introduction:** Kidney transplantation is associated with improved survival, better quality of life and reduced costs when compared to long term dialysis in ESRD patients. In Malaysia, due to limited number of cadaveric as well as LRRT transplant, there is a need to explore transplant with ABO incompatible and positive Donor Specific HLA Antibodies (DSA). We describe a case series of our experience with kidney transplant in highly sensitized patients.

**Case 1:** 30-year-old, Indian, male was diagnosed with ESRD secondary to unknown etiology and was on hemodialysis since 2007. The donor for his LRRT was his mother. Both of them are B positive, negative WBC crossmatch and 1 haplotype match on their HLA typing. He was given Basiliximab as induction agent on day 0 and day +4 and continue with Tacrolimus (day -5), Mycophenolic Acid (MPA) (day -1) and Prednisolone. He was doing well on the first few days post-transplant with good urine output and reduction in serum creatinine to 133  $\mu\text{mol/L}$ . We only received his DSA results post-transplant and unfortunately his DSA were positive to class I and II antibody (A26 [MFI: 4958], DR52 [MFI:660]). On Day +4 post-transplant he complaint of right hypochondria pain, a-dominal distension and jaundice. The transaminases (ALT:2334 IU/L) and serum creatinine (190  $\mu\text{mol/L}$ ) increased. He subsequently underwent 5 times of plasma exchanges with 3L FFP and IVIG 0.4 gm /kg in 2 divided doses. He is currently well with negative DSA at 3 months and unremarkable renal biopsy. His serum creatinine was 111  $\mu\text{mol/L}$  at 12-month post-transplant.

**Case 2:** 32-year-old, Chinese, female diagnosed with ESRD secondary to unknown etiology and was on hemodialysis since 2015. The donor for her LRRT was her husband. The donor is O positive and the recipient is B positive. Her WBC crossmatch was negative and she has had 1 haplotype match on her HLA typing. Her class II DSA was positive (DR52 [605]). She received Rituximab on day -14, Thymoglobulin for 5 days (day 0 – day +4), Tacrolimus started on day -5, MPA day -1 and prednisolone. Despite receiving Rituximab and Thymoglobulin, on day +4 she was breathless, had chest pain and hemoptysis. Her creatinine remained stagnant at 230  $\mu\text{mol/L}$  with sudden drop in hemoglobin and thrombocytopenia. She subsequently received 6 times of plasma exchanges and symptoms improved following that. Currently she remains well. Her repeated DSA at 1 month and protocol biopsy at 3<sup>rd</sup> and 6<sup>th</sup> months were unremarkable. Her creatinine remained stable at 130  $\mu\text{mol/L}$ .

**Case 3:** 44-year-old, Chinese, female diagnosed with ESRD secondary to unknown etiology and was on hemodialysis since 2015. Her sister was her donor for this LRRT. Both are B positive and she has had negative WBC crossmatch and 1 haplotype match on her HLA typing. Her DSA for class II (DR52 [MFI: 817]) was positive. She had received Rituximab on day -14, Thymoglobulin for 3 days (day 0 – day +2),

Tacrolimus started on day -5, MPA day -1 and prednisolone. She was pre-emptively treated with plasma exchanges on day +1 and day +3. She improved post-transplant with serum creatinine stable at 60 umol/L. Her repeated DSA and protocol biopsy at 1 month was unremarkable.

**Case 4:** 53-year-old, Indian, female diagnosed with ESRD secondary to ADPKD, on hemodialysis since 2014. Her donor was her mother. Both are B positive with 1 haplotype match on her HLA typing. Her latest WBC crossmatch showed negative T-cell but positive B-cell (1:8). Subsequent test with DTT and AHG were negative. Her DSA before the transplant was positive (B58 [MFI: 11568], Cw1 [MFI: 11495]). She was admitted 3 weeks prior to transplant for intense protocol. She received 9 times of DFPP and plasma exchanges before the transplant. Another 4 times plasma exchange were performed post-transplant. Other medications are Rituximab, Thymoglobulin, Tacrolimus since day -14, MPA started on day -14 and prednisolone. Currently, she is well with serum creatinine of 70 umol/L. Her protocol biopsy at 1 month was unremarkable.

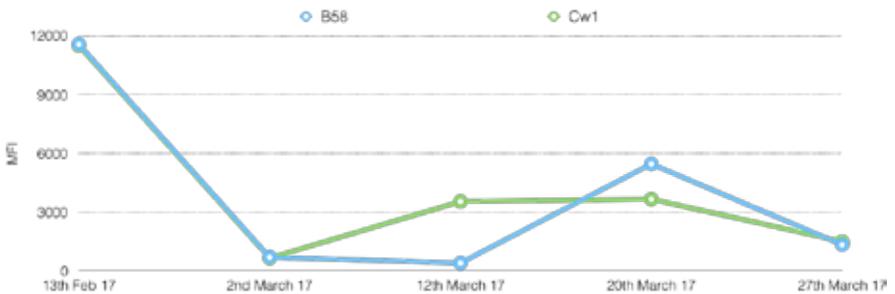


Chart 1: DSA trend pre and post DFPP and plasma exchanges

**Conclusion:** Transplant in highly sensitized patient is possible. However, early preparation and planning are important. Apart from close creatinine and drug levels monitoring, DSA monitoring and protocol biopsy is another valuable tool to detect early ABMR.

## Accuracy of Estimated Post-Transplant Survival (EPTS) Score in Predicting Patient Survival Post-renal Transplant in Malaysia

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**Introduction:** To optimize allocation of deceased donor (DD) kidneys, numerous models in predicting patient survival after kidney transplantation have been developed to improve the utility DD kidneys. The Americans (OPTN) have developed the Estimated Post Transplant Survival (EPTS) score to predict the life year after transplant by using 4 parameters ie age, time on dialysis, presence of diabetes and prior organ transplant. EPTS score is now being used for organ allocation in USA. However, the accuracy and predictive value of EPTS in Malaysian population have not been validated or tested.

**Objective:** To evaluate the accuracy of EPTS score in predicting patient survival post-deceased donor renal transplantation in Malaysian population.

**Methods:** All recipients who had undergone deceased donor renal transplantation from 1st January 2005 till 31st December 2016 were recruited for this study. All demographic, parameter required for EPTS calculation, patient and graft outcome were collected from patients' electronic medical records in the total hospital information system (Cerner Millennium). The EPTS scores were calculated using the on-line EPTS calculator. Results were analyzed using SPSS version 16.

**Results:** During the study period, 126 DD kidney transplantations were performed. One patient had lost to follow up. This cohort of DD renal transplant recipients (RTR) has male preponderance (57.6%) with mean age of 41.9±9.3 years and mean dialysis vintage of 12.7±4.3 years. There were 19 deaths during the 11 years follow-up and the mean patient survival was 120±5 months. Mean EPTS score was 29.5±19.6% and the EPTS score correlate significantly with patients survival post renal transplantation ( $p < 0.0001$ ) The mean survival of our cohort with EPTS score of 0-20%, 21-40%, 41-60%, 61-80% and 81-100% were 126 months, 126 months, 94 months, 43 months and 25 months respectively.

**Conclusions:** The EPTS scoring appeared to be of value and relatively accurate in predicting patient survival post renal transplantation in Malaysia population. Dialysis patients with EPTS score < 40% have excellent outcome while those with EPTS score > 60% have very poor patient outcome and may not be suitable for DD renal transplantation.

## Liver Transplantation in Acute Liver Failure at Selayang Hospital a Tertiary Referral Centre from 2004 - 2016

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**Introduction:** Acute liver failure is abrupt onset of fulminant liver dysfunction culminating the hepatic encephalopathy and state of coagulopathy with international normalized ratio of more than 1.5 in a patient without cirrhosis or pre-existing liver disease. Liver transplantation has improved the survival in patient with acute liver failure which used to be 25%. We reviewed our ALF patients receiving liver grafts.

**Objective:** To learn the liver transplants demographic, indications, and survival rate.

**Methods:** We conducted retrospective review of all patients who developed definite acute liver failure and received liver graft in the period 2004 till 2016. There were 11 patients identified and analyzed for baseline data and outcome.

**Results:** Out of 82 liver transplants performed in our centre, 11 patients (5 females, 6 males) had acute liver failure. They had a median age of 25 years old and median MELD score of 31. All patients except one received cadaveric liver. The median time from time on list to liver transplantation was 5 days. None of them had comorbidities except one whom had treated pulmonary tuberculosis. In hospital mortality was 36.4%. There were 54.5% transplant recipients reached one year survival.

**Conclusion:** Liver transplantation remains the promising treatment modality for acute liver failure. Drug induced hepatitis remained the most common cause for acute liver failure in our centre. High mortality is noted within first 3 weeks post-transplant. Nonetheless, the overall post-transplant survival rate justify the approach in salvaging patients.

## Analysis on liver transplantation in Malaysia – 15 years single centre experience

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**Introduction:** Liver transplantation (LT) was advocated as a salvage treatment of choice for patients with acute and end stage liver disease. Our Liver transplant programme was started in 2002 to date. There were 83 transplants cases up till March 2017

**Objective:** Primary objective is to study the demographic features of transplanted patients in Selayang Hospital. Secondary objective is to study the 1 month and 6 months survival.

**Method:** Retrospective study looking at records of transplanted patients in Selayang Hospital. Inclusion criteria is all transplanted patients starting in 2002 till March 2017. Data was retrieved from electrical medical records.

**Results:** There were 43 male cases (51.8 %) and 40 female (48.2%). Ethnicity includes Malay = 38, (45.8%), Chinese = 30 (36.1%), Indian = 13 (15.7%) and others = 2 (2.4%) (Kadazan and Iban). Out of 83 cases, 65 (68,3%) were deceased donor liver transplantation, and remaining 18 cases (21.7%) were living related liver transplant (father = 10 (55.5%), mother = 7 (38.9%), uncle = 1 (5.6%). The youngest age was 11 months old where as the eldest age was 63 years. The mean age was 19.8 years. There were a total of 6 cases which were < 2 (7.2%), 30 (36.1%) cases from 2-12 and 47 (56.6%) cases > 12 years old and above. The blood groups were blood group A = 29 (34.9%), blood group B = 21 (25.3 %), O = 29 (34.9%) and AB = 4 (4.8%). Aetiology includes – Biliary Atresia accounted for 34 cases (41 %), metabolic = 10 cases (12%), cholestasis = 8 cases (9.6%), Primary Biliary Cholangitis = 2 cases (2.4%), Autoimmune hepatitis = 5 cases (6%), vascular = 2 cases (2.4%) hepatocellular carcinoma = 4 cases (4.8%), acute liver failure = 8 cases (9.6%), hepatolithiasis = 4 cases (4.8%), and remaining 6 cases (7.2%) were cryptogenic / idiopathic. One month post liver transplant survival rate is 83.3% and six months survival rate is 79%. Sepsis with multiorgan failure accounted for most cause of death within 6 months post operatively (71.4%). Other included primary graft dysfunction (14.2%), intraoperative bleed (7.1%) and portal vein thrombosis (7.1%).

**Conclusion:** Although Malaysia is one of the lowest organ donation rate, our Liver transplant program has shown good outcome. This high success rate implicates more life-saving can be achieved by increasing number of liver donation through awareness among public.

## Analysis on potential liver donation and outcome in Selayang Hospital - tertiary referral centre

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**Introduction:** Liver transplant is very complex and program was started in 2002 in Selayang Hospital. There were 83 transplants done till date. Occasionally, the numbers of liver offers were rejected due to many causes. Numbers of adults patients worked up supersede the numbers of transplant done

### Objective:

**Primary objective:** To evaluate number of adult patients with End Stage Liver Disease who had comprehensive pre-transplant assessment.

**Secondary objective:** To look into waiting time of each recipient.

**Tertiary objective:** To see the number of alerted liver donors.

**Method:** Retrospective analysis looking at records of transplanted patients in Selayang Hospital from January 2015 till April 2017 on the numbers of adult patients being worked up for pre-transplant assessment, their waiting time from being listed till the transplant. The number of potential alerted of liver donors too was calculated.

**Results:** A total of 38 adult patients completed pre-transplant workup from 2015 till April 2017. This consist of 19 patients in 2015, 15 patients in 2016 and 4 up till April 2017. Total number of alerted potential donors were only 44 = 31 in 2015, 8 in 2016 and 5 in 2017. However there were only 14 patients transplanted during this period (12 in 2015, 1 in 2016 and 1 in 2017). The waiting time for each patients ranges from 1 month to 20 months with a median and mean of 5 months and 2.4 month respectively.

**Conclusion:** Only 14 out of the 38 patients (36.8%) who completed pre-transplant assessment and in waiting list had their liver transplant. This comprises only 31.8% (14) of a total 44 alerted potential liver donors. The reasons of rejected potential liver donor include retrieval of consent, presence of significant steatosis, liver not suitable for other reasons and logistics. Although liver transplant is a life saving, the number of transplant is still minimal compared to the numbers of end stage liver disease patients that have been worked up and alerted donors due to multiple reasons. Adult living related liver transplantation program should be considered and made available in the interim.

## Single Transplant Centre Experience: Survival Outcome of Deceased Donor Pediatric Kidney Transplantation at Hospital Selayang Malaysia

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**Introduction:** Pediatric Kidney Transplantation experiencing better long term outcome compared to adult recipients. However the success of the 1 year survival in deceased donor kidney transplant recipients is limited by multiple factors compared to living related transplantation.

**Objective:** To review the mortality outcome of the deceased donor kidney transplant recipients aged below 18 years old between June 2005 until 31st December 2016.

**Methods:** The database of all deceased donor kidney transplantation was reviewed retrospectively. All recipients aged 18 and below at the time of transplantation were included into this study. The lasted progress of each recipient was traced via telephone call to latest follow up centre. Analysis of graft function was updated until 15th April 2017.

Results were analyzed using SPSS version 16.

**Results:** Of a total 19 deceased donor kidney transplantation performed for pediatric recipients. 1 patient is lost to trace (94.7% recruitment).

The age of recipient ranges from 8 till 17 years old. Mean age was  $14.74 \pm 2.6$  years. Majority is male (57.9%). 100% (18 recipients) achieved 1-year survival. In comparison to adult recipients received kidney transplant over same period, the 1-year mortality was 9.6%. Mean survival was  $51.50 \pm 24.0$  months, ranges from 15 to 96 months.

4 patients (22.2%) had delayed graft function and the rest immediate graft function (77.8%). The mean serum creatinine at 1 month post transplant was  $124.47 \pm 98.1$   $\mu\text{mol/L}$ . In comparison to deceased donor adult TKR, 44.4% had delayed graft function, 44.4% immediate graft function and mean creatinine at 1-month was  $255.21 \pm 216.31$   $\mu\text{mol/L}$ .

26.3% recipients were CMV positive, and 10.5% were EBV positive. 63.2% of donors were CMV positive and 31.6% were EBV positive. The mean BMI of donor was  $20.99 \pm 7.5$   $\text{kg/m}^2$ .

**Conclusion:** While the outcome of deceased donor pediatric kidney transplantations were favorable at 1-year post transplantation, however there is high number of patients with delayed immediate graft function which may affect long term outcome.

## **Pre-emptive approach for Cytomegalovirus (CMV) infection in renal transplant recipients with Basiliximab induction- a single center experience in Malaysia**

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**Introduction:** CMV infection is one of the commonest infection affecting renal transplant recipients especially within the first three-month post transplantation. It has significant impact on the patient survival and renal allograft outcome.

**Objective:** To determine the incidence of CMV infection in renal transplant recipients receiving Basiliximab as induction, their clinical presentation, management strategy and the outcome of pre-emptive approach.

**Method:** This single center, retrospective study included all renal transplant recipients in HKL from 1<sup>st</sup> January 2015 to 31<sup>st</sup> January 2017 who received Basiliximab induction and had regular CMV monitoring within the first 3 months post-operatively. Patients receiving CMV prophylaxis and had anti-thymocyte globulin were excluded. The demographics, onset of CMV infection, management and outcome were retrieved from patients' record.

**Result:** A total of 56 adult renal transplants performed during the study period. 23 recipients who fulfilled the study criteria were analyzed. They consisted of 18 (78.3%) males and 5 (21.7%) female. The mean age was  $43.7 \pm 9.8$  (mean  $\pm$ SD) years. 13 (56.5%) were transplantation from living donors and 10 (43.5%) from deceased donors. 10 (43.5%) patients had CMV infection; 7 (70%) patients had CMV viremia without any clinical symptoms, 3 had hematological, gastrointestinal and renal involvement respectively. 2 patients had a preceding history of biopsy proven acute rejection (BPAR) whilst 1 patient developed BPAR after CMV infection. The CMV viremia was detected at a median of 56 days (range 41 to 71 days) post renal transplantation. In the group of patient with CMV infection; 6 patients required reduction in their maintenance immunosuppressant (IS) dose, followed by antiviral therapy; 1 patient managed solely by reduction of IS dose and 3 patients showed no increment in their viral load, thus no specific intervention given. All of these patients successfully achieved viral clearance.

**Conclusion:** CMV infection incidence was 43.5% in this study, in which 70% of them were asymptomatic. Pre-emptive approach allows early detection of CMV viremia and initiation of anti-viral therapy, thus effectively preventing severe CMV disease.

## **Role of Pre Emptive CMV monitoring: a boon or a burden?**

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**Introduction:** Cytomegalovirus (CMV) remains the most common viral infection in solid organ transplant recipients. In our center, we started CMV PCR monitoring fortnightly in the first 3 months post renal transplant since November 2015. Local economical data are limited to determine the cost effectiveness for this approach.

**Objective:** To determine economy cost of Pre-Emptive CMV monitoring

**Methods:** This is a single center, retrospective study analyzing 27 renal transplant recipients from 1 November 2015 until 28 February 2017. All patients had CMV monitoring even if they were on CMV prophylaxis therapy. Patients were classified into (A) received continuous prophylaxis (CP), (B) pre-emptive therapy (PT). Incidence of CMV viremia and CMV disease in these two groups were analyzed and compared with CMV incidence prior to CMV monitoring initiation. Results were expressed as average cost per patient treated. Indirect costs from administration and utilities were excluded in this study.

**Results:** 5 (18%) patients received CP (IV ATG exposure and D+R- group) and 22 patients on PT (82%). Incidence of CMV viremia was 40% (2) under CP, 36% (8) in PT. 4 out of 27 received treatment for CMV and only 1 patient developed CMV disease which required hospitalization compared to 5 patients with CMV disease prior to initiation of pre-emptive monitoring (80% reduction of cases). The average estimated cost per patient treated with CP was RM4500.00/ patient, and RM2500.00/ patient in PT. Estimated average cost for CMV disease with hospitalization was RM7700.00/ patient/ hospitalization.

**Conclusion:** Both CT and PT groups reduced incidences of CMV disease in our newly transplant patients. While monitoring CMV in the CT group may not be cost effective, monitoring them in the PT group allows decision for pre-emptive treatment to prevent CMV disease hence reduce overall healthcare cost and reduce morbidity.

## Evaluating The Predictive Value Of The Kidney Donor Profile Index (KDPI) Scores In Graft Outcome After Deceased Donor Kidney Transplant In Malaysia

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**Introduction:** The outcome of renal transplantation is partly depending on the quality of the organ and the nature of the donor. The Americans OPTN have developed the Kidney donor profile index (KDPI) to estimate the longevity of graft function by combining variety of donor factors. However the predictive value of KDPI in Malaysian population has not been tested.

**Objective:** To evaluate the accuracy of KDPI in predicting graft outcome post-deceased donor renal transplantation in Malaysian population.

**Methods:** All deceased donors (DD) who donated their kidneys from January 2005 till 31st December 2016 were identified from National Transplant Resource Centre (NTRC) database and all parameter required for KDPI calculation were subsequently retrieved. Patient and graft outcome were collected from patients' electronic medical records in the total hospital information system. The KDPI scores were calculated using the on-line KDPI calculator. Results were analyzed using SPSS version 16.

**Results:** During the study period, 142 DD kidney transplantations were performed. The mean age, height and weight of the DD were 34.1±6.5 years; 163.4±16.0cm and 63.9±15.2kg respectively and 98.6% of the DD were Asian. The mean serum creatinine was 94.1±56.9µmol/L. Only one donor had Diabetes Mellitus and 12.7% had hypertension. The causes of death were head trauma (68.3%), stroke (23.9%), central nervous system tumor (2.1%), anoxia (2.1%) and others (3.5%). The mean duration of graft survival was 107.0±5.1 months and 44.4% had immediate graft function, 44.4% had delayed graft function and 11.3% had primary non-function. The mean KDPI was 38.5±26.3% and the KDPI correlate significantly with immediate graft function ( $p=0.01$ ) and graft survival post-renal transplantation ( $p=0.032$ ). The mean duration of graft survival of our cohort with KDPI of 0-20% and 21-100%, were 119.5±6.8% months and 98.6±7.0% months respectively.

**Conclusions:** The USA KDPI scoring was relatively accurate in predicting graft survival post-renal transplantation in Malaysia population. Deceased donor kidneys with KDPI scores 20% or less have higher percentage of immediate graft function and longer graft survival. Hence, the KDPI score maybe used to identify kidney that will have immediate graft function and assist in organ allocation.

## **Nursing Care in Preventing Sudden Intra-Cranial Hemorrhage Post-LVAD Implantation**

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**Introduction:** Intracranial Hemorrhage (ICH) is a common and deadly complication of Left Ventricular Assist Device (LVAD) implantation. Nurses, as the primary care giver, face a tough challenge in providing quality health services to these patients. This is because nursing care for patients implanted with LVAD differs from the other patients and also the fact that opportunities for hands-on experiences are scarce makes the learning process difficult. In order to address this issue, routine training was conducted in hope that by fortifying nurses' skills and knowledge, post-LVAD ICH can be prevented.

**Objectives:** To determine the impact of improvement on nursing knowledge and skills in managing Post-LVAD implantation patient in the prevention of ICH.

**Methods:** A core team was formed with training implemented and new protocol set. The data regarding cases of LVAD implant and its related incidence of ICH from year 2005-2016 was analyzed by comparing the ICH incidence before and after the implementation of nursing training and new protocol.

**Results:** After strengthening the nurses' knowledge and conversance towards post-LVAD implant nursing care, incidence of post-LVAD implant ICH in the hospital setting had tremendously reduced which is from 3 cases in year 2013 to no case since year 2015.

**Conclusions:** It is evident that nurses play an important role in preventing the mishap of ICH post-LVAD transplant. Therefore, it is vital that nurses are well-equipped with the knowledge and skills on handling this type of cases. Hence, training must be conducted routinely to maintain high quality of care provided by the nurses so that patients have a better outcome post-implantation of LVAD.

## **Outcome of improvement steps implemented to reduce risk of Infection during cardiac homograft procurements**

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**Introduction:** Reducing the risk of infections during cardiac homografts procurements is essential as donors are scarce.

**Objective:** Aim was to embark on prospective measurable steps, taken to reduce risk of infections at every stage of cardiac homografts procurement procedure and analyze the outcomes.

**Materials/Methods:** A 10 years analysis (2007-2016) procurement of cardiac homograft from fresh cadaveric donors (within 24 hours of death). Procurement performed in the operating theater or mortuary. Donors screened negative cultures for blood and bodily and serology screening of Hepatitis B,C, HIV and Syphilis. Cause of death not attributable to infective state. From 2014, improvements steps implemented to reduce infective risk at each stages. Preferences for operating theater settings, strict aseptic harvesting techniques; ensuring patient repainted with povidone iodine and change of surgical drapes after other organs procurements. Utilization of a clean set of surgical instruments and stringent aseptic techniques in triple layering / sealant of organ bags. Homografts trimming in aseptic tissue banking facilities. At each stages, cultures taken from transport solutions, tissues and donors swaps. Penicillin and gentamycin antibiotic into homograft solutions. Donor's blood re-sent for Hepatitis B, C, HIV and Syphilis.

**Results:** A total of 214 cardiac homografts procured (103 pulmonary, 111 aortic homografts). From 2007 to Dec 2013, 26(12.1%), 13 pulmonary and 13 aortic had positive cultures from solutions, tissue and blood. Positive cultures includes Klebsiella 7(3.3%), Candida 5(2.3%), Acinetobacter 4(1.8%), Streptococcus 2(0.9%) and others from pseudomonas, VDRL and hepatitis B. From 2014 till 2016, with implementation of new measurable steps, our infection rate is 0%.

**Conclusions:** Improvements process had successfully reduced procurement infection rates, retaining precious donor hearts, indirectly improves cost efficiency and promoting utilization of cardiac homografts without hesitations or fear of transmission of infections.

## **Evidence based practice: usage of longitudinal strain analysis in monitoring and decision making in weaning ecmo in cardiogenic shock**

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**Introduction:** Extracorporeal membrane oxygenation (ECMO) is an advanced form of organ support indicated in selected cases of severe cardiovascular and respiratory failure. Echocardiography is an invaluable diagnostic and monitoring tool in all aspects of ECMO support and plays a fundamental role in the management of patients supported with extracorporeal membrane oxygenation (ECMO). The level of recovery and likelihood of weaning ECMO support are based on multitude of clinical hemodynamic and echocardiographic parameters such as Speckle-tracking echocardiography (STE) and Automated function imaging (AFI) as a novel algorithm calculating the myocardial deformation from Ultrasound speckles used to measure myocardial strain, new non-invasive imaging technique that quantitatively analyzes global and regional myocardial function.

**Problem:** Currently, there are no internationally recognized echocardiographic protocols to guide weaning from ECMO and approaches to weaning may vary between centers. With the new technology in Echocardiography it able to provide the most benefit information when the operator has an appreciation of the technology being used at the bedside, a good understanding of the often unique pathophysiology of patients requiring ECMO support and when there is a close working relationship with members of the multidisciplinary critical care team.

**Objective:** To prove the usage and ability of longitudinal strain analysis in monitoring and decision making in weaning ECMO in cardiogenic shock.

**Methodology:** Methodology of this study is an instrumental case study with statistical analysis.

**Implications:** Extracorporeal support is increasingly used to support critically ill patients with severe cardiac and/or respiratory failure. Although echocardiography for extracorporeal support is highly specialized, certain key principles apply and it's become the primary imaging tool to provide rapid and accurate assessment of hemodynamics status and is very useful tools in assisting therapeutic procedures. The fact that echocardiography can be a highly useful in critical care circumstances.

**Keywords:** *ECMO, Speckle-tracking echocardiography, Automated Function Imaging, longitudinal strain analysis, cardiogenic shock.*

## Relationship between Ways of Coping and Resiliency among Patients of Heart Transplantation in Malaysia

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**Objective:** The development in surgical technology and in postoperative therapy has remarkably increased life expectation after heart transplantation. Nevertheless, patients still confront with physical, psychological and social demands. Therefore, the aim of this study is to explore the relationship between coping strategies and resiliency among patients who had undergone heart transplantation in Malaysia.

**Method:** This study uses purposive sampling approach. Nine heart transplanted patients responded after a single mailing by the Tranplant Coordinator of National Heart Institute (NHI), Kuala Lumpur. Demographic information was provided and Brief COPE and 10-item Connor-Davidson Resilience Scale questionnaires were completed.

**Results:** Results revealed that emotional-focused coping strategies correlated significantly with resiliency, whereas no relationship was found between problem-focused coping strategies and resiliency among the heart-transplanted patients.

**Conclusion:** Patients of heart transplantation are more resilience when they make use of emotional-focused coping strategies to cope with the ongoing demands that place on them after the transplantation. These findings highlight the importance of variables such as emotional support to be included in psychological treatment for patients who had undergone organ transplantation.

*Keyword: heart transplantation, coping strategies, resilience*

## Organ donor pledger registry in Malaysia: Is it effective?

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**Introduction:** National Transplant Resource Centre (NTRC) has established an organ donor pledger registry since 1997 to encourage Malaysians to become organ donors after their death. The registry aims to spread nationwide awareness about organ donation, prompting discussions within families and to enable healthcare personnel to identify potential donors in the event of death. As of December 2016, there are 372, 526 organ donor pledgers. However, only 93 out of 592 organ and tissue donors were registered donor pledgers.

**Objective:** To provide an insight of the effectiveness of the organ donor pledger registry by ascertaining deceased donor pledgers who were not identified as potential donor referrals.

**Methodology:** Retrospective vital data matching was conducted between the organ donor pledger registry and the National Vital Registration System. All pledgers' data up to 2014 were cross-matched electronically until August 2015. The outcome of interest is death. Next, deceased pledgers were cross-matched manually with the National Transplant Procurement Management database using Microsoft Office Excel<sup>®</sup> 2013 to detect donor referrals from the list obtained. Subsequently, deceased pledgers who were not identified as potential donor referrals were subjected for further analysis. Variables investigated include age, gender, race, cause of death and place of death. All analysis were conducted using Excel<sup>®</sup> 2013.

**Results:** A total of 282, 801 pledgers were successfully matched out of which 278, 756 pledgers are still alive and 4045 have died. Barely 2% (n=75) of deceased pledgers were identified as donor referrals. Of the 3970 (98%) pledgers who were not identified as donor referrals, majority were 60 years or below (65%), male (66%), Chinese (45%), died at government healthcare centres (41%) and had diseases of the circulatory system (26%).

**Conclusion:** Organ donor pledger registry has not been used effectively to increase the donor pool. MOH has to mobilize healthcare centres to identify deceased donor pledgers to become potential organ and tissue donors.

## Does Introduction of Diltiazem to Reduce Tacrolimus Dosage Safe in Post-renal Transplant Recipients?

Choong CL<sup>1</sup>, Wong HS<sup>2</sup>, Lee FY<sup>3</sup>, Lee CK<sup>1</sup>, Kho JV<sup>1</sup>, Lai YX<sup>1</sup>, Vikneswaran T<sup>1</sup>

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**Introduction:** One strategy to reduce kidney transplantation cost is the introduction of diltiazem to reduce the dosage of tacrolimus required to achieve its therapeutic blood concentration in kidney transplant recipients (KTR). Despite being use in this country, the effectiveness and safety of this approach has not been properly studied.

**Objective:** To study the safety of concomitant diltiazem use with tacrolimus among KTR.

**Methods:** This retrospective study involved all adult recipients who undergone renal transplantation from 1st January 2006 to 31st December 2015 and who were prescribed diltiazem to increase tacrolimus blood concentration. Demography, clinical outcomes, biopsy proven acute rejections, calcineurin inhibitor(CNI) toxicity, graft failure and patient mortality were retrieved from the hospital electronic medical record. All adverse events occurring within 3 months of diltiazem introduction were recorded. Results were analysed using SPSS version 22.

**Results:** Seventy-five subjects fulfilled the inclusion criteria, where 59(79%) were deceased donor KTR. The mean age was 42.13±9.8years, and 42(56%) were male. There were 54(72%) hypertensive patients prior to transplantation, and 6(8%) developed hypertension post transplantation. There were 65(87%) on triple immunosuppression (Tacrolimus, mycophenolate acid and steroid) while 10(13%) were on steroid free regimen. The median time of introduction of diltiazem was 17±38 days post renal transplantation.

Adverse effects reported within 3 months of diltiazem introduction were bradycardia (1.3%) and postural hypotension (1.3%), which resolved after reduction of diltiazem dosage. Five (6.7%) KTR experienced biopsy proven acute rejection within 1 year post renal transplantation while 6(8%) KTR developed CNI toxicity. Graft survival at 1 year and 5 years were 92.3% and 85.7% respectively while patient survival at 1 year and 5 years were 96.1% and 95.2% respectively.

**Conclusion:** Concomitant use of diltiazem to reduce tacrolimus dosage in KTR appeared to be safe with low incidence of biopsy proven acute rejection and comparable graft and patient survival.

## Dose Response Relationship between Diltiazem and Tacrolimus in Renal Transplant Recipients : A Pharmacokinetic Study

Choong CL<sup>1</sup>, Wong HS<sup>2</sup>, Lee FY<sup>2</sup>, Lee CK<sup>1</sup>, Kho JV<sup>1</sup>, Lai YX<sup>1</sup>, Vikneswaran T<sup>1</sup>

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**Introduction:** Inhibition of calcineurin inhibitors (CNI) metabolism with diltiazem will reduce the dose of tacrolimus required to achieve its therapeutic blood concentration in kidney transplant recipients(KTR). This cost-saving maneuver is practiced in several countries including Malaysia but actual impact of diltiazem on tacrolimus blood concentration, dose-response relationship and actual amount of cost-saving are not known.

**Objective:** To study the dose-response relationship between diltiazem and tacrolimus

**Methods:** This retrospective study was performed on all KTR from 1st January 2006 to 31st December 2015 (identified through the hospital kidney transplant database), who were prescribed with diltiazem to increase blood tacrolimus concentration. Demographic data, tacrolimus and diltiazem dosage, blood tacrolimus trough level (TacC<sub>0</sub>) and other relevant clinical data were retrieved from hospital electronic medical record. Subjects under the age of 18, or with incomplete data, were excluded. Results were analysed using SPSS version 22.

**Results:** A total of 75 KTR fulfilled study inclusion criteria and 59(79%) were deceased donor KTR. The mean age was 42.13±9.8years, and 42(56%) were male. The median time to introduction of diltiazem was 17±38days post-transplant.

Dose of 1mg tacrolimus resulted in median TacC<sub>0</sub> of 0.83±0.52ng/ml. With introduction of 90mg daily dose diltiazem, there was a further nett TacC<sub>0</sub> increment by 1.39±1.31ng/mL/mg tacrolimus. Every further 90mg increase in diltiazem (total daily dose of 180mg, 270mg and 360mg diltiazem) results in near linear incremental median TacC<sub>0</sub> of 1.65±2.58ng/mL/mg/day, 1.39±1.15ng/mL/mg/day and 1.24±0.94ng/mL/mg/day respectively.

An average daily dose of 7mg tacrolimus is required to achieve a 6ng/ml drug level. Addition of 90mg/day diltiazem reduced the required tacrolimus dose to 3mg/day, resulting in a saving of RM10369.65 per year at our center.

**Conclusion:** Co-administration of tacrolimus and diltiazem in KTR results in linear increment of tacrolimus blood concentration of 1.25-1.65ng/ml/mg tacrolimus/day for every 90mg diltiazem. This practice will result in marked saving in immunosuppression.

## FREE PAPERS – ORAL PRESENTATION

Venue: Melaka Raya Ballroom 2

Time : 1430 – 1600hours

Time	Index	Title / Author
1430	FP 01	<p><b>Pregnancy outcomes in liver transplant recipients: A Single Tertiary Centre Experience</b>  <i>Sivesh K Kamarajah*<sup>1</sup>, Katherine Arndtz*<sup>1,2,3</sup>, Bridget Gunson<sup>1,3</sup>, Geoffrey Haydon<sup>1</sup> and Fiona Thompson<sup>1</sup></i>  <sup>1</sup> Liver Unit, University Hospitals Birmingham NHS Foundation Trust, Birmingham, UK, B15 2TH  <sup>2</sup> Institute of Immunology and Immunotherapy, University of Birmingham, UK, B15 2TT  <sup>3</sup> National Institute of Health Research (NIHR) Birmingham Liver Biomedical Research Unit*</p>
1440	FP 02	<p><b>Accuracy of Estimated Post-Transplant Survival (EPTS) Score in Predicting Patient Survival Post-renal Transplant in Malaysia</b>  <i>Phui VE<sup>1</sup>, Wong HS<sup>1,2</sup>, Suryati Y<sup>1</sup>, Esther T<sup>1</sup>, Goh CH<sup>1</sup>, Jasmine AR<sup>1</sup></i>  <sup>1</sup> Department of Nephrology, Hospital Selayang  <sup>2</sup> Clinical Research Centre, Hospital Selayang</p>
1450	FP 03	<p><b>Evaluating The Predictive Value Of The Kidney Donor Profile Index (KDPI) Scores In Graft Outcome After Deceased Donor Kidney Transplant In Malaysia</b>  <i>Phui VE<sup>1</sup>, Wong HS<sup>1,2</sup>, Chitra R<sup>1</sup>, Eddie WFS<sup>1</sup>, Khairul AR<sup>1</sup>, Haninatul YO<sup>1</sup></i>  <sup>1</sup> Department of Nephrology, Hospital Selayang  <sup>2</sup> Clinical Research Centre, Hospital Selayang</p>
1500	FP 04	<p><b>Organ donor pledger registry in Malaysia: Is it effective?</b>  <i>Surendra NK<sup>1</sup>, Zakaria HN<sup>2</sup></i>  <sup>1</sup> National Transplant Registry  <sup>2</sup> Hospital Kuala Lumpur</p>
1510	FP 05	<p><b>Does Introduction of Diltiazem to Reduce Tacrolimus Dosage Safe in Post-renal Transplant Recipients?</b>  <i>Choong CL<sup>1</sup>, Wong HS<sup>2</sup>, Lee FY<sup>3</sup>, Lee CK<sup>1</sup>, Kho JV<sup>1</sup>, Lai YX<sup>1</sup>, Vikneswaran T<sup>1</sup></i>  <sup>1</sup> Pharmacy Department, Selayang Hospital, Selangor, Malaysia  <sup>2</sup> Nephrology Department, Selayang Hospital, Selangor, Malaysia  <sup>3</sup> Clinical Research Centre, Selayang Hospital, Selangor, Malaysia</p>
1520	FP 06	<p><b>Dose Response Relationship between Diltiazem and Tacrolimus in Renal Transplant Recipients : A Pharmacokinetic Study</b>  <i>Choong CL<sup>1</sup>, Wong HS<sup>2</sup>, Lee FY<sup>3</sup>, Lee CK<sup>1</sup>, Kho JV<sup>1</sup>, Lai YX<sup>1</sup>, Vikneswaran T<sup>1</sup></i>  <sup>1</sup> Pharmacy Department, Selayang Hospital, Selangor, Malaysia  <sup>2</sup> Nephrology Department, Selayang Hospital, Selangor, Malaysia  <sup>3</sup> Clinical Research Centre, Selayang Hospital, Selangor, Malaysia</p>

## ACKNOWLEDGEMENTS

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and

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