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The Transplantation Society of Australia and New Zealand

Thirty-ninth Annual Scientific Meeting

PROGRAM AT A GLANCE

Sunday, 14 March 2021		
14:50–15:00	**Official Opening:** *TSANZ President*	
15:00–15:30	**PLENARY 1: Astellas Symposium** CAR-Tregs to Induce Transplantation Tolerance	Pre-Record and Live Q&A
15:30–17:30	**2020 President's Prize Symposium**	Live and Live Q&A
17:30–17:45	**Break**	
17:45–18:45	***CONCURRENT FREE COMMUNICATIONS SESSIONS*** **Free Communications 1:** IRI and non T cell Immunobiology **Free Communications 2:** Outcomes and complications#1 **Free Communications 3:** Donation and Allocation	Live and Live Q&A
18:45–19:25	**Astellas Josette Eris Lecture and Ian McKenzie Award** Partnering With Patients to Address Patient-Important Outcomes in Transplantation	Live and Live Q&A
19:25–20:00	**Women in Transplantation**	Live and Live Q&A
20:00–21:00	**Welcome Reception (Including Trivia Night)**	Live

Monday, 15 March 2021		
09:30–10:00	**Sponsors** Meet and Greet	
10:00–11:40	**PLENARY 2: Joint TSANZ /OTA/ATCA Session**	Pre-record (1) and Live (3)
11:40–12:40	***CONCURRENT FREE COMMUNICATIONS SESSIONS*** **Free Communications 4:** T cell biology **Free Communications 5:** Outcomes and complications#2 **Free Communications 6:** Clinical: Other	Live and Live Q&A
12:40–13:00	**Lunch and Poster viewing**	
13:00–14:30	**PLENARY 3: TSANZ/CareDx Symposium** Immunology	Live and Live Q&A
14:30–14:45	**Break**	
14:45–16:45	**2021 President's Prize Symposium**	Live and Live Q&A
16:45–17:45	***CONCURRENT FREE COMMUNICATIONS SESSIONS*** **Free Communications 7:** Basic Science Other **Free Communications 8:** Outcomes and Complications#3 **Free Communications 9:** Transplantation Surgery	Live and Live Q&A
17:45–18:30	**TSANZ Annual General Meeting**	
18:30–20:00	**TSANZ Awards Night**	

Tuesday, 16 March 2021		
09:30–10:00	**Sponsors** Meet and Greet	
10:00–11:00	**Plenary 4: Joint TSANZ/Roche Symposium** Indigenous Transplantation	Live and Live Q&A
11:00–12:00	***CONCURRENT STATE OF THE ART SESSIONS***	
	STATE OF THE ART 1: Astellas Symposium Infections in Transplantation	Live and Live Q&A
	STATE OF THE ART 2: Joint TSANZ/Novartis Symposium Obesity and Nutrition	Pre-record (1) and Live (2)
12:00–12:30	**Lunch**	
12:30–13:40	**CONCURRENT STATE OF THE ART SESSIONS**	
	STATE OF THE ART 3: Astellas Symposium Transplantation Surgery	Live and Live Q&A
	STATE OF THE ART 4: Joint TSANZ/Novartis Symposium Innovations	Live and Live Q&A
13:40–15:20	**Plenary 5: Joint TSANZ/Xvivo Symposium** Perfusion and Donor Management	Pre-record (3) and Live (1)
15:20–15:30	**Break**	
15:30–16:00	**The Great Debate: 'Stem Cell Technology Will Make Transplant Surgeons and Physicians Redundant in 10 years'**	Live and Polling
16:00	**ASM Concludes**	

OFFICE BEARERS OF THE TRANSPLANTATION SOCIETY OF AUSTRALIA AND NEW ZEALAND

President
Professor Patrick (Toby) Coates

President Elect & Chair, Advisory Committees/Working Groups
A/Prof Helen Pilmore

Honorary Secretary
A/Professor Natasha Rogers

Treasurer
A/Professor Bronwyn Levvey

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A/Professor Kelli MacDonald - Liaison with Scientific Societies

Dr Christine Russell - Surgical Representative

A/Prof Philip Clayton - RACP

Professor Kate Wyburn - AMDC Liaison Rep

A/Prof Andrew Jabbour

A/Prof Fiona Mackie

Paul Robertson - ATCA Representative

Scientific Program & Education Committee (SPEC)

Dr Wai Lim (Co-Chair)	Dr Lucy Sullivan (Co-Chair)
Prof Henry Pleass	A/Prof William Mulley
Dr Darren Lee	Dr Jeanette Villanueva
Dr Philip Clayton (ASM)	Dr Eu Ling Neo (ASM)
A/Prof Chien-Li Holmes-Liew (PGC)	Dr Andrea Viecelli (PGC)
Dr Tracy Ying (Masterclass)	Dr Sanda Stankovic (Masterclass)

TSANZ Administrative Staff
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Program and Abstract Book
Ms Marina Katerelos
Email: abstracts.tsanz.asm@gmail.com

SPONSORS

The Transplantation Society of Australia and New Zealand gratefully acknowledges the support of the following companies in providing sponsorship for the Annual Scientific Meeting.

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AWARDS

The Transplantation Society of Australia and New Zealand gratefully acknowledges the support of the following companies for sponsoring awards presented at the Annual Scientific Meeting.

AWARDS

The President's Prizes – Basic Science & Clinical
(supported by TSANZ)

Novartis/TSANZ Early Career Researcher Awards

Kidney Health Australia Awards

Lafferty Award
(supported by TSANZ)

Josette Eris Award
(supported by Astellas)

Aviva Rosenfeld Award for Excellence in Patient Care in Transplantation
(supported by TSANZ)

FINANCIAL STATEMENTS

The Transplantation Society of Australia and New Zealand (TSANZ) Financials for the Year Ended December 2019 and December 2020 are available on the easily accessible member password protected section of the TSANZ website www.tsanz.com.au.

INVITED INTERNATIONAL SPEAKERS

Astellas Lecturer

Marina Berenguer Haym

Associate Professor of Medicine at the University of Valencia. Recognized in the field of Hepatology and Liver Transplantation with extensive research covering clinical, basic and translational works. Intellectual contributions in more than 400 publications in peer-reviewed journals (8844 citations; HIRSCH Index 47). Research Coordinator within a National Network Research Center in Hepatology, CIBER-EHD, leading one of the few CIBER groups in the Valencia region. Receipt of continuous grants both from public, private and competitive funds. Regular invited speaker in Hepatology forums as well as Consensus Conferences from which clinical practice guidelines are issued. Councilor in different Societies, such as ESOT (2011-14), ELITA (2017-20), ILTS (2013-17), AEEH (2009-10, 2013-14), SEPD (2004-08) or SET (2018-19). Associate editor in "*Liver Transpl*" and "*J. Hepatol*" from 2010 to 2014 and Deputy Editor in "T*ransplantation*" (2015-2020) and *J Hep Rep* (2019-2022). Consultant/expert in National Grant Committees, such as "Agence National de la Recherche" (France) and "Instituto de Salud Carlos III" (Spain). Co-founder in 2016 of the Spanish Group of Women Hepatologists (GEMHEP) as well as first chair of the Women Committee within ILTS. Recipient of several Awards, including the Medical-Scientific Award from the LT Patient Association (2007), the Professional Career Acknowledgement granted by the Regional Government (2010) and the Mayo Clinic award (2014). International Liver Transplant Society-ILTS- President Elect in 2019.

INVITED INTERNATIONAL SPEAKERS

Sponsored by RACS Visitor Grant Program

Ina Jochmans

Qualified abdominal transplant surgeon with particular committed to ongoing research to improve outcome after liver and kidney transplantation by advancing dynamic organ preservation techniques and identification of modifiable factors influencing outcome through clinical trials, retrospective and registry studies, and translational studies.

CURRENT POST

10/2019–present **ASSOCIATE PROFESSOR, FACULTY OF MEDICINE**
KU Leuven, Leuven (Belgium)
Department of Microbiology, Immunology, and Transplantation
08/2015–present **CLINICAL RESEARCH MANDATE HOLDER (KOF-KOOR)**
University Hospitals Leuven, Leuven (Belgium)
2014–present **DEPUTY CLINICAL DIRECTOR ABDOMINAL TRANSPLANTATION**
University Hospitals Leuven, Leuven (Belgium)
02/2013–present **CONSULTANT ABDOMINAL TRANSPLANT SURGEON**
University Hospitals Leuven, Leuven, (Belgium)

EXPERIENCE

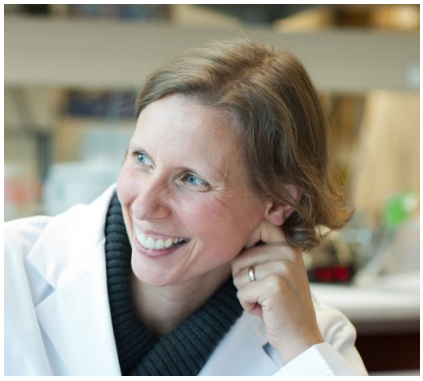
10/2013–09/2019 **ASSISTANT PROFESSOR, FACULTY OF MEDICINE**
KU Leuven, Leuven (Belgium)
Department of Microbiology, Immunology and Transplantation
10/2016–04/2017 **HONORARY CLINICAL FELLOW TRANSPLANT UNIT**
Addenbrookes Hospital, Cambridge (United Kingdom)
08/2008–07/2012 **DOCTORAL TRAINING IN BIOMEDICAL SCIENCES (PhD)**
KU Leuven, Leuven (Belgium)
Fellowship Research Foundation Flanders (FWO)
08/2005–**01/2013 SURGICAL TRAINING AND FELLOWSHIP**
University Hospitals Leuven and collaborative Belgian hospitals

INVITED INTERNATIONAL SPEAKERS

Kiran Khush

Dr. Kiran K. Khush, MD, MAS is an Associate Professor of Cardiovascular Medicine at the Stanford University School of Medicine. Dr. Khush is an advanced heart failure transplant cardiologist who trained at Harvard Medical School and the University of California San Francisco. At Stanford, she leads a clinical and translational research program focusing on (1) donor evaluation and selection for heart transplantation, (2) non-invasive diagnosis of post-transplant complications, and (3) pathogenesis of cardiac allograft vasculopathy. She is Associate Director of the International Society for Heart and Lung Transplantation Thoracic Transplant Registry and is Program Director of the Advanced Heart Failure Transplant Cardiology fellowship program at Stanford. Dr. Khush's research is funded by the National Institutes of Health, American Heart Association, Enduring Hearts Foundation, and other philanthropic sources.

INVITED INTERNATIONAL SPEAKERS



Megan Levings
PhD Professor Department of Surgery and School of Biomedical Engineering Head
University of British Colombia

Dr. Megan Levings has been in the UBC Department of Surgery since 2003 when she was recruited back to Canada as a Canada Research Chair in Transplantation. In 2011 she joined the BC Children's Hospital Research Institute where she now heads the Childhood Diseases Research Theme. Dr. Levings' scientific career started with summer research positions in a fruit fly genetics lab at Simon Fraser University. She then did her graduate training in the genetics program with Dr. John Schrader at UBC, during which time she attended her first of many Canadian Society for Immunology meetings and developed a passion for immunology. In 1999 she joined Dr. Maria Grazia Roncarolo's lab in Milan, Italy, undertaking postdoctoral training in the emerging area of immune regulation. She was among the first groups to show that a special kind of white blood cell, known as a T regulatory cell, could be used as a therapy to stop harmful immune responses. She continues this line of research at UBC, and is now internationally recognized in the field of human immunology, chairs the Federation of Clinical Immunology Societies Centers' of Excellence and is a member of the NIH Immune Tolerance Network steering committee. Dr. Levings leads a vibrant group of trainees and staff who are researching how to use T regulatory cells to replace conventional immunosuppression in the context of transplantation and autoimmunity.

INVITED INTERNATIONAL SPEAKERS

Timucin Taner, MD, PhD

Dr. Timucin Taner is the surgical director of liver transplantation at Mayo Clinic, Rochester. He has been a member of the Mayo Clinic transplant team since 2012, after having obtained a PhD in immunology from the University of Pittsburgh and completing surgical training at Mayo Clinic. His clinical practice involves living- and deceased-donor liver transplantation in both adult and paediatric patients. His research focuses on liver transplant immunobiology, specifically the mechanisms underlying the interplay between the liver allograft and the host immune responses. He is the Mayo Clinic Primary Investigator of two cellular therapy trials aiming at immunosuppression minimization after liver transplantation. He serves in numerous committees in national and international organizations, including the International Liver Transplantation Society (ILTS), American Association for the Study of Liver Diseases (AASLD) and American Society of Transplant Surgeons (ASTS).

INVITED INTERNATIONAL SPEAKERS

Chris Watson

Chris is a transplant surgeon from Cambridge where he is involved in liver, kidney and pancreas transplantation, and the occasional intestinal transplant. A previous president of the British Transplantation Society and former Associate Editor of the American Journal of Transplantation, for the last 6 years he chaired the Kidney Advisory Group of NHSBT, responsible for advising on allocation, governance, and all issues relating to renal transplantation. His term in that office culminated with the launch of the 2019 kidney allocation scheme, an evolution of the previous 2006 scheme and one hoped to produce more equitable access. Prior to that he chaired the Pancreas Advisory Group and was responsible for securing funding for the national pancreas transplant programme and developing a pancreas allocation scheme that shared organs for whole organ and islet transplantation.

His research interests have been around increasing organ utilisation. Most recently has been focussing on optimising the results of livers from DCD donors, pioneering *in situ* normothermic regional perfusion in the UK, as well as developing a successful *ex situ* normothermic liver perfusion program.

INVITED SPEAKERS

Ms Lucinda Barry
Chief Executive Officer
Organ and Tissue Authority, ACT

Dr Rob Carroll
Central & Northern Adelaide Renal Transplant Services (CNARTS)
Royal Adelaide Hospital, SA

Mr Jacob Chisholm
Consultant Surgeon, Flinders Medical Centre, SA

Mr Jason Chuen
Vascular, Endovascular and Transplant surgeon;
Director of Vascular Surgery Department, Austin Health, VIC

Professor Patrick (Toby) Coates
Renal Unit, Royal Adelaide Hospital, SA

Professor Shane Grey
Head of Transplantation and Immunology Laboratory
Garvan Institute, NSW

A/Professor Bulang He
Head of Renal Transplant Surgery, Alfred Hospital,VIC

A/Professor Peter Hughes
Royal Melbourne Hospital

Dr Janina Kaczmarcyzk
Liver Transplant Surgery fellow, Flinders Medical Centre, SA

Professor Stephen McDonald
Director of Dialysis & Nephrologist
Central Northern Adelaide Dialysis & Transplantation Service, SA

Anthony Meade
Renal Dietitian of the Central Northern Adelaide Renal and Transplantation Services,
Royal Adelaide Hospital, SA

INVITED SPEAKERS

A/Prof William Mulley
Monash Medical Centre, Department of Medicine Monash University

Kelli Owen
Transplant recipient and community representative
Indigenous Kidney Community Representative; NIKTT

Professor Henry Pleass
Professor of Surgery, Westmead Clinical School, NSW

Paul Robertson
Australasian Transplant Coordinators Association (ATCA)

Professor Greg Snell
Medical Head of the Lung Transplant Service
Alfred Hospital and Monash University, VIC

Dr Matthew Sypek
Consultant Nephrologist RMH, RCH

A/Professor Allison Tong
The University of Sydney School of Public Health
Centre for Kidney Research, The Children's Hospital at Westmead, NSW

Professor Angela Webster
Professor of Clinical Epidemiology, University of Sydney
Senior Staff Specialist Transplantation and Renal Medicine, Westmead Hospital, NSW

A/Professor Alan Wigg
Hepatology and Liver Transplant Unit - Flinders Medical Centre, SA

ABSTRACT REVIEW PROCESS AND PRESENTATION FORMATS

A total of 108 abstracts were submitted this year. Abstracts were blinded for authors and institutions and were reviewed by four reviewers (see below) assigned by the Scientific Program and Education Committee (SPEC). Reviewers did not review abstracts if a conflict of interest was identified. Reviewers scored between 6 to 12 abstracts and in general there was a close agreement between scores.

Two presentation formats will be used at the 2021 ASM. Free Communications session will be live 12 min presentation, 3 min Q&A. Abstracts will also be presented as e-Posters and the poster viewing held during lunch on Monday March 15. Presenters should be logged in during the poster sessions to answer any questions from delegates.

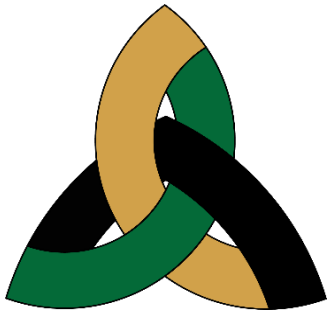
The President's Prize (PP) will be awarded in two categories: Basic Science and Clinical. The highest-ranked abstracts from eligible applicants in both categories will be presented in a single PP session. The award in each category will be based on the quality of the abstract and the presentation on the day.

The reviewers of the abstracts for the TSANZ 2021 meeting were:

Leyla Aouad
Eric Au
Michael Burke
Scott Campbell
Robert Carroll
Steve Chadban
Daniel Chambers
Carolyn Clark
Philip Clayton
Toby Coates
Michael Collins
Peter Cowan
Luc Delriviere
Ian Dittmer
Helen Evans
Randall Faull
Michael Fink
Ross Francis
David Goodman
David Gracey
Bruce Hall
Ahmer Hameed
Wayne Hancock
Bulang He
Munish Heer
Peter Hopkins
Min Hu
Frank Ierino
Ashley Irish
Georgina Irish
Nikky Isbel
Andrew Jabbour
Shilpanjali Jesudason
John Kanellis
Sean Kennedy
Juewan Kim
Paul Lawton
Darren Lee
Bronwyn Levvey
Wai Lim
Grant Luxton
Peter Macdonald
Fiona Mackie
Stephen McDonald
Solomon Menahem
Bill Mulley
Brian Nankivell
Eu Ling Neo
Kathy Nicholls
Leigh Nicholson
Philip O'Connell
Kathy Paizis
Helen Pilmore
Henry Pleass
Janske Reiling
Veena Roberts
Amanda Robertson
Paul Robertson
Natasha Rogers
Alexandra Sharland
Julian Singer
Sanda Stankovic
Sebastian Stead
Lucy Sullivan
Suda Swaminathan
Alison Tong
Jeanette Villanueva
Stacey Walters
Debbie Watson
Angela Webster
Germaine Wong
Nathan Zammit

The committee members thank these reviewers for their reviews and effort in supporting the meeting.

Wai Lim and Lucy Sullivan
Chairs of TSANZ Scientific Program & Education Committee (SPEC)



The Transplantation Society of Australia and New Zealand

Thirty-ninth Annual Scientific Meeting

PROGRAM

Sunday, March 14, 2021

14:50–15:00	**Official Opening:** *TSANZ President* Prof Toby Coates	Live
15:00–15:30	**PLENARY 1: Astellas Symposium** *Chair: A/Prof Wai Lim* **CAR-Tregs to Induce Transplantation Tolerance** Prof Megan Levings BC Canada (8pm Sat)	Pre-Record and Live Q&A (at 15:25)
15:30–17:30	**2020 President's Prize Symposium** *Chair: TSANZ President, Prof Toby Coates* ***— Oral presentations —*** 15:30 **THE EFFECT OF AGEING ON MYOCARDIAL SUSCEPTIBILITY TO ISCHAEMIA IN A RODENT MODEL OF DONATION AFTER CIRCULATORY DEATH.** VILLANUEVA JE, CHEW HC, GAO L, SCHEUER SE, DOYLE A, JABBOUR A, HICKS M, MACDONALD PS 15:45 **AN INFLAMMATORY INDEPENDENT ROLE FOR P65 (RELA) IN INSULIN HOMEOSTASIS** ZAMMIT Nathan W, WALTERS Stacey N, MCDOWELL Joseph, GREY Shane, T 16:00 **CO-AXIAL PRINTING OF MURINE ISLETS WITH HUMAN REGULATORY T-CELLS PREVENTS XENORESPONSE IN VITRO** KIM Juewan, HOPE Christopher, PERKINS Griffith, YUE Zhilian, LIU Xiao, GANTUMUR Narangerel, DROGEMULLER Christopher, CARROLL Robert, BARRY Simon, WALLACE Gordon, COATES Toby 16:15 **DISCOVERY OF PMHC EPITOPES FOR DIRECTLY ALLOREACTIVE T CELLS.** SON Eric Taeyoung, PAUL-HENG Moumita, LEONG Mario, FARIDI Pouya, DUDEK Nadine, ALEXANDER Ian, BERTOLINO Patrick, PURCELL Anthony, BOWEN David, MIFSUD Nicole, SHARLAND Alexandra 16:30 **TRENDS IN CAUSES OF DEATH IN AUSTRALIAN AND NEW ZEALAND KIDNEY TRANSPLANT RECIPIENTS: A REGISTRY ANALYSES BY ERA AND TIME POST-TRANSPLANT** YING Tracey, SHI Bree, Kelly Patrick, Clayton Philip, CHADBAN Steve	Live; 5 minute Q&A

Sunday, March 14, 2021

	16:45	**BRIEF NORMOTHERMIC MACHINE PERFUSION FOR THE ASSESSMENT AND REVIVAL OF DISCARDED HUMAN KIDNEYS** HAMEED Ahmer M, LU David B, ELLIS Patrick, XU Bo, HU Min, CHEW Yi Vee, KEUNG Karen, P'NG Chow H, GASPI Renan, ZHANG Chris, ROBERTSON Paul, ALEXANDER Stephen, THOMAS Gordon, LAURENCE Jerome, DE ROO Ronald, WONG Germaine, MIRAZIZ Ray, O'GRADY Greg, YUEN Lawrence, HAWTHORNE Wayne J, ROGERS Natasha M, PLEASS Henry C	
	17:00	**PERCEIVED VS. VERIFIED RISK OF CANCER TRANSMISSION FROM DECEASED ORGAN DONORS – A NSW COHORT STUDY 2010-2015 USING DATA LINKAGE** HEDLEY James, DE LA MATA Nicole, ROSALES Brenda, WALLER Karen, O'LEARY Michael, CAVAZZONI Elena, KELLY Patrick, WYBURN Kate, WEBSTER Angela	
	17:15	**NEW BLOOD BORNE VIRUS INFECTIONS AMONG ORGAN TRANSPLANT RECIPIENTS: A DATA-LINKED COHORT STUDY EXAMINING TRANSMISSION AND DE NOVO HEPATITIS B, C AND HIV INFECTIONS** WALLER Karen, DE LA MATA Nicole, HEDLEY James, ROSALES Brenda, O'LEARY Michael, CAVAZZONI Elena, RAMACHANDRAN Vidiya, RAWLINSON William, KELLY Patrick, WYBURN Kate, WEBSTER Angela	
17:30–17: 45	**Break**		
17:45–18:45	***CONCURRENT FREE COMMUNICATIONS SESSIONS***		
	Free Communications 1: IRI and non T cell Immunobiology *Chairs: A/Prof Bill Mulley and Dr Leigh Nicholson*		Live; 3 min Q&A
Abstract	***— Oral presentations —***		
1	17:45	**EXTENDING THE LIMITS OF HUMAN LIVER PRESERVATION: INITIAL PRE-CLINICAL EXPERIENCES WITH A CUSTOMISED MODEL FOR PROLONGED NORMOTHERMIC MACHINE PERFUSION** JACQUES A, CRAWFORD M, PULITANO C	
2	18:00	**MOLECULAR ALTERATIONS IN DCD RAT HEARTS AFTER ASYSTOLIC WARM ISCHEMIA AND NORMOTHERMIC EX VIVO REPERFUSION** GAO L, VILLANUEVA J, DOYLE A, SCHEUER S, HICKS M, MACDONALD P	
3	18:15	**INCORPORATION OF THE SODIUM-GLUCOSE COTRANSPORTER 2 INHIBITOR EMPAGLIFLOZIN IN DONOR HEART PRESERVATION STRATEGIES** VILLANUEVA J, GAO L, DOYLE A, SCHEUER S, JOSHI Y, HICKS M, MACDONALD P	

Sunday, March 14, 2021

4	18:30	**TH1 AND TH2 CYTOKINES RECIPROCALLY MODULATE B CELL REGULATORY FUNCTIONS** PERKINS G, KIM J, HOPE C, COATES T, HURTADO P	
17:45–18:45		**Free Communications 2: Outcomes and Complications#1** *Chairs: Prof John Kanellis and Dr Louise Crowe*	Live; 3 min Q&A
Abstract		***— Oral presentations —***	
5	17:45	**ASSESSMENT OF DQ RISK EPITOPE MISMATCH AFTER LUNG TRANSPLANTATION AS A PREDICTOR OF CHRONIC LUNG ALLOGRAFT DYSFUNCTION** ENNIS S, MALOUF M, BENZIMRA M, THOMSON C, PEARSON R, HAVRYK A, PLIT M, DARLEY D	
6	18:00	**MATERNAL CHARACTERISTICS AND BIRTH OUTCOMES FOR MOTHERS AFTER KIDNEY TRANSPLANTATION: AN ANALYSIS OF LINKED ANZDATA REGISTRY AND PERINATAL DATASETS OVER 22 YEARS** HEWAWASAM E, DAVIES C, GULYANI A, LI Z, CLAYTON P, SULLIVAN E, MCDONALD S, JESUDASON S	
7	18:15	**DEFINING DONOR IN SITU ISCHAEMIC TIME (DISIT) AND ITS IMPACT ON KIDNEY ALLOGRAFT FUNCTION** ROBERTSON H, ROBERTSON P, PLEASS H, LI J, ROGERS N, WONG G	
8	18:30	**AUSTRALIAN EXPERIENCE WITH TOTAL PANCREATECTOMY WITH AUTO ISLET CELL TRANSPLANT (TP-IAT) TO TREAT CHRONIC PANCREATITIS** BAMPTON T, DROGEMULLER C, JANE H, LYLE P, KAY T, PLEASS H, CHEN J, COATES T	
15:45–16:45		**Free Communications 3: Donation and Allocation** *Chairs: A/Prof Chien-Li Holmes-Liew and Dr Eric Au*	Live; 3 min Q&A
Abstract		***— Oral presentations —***	
9	17:45	**HEALTH SERVICE UTILISATION AFTER ORGAN DONATION AMONG LIVING DONORS IN NSW, AUSTRALIA: THE SAFE-BOD DATA LINKAGE STUDY** DE LA MATA Nicole, CHALASANI V, PLEASS H, ROSALES B, CLAYTON P, KELLY P, WYBURN K, WEBSTER A	
10	18:00	**THE IMPACT OF VICTORIAN KEY PERFORMANCE INDICATORS (KPIS) ON WAIT LISTING FOR KIDNEY TRANSPLANTATION FOR INDIGENOUS AND NON-INDIGENOUS PATIENTS STARTING DIALYSIS** GOODMAN D, MARK T, DAVIES C, MCDONALD S, ATKINSON A	

Sunday, March 14, 2021

11	18:15	**CANCER TRANSMISSIONS AND NON-TRANSMISSIONS FROM SOLID ORGAN TRANSPLANTATION: A NSW COHORT STUDY** HEDLEY James, WALLER K, THOMSON I, DE LA MATA N, ROSALES B, WYBURN K, KELLY P, WEBSTER A	
12	18:30	**VERIFICATION OF SUSPECTED MELANOMAS IN DECEASED ORGAN DONOR REFERRALS: A POPULATION-BASED COHORT STUDY USING DATA-LINKAGE, 2010-2015** ROSALES Brenda, HEDLEY J, DE LA MATA N, VAJDIC C, THOMPSON J, KELLY P, WYBURN K, WEBSTER A	
18:45–19:25	**Astellas Josette Eris Lecture and Ian McKenzie Award** *Chairs: Prof Germaine Wong and Prof Toby Coates*		Live; 3 min Q&A
	18:45	**Partnering With Patients to Address Patient Important Outcomes in Transplantation** Prof Allison Tong	
	19:05	**Josette Eris Lecture** Prof Angela Webster	
19:25–20:00	**Women in Transplantation**		Live
	19:25	Introduction	
	19:26	Dr Lori West	
	19:38	Prof Patria Hume	
	19:55	Joint Q&A	
20:00–21:00	**Welcome Reception (including Trivia Night)**		

Monday, March 15, 2021

09:30–10:00	**Sponsors Meet and Greet**		
10:00–11:40	**PLENARY 2: Organ and Tissue Authority Symposium**		
	Joint TSANZ /OTA/ATCA Session *Chairs: Prof Kate Wyburn and Mr Suresh Navadgi*		
	10:00	**New UK Kidney Allocation System** Prof Chris Watson; UK (11pm Sun)	Pre-Record; No Q&A
	10:30	**Update From the Organ Transplant Authority** Ms Lucinda Barry	Live; 3 min Q&A
	10:50	**Implementation of Flow Crossmatching for Organ Allocation in Australia** Dr Rob Carroll	Live; 3 min Q&A
	11:10	**ANZKX Update** Dr Peter Hughes	Live; 3 min Q&A
	11:25	**ATCA Update** Mr Paul Robertson	Live; 3 min Q&A
11:40–12:40	***CONCURRENT FREE COMMUNICATIONS SESSIONS***		
	Free Communications 4: T Cell Biology *Chairs: A/Prof Alexandra Sharland and Dr Jennifer Li*		Live; 3 min Q&A
Abstract	***— Oral presentations —***		
13	11:40	**PD-L1/PD-1 INTERACTIONS ARE CRITICAL FOR TOLERANCE INDUCTION IN PRIMED SKIN GRAFT RECIPIENTS FOLLOWING LIVER-DIRECTED MHC CLASS I GENE TRANSFER** LEONG M	
14	11:55	**DETERMINING THE TCR REPERTOIRE IN DIRECT PMHC ALLORECOGNITION BY CD8+ T CELLS** PAUL M, SONG E, JONES C, LEONG M, PURCELL A, GRUTA N, MIFSUD A, SHARLAND A	
15	12:10	**PURINERGIC SIGNALLING IN A HUMANISED MOUSE MODEL OF GRAFT-VERSUS-HOST DISEASE (GVHD)** WATSON D, CUTHBERTSON P, ADHIKARY S, GERAGHTY N, SLUYTER R	
16	12:25	**DONOR LYMPHOCYTES ARE RETAINED IN TISSUE MISMATCH BUT NOT MHC MISMATCH TRANSPLANTATION** DART Sarah,	

Monday, March 15, 2021

09:40–10:40	**Free Communications 5: Outcomes and Complications#2** *Chairs: Prof Germaine Wong and Dr Nicholas Larkins*		Live; 3 min Q&A
Abstract	***— Oral presentations —***		
17	11:40	**PATIENT DYNAMICS ACROSS A LIFESPAN OF KIDNEY WAITLISTING AND TRANSPLANTATION: AN AUSTRALIAN COHORT STUDY** KHOU Victor, DE LA MATA N, KELLY P, HEDLEY J, WEBSTER	
18	11:55	**ARTERIAL RECONSTRUCTION IN SPLIT LIVER TRANSPLANTATION USING INTERPOSITION GRAFTS IS SAFE AND EFFECTIVE** LAU N, CRAWFORD M, PULITANO C	
19	12:10	**THE EFFECT OF SURGICAL CLOSURE OF HEMODIALYSIS ARTERIOVENOUS FISTULA AFTER SUCCESSFUL KIDNEY TRANSPLANTATION** MARUI Y, SHIRAI D, YAMADA R, TSUKADA H, ADACHI H, YOZA N, MATSUMURA K, USUBA W, AIDA K, HAYAKAWA N, NAKAZAWA R, SASAKI H, KIKUCHI E	
20	12:25	**EARLY VERSUS LATE RENAL ACUTE ANTIBODY MEDIATED REJECTION: A COMPARISON OF TREATMENT APPROACHES AND OUTCOMES IN AUSTRALIA AND NEW ZEALAND** FERNANDO S, POLKINGHORNE K, MULLEY W	
11:40–12:40	**Free Communications 6: Clinical; Other** *Chairs: Prof Henry Pleass and Dr Georgina Irish*		Live; 3 min Q&A
Abstract	***— Oral presentations —***		
21	11:40	**SUCCESSFUL IMPLEMENTATION OF INCREASED VIRAL RISK DONOR WAITING LIST FOR PRE-CONSENTED WAITLISTED KIDNEY TRANSPLANT RECIPIENTS IN VICTORIA - TWO-YEAR DATA** LEE D, SENG N, GRAMNEA I, HUDSON F, D'COSTA R, MCEVOY L, SASADEUSZ J, O'LEARY M, GOPAL B, KAUSMAN J, MASTERSON R, PAIZIS K, KANELLIS J, HUGHES P, GOODMAN D, WHITLAM JB	
22	11:55	**GENE EXPRESSION ANALYSIS IDENTIFIES POTENTIAL LINKS BETWEEN CYTOMEGALOVIRUS INFECTION AND CHRONIC REJECTION FOLLOWING LUNG TRANSPLANTATION** SULLIVAN L, BORREY M, OATES C, BROOKS A, STEINFORT D, LONDRIGAN S, LEVVEY B, SNELL G, STANKOVIC S, WESTALL G	
23	12:10	**THE EPIDEMIOLOGY OF HEREDITARY PANCREATITIS IN SOUTH AUSTRALIA** WU D, COATES PT, PALMER L, BAMPTON T, COUPER R, SCOTT H, CHEN J	

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24	12:25	**DUAL KIDNEY TRANSPLANTATION: TWO GOOD OR DOUBLE TROUBLE?** HANNA Thomas, SAM T, DITTMER I, O'MAHONY K, LANGLANDS J, MUTHUKUMARASWAMY C	
12:40–13:00	**Lunch and Poster Viewing**		
13:00–14:30	**PLENARY 3: TSANZ/CareDx Symposium** **Immunology** *Chairs: A/Prof Kelli MacDonald and Dr John Whitlam*		
	13:00	**Liver Transplant Immunology** Prof Timucin Taner- NY (10.00pm Sun)	Live; 5 minute Q&A
	13:30	**Thymus-Derived Tregs as an Allogeneic Cell Therapy -** Prof Megan Levings-BC Canada (7.30pm Sun)	Pre-Record and Live Q&A (at 13:55)
	14:00	**Donor-Derived Cell-Free DNA for non-Invasive Diagnosis of Post-Transplant Complications** A/Prof Kiran Khush- LA (8.00pm Sun)	Live; 5 min Q&A
14:30–14:45	**Break**		
14:45–16:45	**2021 President's Prize Symposium** *Chair: TSANZ President, Prof Toby Coates*		Live; 5 minute Q&A
Abstract	***— Oral presentations —***		
37	14:45	**TARGETING CD47 IMPROVES INSULIN SECRETION AND ISLET TRANSPLANT OUTCOMES** KALE A, BURNS H, NICHOLSON L, HAWTHORNE W, ROGERS N, GHIMIRE K	
38	15:00	**ADOPTIVE TOLEROGENIC DENDRITIC CELL THERAPY PROTECTS AGAINST RENAL ISCHEMIA REPERFUSION INJURY** LI J, ROGERS N	
39	15:15	**IDENTIFICATION OF A NOVEL SUBSET OF XENO-ANTIGEN SPECIFIC MEMORY CD4+FOXP3+TREGS IN ISLET-XENOTRANSPLANT TOLERANCE** NICHOLSON L, ZHAO Y, QIAN YW, CHEW YV, BURNS H, ZHANG G, YI S, ROGERS N, HAWTHORNE W, ALEXANDER S, O'CONNELL P, HU M	
40	15:30	**SELECTION OF A NOVEL AAV2/TNFAIP3 VECTOR FOR LOCAL SUPPRESSION OF ISLET XENOGRAFT INFLAMMATION** ZAMMIT Nathan, SEEBERGER K, ZAMERLI J, WALTERS S, LISOWSKI L, KORBUTT G, GREY S	

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41	15:45	**NOTIFIABLE INFECTIONS AMONG ORGAN TRANSPLANT RECIPIENTS: AN AUSTRALIAN DATA-LINKED COHORT STUDY, 2000-2015** WALLER K, DE LA MATA N, WYBURN K, HEDLEY J, ROSALES B, KELLY P, RAMACHANDRAN V, SHAH K, MORTON R, RAWLINSON W, WEBSTER A	
42	16:00	**SPECIFIC HUMAN LEUKOCYTE ANTIGEN EPLET MISMATCHES AND ACUTE REJECTION IN SIMULTANEOUS PANCREAS-KIDNEY TRANSPLANT RECIPIENTS** SHARMA A, ULLAH I, COOREY C, TAVERNITI A, LIQUET B, NANKIVELL B, CHAPMAN J, PLEASS H, LIM W, ZHANG Y, YANG J, PETTITT A, CRAIG J, WONG G	
43	16:15	**PAEDIATRIC KIDNEY TRANSPLANTS FROM DONORS AGED 1 YEAR AND UNDER: AN ANALYSIS OF THE AUSTRALIAN AND NEW ZEALAND DIALYSIS AND TRANSPLANT REGISTRY (ANZDATA) FROM 1963 TO 2018** YAO J, CLAYTON P, WYBURN K, CHOKSI H, CAVAZZONI E, TOVMASSIAN D1, LAU H, ALLEN R, YUEN L, LAURENCE J, LAM V, PLEASS H	
44	16:30	**DEVELOPING A NOVEL PORCINE AUTOTRANSPLANTATION MODEL OF ROBOTIC-ASSISTED HETEROTOPIC KIDNEY TRANSPLANTATION** BARNETT D, BHATTACHARJYA S	
16:45–17:45		***CONCURRENT FREE COMMUNICATIONS SESSIONS***	
		Free Communications 7: Basic Science; Other *Chairs: Dr Sanda Stankovic and Dr Eric Son*	Live; 5 minute Q&A
Abstract		***— Oral presentations —***	
25	16:45	**INNATE IMMUNE SENSING AND TISSUE REMODELLING OF A BIODEGRADABLE TEMPERING MATRIX SUPPORTED ISLET GRAFT** WALTERS S, BAILEY J, CULTRONE D, ROJAS-CANALES D, DROGEMULLER C, PENKO D, LOUDOVARIS T, KAY T, KORBUTT G, CHTANOVA T, GREENWOOD J, COATES T5, GREY S	
26	17:00	**COMBINATIONAL THERAPY WITH POST-TRANSPLANT CYCLOPHOSPHAMIDE AND THE P2X7 ANTAGONIST BRILLIANT BLUE-G REDUCES LIVER DISEASE IN A HUMANISED MOUSE MODEL OF GRAFT-VERSUS-HOST DISEASE** CUTHBERTSON P, ADHIKARY S, WATSON D, SLUYTER R	

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27	17:15	**POST-TRANSPLANT CYCLOPHOSPHAMIDE REDUCES BLASTING T CELLS IN HUMANISED MICE WITH SUBCLINICAL GRAFT-VERSUS-HOST DISEASE** BIRD K, ADHIKARY S, CASOLIN S, CUTHBERTSON P, SLUYTER R, ALEXANDER S, WATSON D	
28	17:30	**INTRACUTANEOUS BIODEGRADEABLE TEMPORIZING MATRIX (BTM) AS AN ALTERNATIVE SITE FOR ISLET TRANSPLANTATION** PENKO D, NITSCHKE J, JOHNSTON J, KIRETA S, DROGEMULLER C, GREENWOOD J, COATES P	
16:45–17:45	**Free Communications 8: Outcomes and Complications#3** *Chairs: Dr Ashley Irish and Dr Tracey Ying*		Live; 5 minute Q&A
Abstract	***— Oral presentations —***		
29	16:45	**CHARACTERISATION OF CHRONIC LUNG ALLOGRAFT DYSFUNCTION BY AIRWAY OSCILLOMETRY IN POST-LUNG TRANSPLANTATION: A MULTI-CENTRE CROSS-SECTIONAL STUDY** SIM J, DARLEY D, NILSEN K, SHIROL R, BORG B, VAZIRANI J, LEVVEY B, SNELL G, PLIT M, TONGA KO	
31	17:00	**GRAFT SURVIVAL AND VISUAL ACUITY FOLLOWING SURGICAL VARIATIONS OF CORNEAL TRANSPLANTATION IN EYES WITH FUCHS ENDOTHELIAL DYSTROPHY** KEANE Miriam, COFFEY N, MILLS R, WILLIAMS K	
32	17:15	**PREDICTING KIDNEY TRANSPLANTATION OUTCOMES; IS DONOR TERMINAL, ADMISSION OR HIGHEST ESTIMATED GLOMERULAR FILTRATION RATE BEST?** IRISH G, COATES P, CLAYTON P	
16:45–17:45	**Free Communications 9: Transplantation Surgery** *Chairs: Dr Christine Russell and Dr Mayank Bhandari*		Live; 5 minute Q&A
Abstract	***— Oral presentations —***		
34	16:45	**NORMOTHERMIC EX VIVO MACHINE PERFUSION PRIOR TO TRANSPLANTATION OF THE KIDNEY (NEXT-KIDNEY)** YOON P, HAMEED A, WONG G, HAWTHORNE W, LEE T, YUEN L, ROGERS N, GASPI R, ZHANG C, ROBERTSON P, CHOI J, WEBSTER A, WANG Z, PLEASS H	

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35	17:00	**PROSPECTIVE EVALUATION OF A CLOSED INCISION NEGATIVE PRESSURE WOUND THERAPY SYSTEM ON SURGICAL SITE INFECTIONS AND WOUND COMPLICATIONS IN KIDNEY TRANSPLANT RECIPIENTS** HUYNH A, LAM S, SANDROUSSI C, PLEASS H, YING T, CHADBAN S, GRACEY D, LAURENCE J	
36	17:15	**INCIDENTAL RENAL LESIONS DURING CADAVERIC DONOR SURGERY AND SUBSEQUENT USE IN RENAL TRANSPLANTATION AFTER EX-VIVO TUMOURECTOMISATION** RAVICHANDRAN K, HEWA-GEEGANAGE S, TAN A, LOCKWOOD D, RAY M, KANAGARAJAH V, LAWSON M, PRESTON J, GRIFFIN A, RHEE H	
17:45–18:30		**TSANZ Annual General Meeting-2020 and 2021**	Live
18:30–20:00		**TSANZ Annual Awards Night**	

Tuesday, March 16, 2021

09:30–10:00	**Sponsors Meet and Greet**	
10:00–11:00	**PLENARY 4: Joint TSANZ/Roche Symposium** **Indigenous Transplantation** *Chairs: Dr William Majoni and A/Prof Shilpa Jesudason* 10:00 **Liver Transplantation in Indigenous Australians** Prof Alan Wigg 10:20 **National Indigenous Kidney Transplant Taskforce Progress** Prof Stephen McDonald 10:40 **Consumer Engagement in Indigenous Transplantation Research (provisional)** Ms Kelli Owen	Live; 3 minute Q&A
11:00–12:00	***CONCURRENT STATE OF THE ART SESSIONS*** **STATE OF THE ART 1: Astellas Symposium** **Antibodies and Infections** *Chairs: Dr Darren Lee and Dr Jennifer Li* 11:00 **Viral Hepatitis Infections in Organ Transplantation** A/Prof Marina Berenguer – Spain (1am Tues) 11:20 **TB Risk Assessment** Prof Alan Wigg 11:40 **Utilisation of Increased Viral Risk Donors** Prof Angela Webster	Pre-Record; No Q&A Live; 3 min Q&A Live; 3 min Q&A

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11:00–12:00	**STATE OF THE ART 2: Joint TSANZ/Novartis Symposium**	Live; 3 minutes Q&A
	Obesity and Nutrition *Chairs: Mr Paul Dolan and Dr Kate Muller*	
	11:00 **Liver Transplantation in Obese Recipients** Prof Timucin Taner-(NY 8pm Mon)	
	11:20 **Non-Surgical Weight Loss Strategies in Obese Renal Transplant Candidates** Mr Anthony Meade	
	11:40 **The Role of Bariatric Surgery in NASH and Liver Transplantation** Dr Jacob Chisholm	
12:00–12:30	**Lunch**	
12:30–13:40	***CONCURRENT STATE OF THE ART SESSIONS***	
	STATE OF THE ART 3: Astellas Symposium	
	Transplantation Surgery *Chairs: Prof Richard Allen and Dr Janina Kaczmarczyk*	
	12:30 **Liver Transplantation in Cholangiocarcinoma** Prof Timucin Taner-(NY 9:30pm Mon)	Live; 5 min Q&A
	13:00 **Robotic Surgery: The Role in Kidney Transplantation** A/Prof Bulang He	Live; 3 min Q&A
	12:10 **Update on Pancreas Transplantation** Prof Henry Pleass	Live; 3 min Q&A

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12:30–13:40	**STATE OF THE ART 4: Joint TSANZ/Novartis Symposium** **Innovations** *Chairs: Prof Chien-Li Holmes-Liew and Dr Eric Au*		
	12:30	**Donor Selection for Heart Transplantation: Changing Perceptions and Practices** A/Prof Kiran Khush-LA (6pm Mon)	Live; 5 min Q&A
	13:00	**3D Printing and Transplantation – Separating Fact From Fantasy** Dr Jason Chuen	Live; 3 min Q&A
	13:20	**Intracutaneous Islet Cell Transplantation** Prof Toby Coates	Live; 3 min Q&A
13:40–15:20	**PLENARY 5: Joint TSANZ/Xvivo Symposium** **Perfusion and Donor Management** *Chairs: Prof Henry Pleass and Dr Mark Brooke-Smith*		
	13:30	**Normothermic Machine Perfusion and Liver Machine Perfusion** Prof Chris Watson-UK (2:40am Tues)	Pre-Record; No Q&A
	14:05	**Kidney Machine Perfusion** A/Prof Ina Jochmans-Belgium (4am Tues)	Pre-Record; No Q&A
	14:30	**Hypothermic ex-vivo Perfusion of Donor Hearts for Transplantation** Prof David McGiffin	Live; 5 min Q&A
	14:55	**The Spanish Miracle in Organ Donation: Myth or Reality?** A/Prof Marina Berenguer- Spain (4.55am Tues)	Pre-Record; No Q&A
15:20–15:30	**Break**		

Tuesday, March 16, 2021

15:30–16:20	**The Great Debate: Stem Cell Technology Will Make Transplant Surgeons and Physicians Redundant Within 10 Years** *Moderator: A/Prof Bill Mulley* Pro team: Prof Greg Snell and Dr Janina Kaczmarczyk Con team: Prof Shane Grey and Dr Matthew Sypek Pro Team, speaker 1 Con Team, speaker 1 Pro Team, speaker 2 Con Team, speaker 2 Pro Team rebuttal (if required) Con Team rebuttal (if required)	Live and Polling
16:20	**ASM Concludes**	

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45 **THE USE OF INSULATING JACKETS IN RENAL TRANSPLANTATION**
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46 **IMPACT OF THE HLA-BASED MATCHING SYSTEM ON CLINICAL OUTCOMES AND RACIAL DISPARITY IN AUSTRALIA'S DECEASED DONOR KIDNEY TRANSPLANTATION PROGRAM**
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48 **DONOR INTERLEUKIN-6 GENOTYPE INFLUENCES THE DEVELOPMENT OF GRAFT-VERSUS-HOST DISEASE IN A HUMANISED MOUSE MODEL**
SLIGAR Chloe, ADHIKARY S, SLUYTER R, WATSON D

49 **MICROSAMPLING METHODS FOR SIMULTANEOUS ESTIMATION OF TACROLIMUS, MYCOPHENOLIC ACID AND PREDNISOLONE CONCENTRATIONS IN ADULT KIDNEY TRANSPLANT RECIPIENTS**
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50 **INCREASING THE DONOR POOL: HEART TRANSPLANTATION WITH HEPATITIS C POSITIVE DONORS TO HEPATITIS C NAÏVE RECIPIENTS- THE FIRST AUSTRALIAN EXPERIENCES**
BART N, SCHNEGG B, GORRIE N, DEVEZA R, BRIGHT L, DHARAN N, KOTLYAR E, KEOGH A, MUTHIAH K, JABBOUR A, MATTHEWS G, IYER A, CONNELLAN M, GRANGER E, WATSON A, JANSZ P, HAYWARD CS, MACDONALD P

51 **RANGE AND CONSISTENCY OF INFECTION OUTCOMES REPORTED IN TRIALS CONDUCTED IN KIDNEY TRANSPLANT RECIPIENTS: A SYSTEMATIC REVIEW**
CHAN S, AU E, JOHNSON D, HAWLEY C, TONG A, PASCOE E, CRAIG J, SAUTENET B, BLUMBERG E, BRENNAN D, CAMPBELL S, CAO C, FRANCIS R, HUUSKES B, ISBEL N, KNOLL G, KOTTON C, MAMODE N, MULLER E, PHAN HAH, TEDESCO-SILVA H, WHITE D, WOLLEY M, VIECELLI A

52 **TRENDS IN NEPHROLOGY RESEARCH AND AUTHORSHIP: THE DEATH OF BASIC SCIENCE RESEARCH IN NEPHROLOGY WITHIN AUSTRALIA AND NEW ZEALAND**
PURVIS Megan, ROGERS N

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53	**WHY ARE WE NOT LISTING ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE FOR KIDNEY TRANSPLANTS?** MCDONALD S, DOLE K, BOAN P, LIM W, SNELLIN P, SAJIV C, ABEYARATNE A
54	**THE AUSTRALIAN AND NEW ZEALAND LIVING KIDNEY DONOR PROFILE INDEX** IRISH G, CHADBAN S, BOUDVILLE N, CAMPBELL S, KANELLIS J, CLAYTON P
55	**T-FOLLICULAR-HELPER AND B MEMORY CELLS IN ANTIBODY-MEDIATED REJECTION AFTER KIDNEY TRANSPLANTATION** ROSALES B, MCGUIRE H, GUNASEGARAN B, FAZEKAS B, WAN S, WYBURN K
56	**INVESTIGATING A ROLE FOR DONOR-DERIVED LYMPHOCYTES IN OUTCOMES FOLLOWING LUNG TRANSPLANTATION** PARSONS K, SULLIVAN L, WESTALL G, BROOKS A, CRISTIANO Y, LEVVY B, SNELL G, STANKOVIC S
57	**UNDERSTANDING AND ATTITUDES TOWARD ACCEPTING AN INCREASED VIRAL RISK DONOR IN PATIENTS ACTIVE ON THE KIDNEY TRANSPLANT WAITING LIST** KANSAL A, DENDLE C, KANELLIS J, MULLEY W
59	**LONG-TERM METABOLIC COMPLICATIONS FOLLOWING SIMULTANEOUS PANCREAS-KIDNEY TRANSPLANTATION: A SINGLE-CENTRE RETROSPECTIVE STUDY** CHOKSI H, PATEL D, AU E, ROGERS N
60	**CANCER IN KIDNEY TRANSPLANT RECIPIENTS: GEOGRAPHICAL VARIATION AND CENTRE-SPECIFIC IMMUNOSUPPRESSIVE MANAGEMENT** MYAT LL, SCHUMACHER T, MAY J, MAY S
61	**COMPARISON OF IN VITRO SUPPRESSION OF CD4+CD25-T EFFECTOR CELL PROLIFERATION BY TH2-LIKE TREG AND NAÏVE TREG USING A REFINED FLOW CYTOMETRY BASED ASSAY** RAKESH P, VERMA N, BEDI S, TRAN G, HODGKINSON S, HALL B
62	**DEVELOPMENT OF A DONOR-RECIPIENT MATCHING ALGORITHM FOR LUNG TRANSPLANTATION IN NSW** HWANG B, GRANGER E, JANSZ P, MALOUF M, WATSON A, IYER A, HAVRYK A, PLIT M, CONNELLAN M

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64	**EVALUATING NEUTROPHILS AS A BIOMARKER FOR DELAYED GRAFT FUNCTION IN KIDNEY TRANSPLANT RECIPIENTS** WANG H, O'CONNELL P, HU M, LI J
65	**THE DEVELOPMENT OF GAD65-CAR TREGS AS A METHOD OF IMMUNOSUPPRESSION FOR ISLET TRANSPLANT RECIPIENTS** SCAFFIDI J, KIM J, SADLON T, BANDARA V, BARRY S, COATES T
67	**EXPLORING GENOMIC DATA REVEALS A CONSERVED TRANSCRIPTOME IN TOLEROGENIC DENDRITIC CELLS** ROBERTSON H, LI J, PATRICK E, ROGERS N
68	**OUTCOMES OF STEROID-FREE IMMUNOSUPPRESSION AND THERAPEUTIC ANTI-COAGULATION IN PANCREAS TRANSPLANTATION - THE ADELAIDE EXPERIENCE OF AN INITIAL 10 PATIENT COHORT** BARNETT D, OLAKKENGIL S, COATES T, BHATTACHARJYA S
69	**EFFECT OF SPLENECTOMY VACCINATIONS ON ANTI-A/B ANTIBODY TITRES IN ABO-INCOMPATIBLE RENAL TRANSPLANT RECIPIENTS** BONGETTI E, MULLEY W
70	**RELATIVE SURVIVAL IN KIDNEY TRANSPLANT RECIPIENTS WITH DE-NOVO CANCERS VS NON-TRANSPLANT CANCER PATIENTS: A POPULATION STUDY 1980-2016** DE LA MATA N, ROSALES B, KELLY P, WEBSTER A
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72	**FACTORS INFLUENCING CELL-FREE DNA LEVELS: IMPLICATIONS FOR DONOR DERIVED CELL-FREE DNA ASSESSMENT IN TRANSPLANT PATIENTS** GAUTHIER P, MCKANNA T, ALESHIN A, SHCHEGROVA S, KALASHNIKOVA E, AHMED E, ARBEL T, BLOOM M, SALARI R, SWENERTON R, DEMKO Z, ZIMMERMANN B, BILLINGS P

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76	**RENAL TRANSPLANT SCREENING FOR ADVANCED COLORECTAL NEOPLASIA IN THE WELLNESS CLINIC** TAN R, VAN DER JEUGD J, JUNEJA R, BARBARA J
77	**TACROLIMUS INHIBITS MITOGEN AND MIXED LYMPHOCYTE REACTION INDUCED PIG T-CELL PROLIFERATION IN VITRO** KIRETA S, PENKO D, NITSCHKE J, JOHNSTON J, COATES T, GREENWOOD J, DROGEMULLER C
78	**PHOSPHOLIPASE A2 RECEPTOR CAR T CELLS LOCALISE TO THE KIDNEY** SHAW K, WANG YM, KARUNIA J, ZHANG G, MCCARTHY H, ALEXANDER S
79	**FINGERPRICK SAMPLING WITH HEMAPEN® TO MONITOR TACROLIMUS CONCENTRATIONS** REIMANN F, GALETTIS P, JOHNSTONE J, RADOVANOVIC M, AINSWORTH S, TREVILLIAN P, MARTIN J, SCHNEIDER J
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81	**CASE STUDY: IMPACT OF COVID-19 ON CELL FREE DNA LEVELS IN KIDNEY TRANSPLANT PATIENTS** YOO J, BROSSART K, SIMMONS W, BLOOM M, DESAI A, CLEVY-SCHNELLER T, SODHI R, JAIN D, AKKINA S
82	**TO DRAIN OR NOT TO DRAIN - THAT IS THE QUESTION? A REVIEW OF THE ROLE OF RETROPERITONEAL DRAINS FOLLOWING KIDNEY TRANSPLANTATION** ASLAM A, SINGLA A, KOTECHA K, FISHER C, PUTTASWAMY V
83	**OPTIMAL SURGICAL MANAGEMENT OF RENAL HYPERPARATHYROIDISM** KRIGE A, BOCHNER M, KOLLIAS J, WHITFIELD R, BINGHAM J

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86	**SPLENIC ARTERY ANEURYSM MANAGEMENT IN THE CIRRHOTIC PATIENT LISTED FOR LIVER TRANSPLANTATION: A SYSTEMATIC REVIEW** DU Phan, FURTADO R, LAURENCE J, PLEASS H
87	**FATE OF ABSTRACTS PRESENTED AT THE TRANSPLANTATION SOCIETY OF AUSTRALIA & NEW ZEALAND ANNUAL SCIENTIFIC MEETINGS** HORT Amy, YOON P, CHENG Q, HAMEED A, LAURENCE J, HAWTHORNE W, PLEASS H
88	**OUTCOMES OF KIDNEY TRANSPLANTATION FROM ECMO-SUPPORTED DONORS: A SYSTEMATIC REVIEW** HUYNH Nguyen,
90	**TREATMENT OF SAPOVIRUS INFECTION IN A RENAL TRANSPLANT PATIENT WITH NITAZOXANIDE** MAY S
91	**RENAL ALLOGRAFT TORSION AND PSEUDOANEURYSMS OF THE PANCREATIC ARTERY FOLLOWING SIMULTANEOUS PANCREAS-KIDNEY TRANSPLANTATION: A CASE REPORT** TAN S, TAN R, CEHIC G, WU M, KANELLIS J, BARBARA J
92	**A 25-YEAR EXPERIENCE WITH TWO-IN-ONE AND EN BLOC KIDNEY TRANSPLANTS** HEWA-GEEGANAGE Shanika, DIOLOMBI M, KANAGARAJAH V, LOCKWOOD D, PRESTON J, WOOD S, LAWSON M, RAY M, TAN AL, GRIFFIN A, RHEE H
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98	**EVALUATION OF GRAFT FUNCTION AFTER KIDNEY RE-TRANSPLANTATION IN A SINGLE CENTRE IN VIETNAM** NU NGOC HHUNG H, DANG NGOC TUAN A
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TSANZ ASM, March 14-16, 2021 e-Posters

Abstract 108

— Poster —

FIRST REPORTED CASE OF SUCCESSFUL DECEASED DONOR KIDNEY TRANSPLANTATION IN THE PRESENCE OF COLD AGGLUTININS AND TRIPLE POSITIVE ANTI-PHOSPHOLIPID ANTIBODIES

LEUNG PYM, MICHELL I, STEVEN M, HOGAN C BOROSAK M, MILES L, WHITLAM JB, LEE D

2021 ASM ACCEPTED ABSTRACTS

IRI and non T cell Immunobiology

Abstract No. 1

TITLE: EXTENDING THE LIMITS OF HUMAN LIVER PRESERVATION: INITIAL PRE-CLINICAL EXPERIENCES WITH A CUSTOMISED MODEL FOR PROLONGED NORMOTHERMIC MACHINE PERFUSION.

JACQUES A, CRAWFORD M, PULITANO C

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Aims: Access to quality donor organs is a significant barrier in clinical transplantation. Marginal livers are predisposed to injury during cold storage – with normothermic machine perfusion (NMP) presenting an attractive alternative. Theoretically, if NMP can be safely prolonged from hours to days, the possibility to further optimise these grafts with various therapeutic strategies is introduced. The aim of this study is to assess the pre-clinical feasibility of preserving discarded human livers for >5-days employing our modified NMP system.

Methods: A customised NMP system was developed incorporating dialysis, parenteral nutrition and upgraded oxygenating membranes. The circulating volume included red blood cells, fresh frozen plasma and concentrated albumin. Serial biopsies performed for histopathology, and real-time viability was assessed utilising four criteria: physiological pH, lactate clearance, bile production, and alkaline bile pH. Liver injury, synthetic function, and by-product clearance were evaluated with ALT, factor V, and urea.

Results: Six organs were preserved for 5-days duration, and a seventh preserved to 10-days. From the initial six livers – five met the real-time viability criteria at day 3, and three at day 5. ALT peak occurred andlt;24 hours in 5 of 6 livers, and factor V continued to rise in 5 of 6 livers to 5-days. Urea concentrations were stable across all time points. Early concerns were identified with infection control and pressure necrosis.

Conclusions: The feasibility of prolonged perfusion is demonstrated in this study. Before transitioning to clinical practice infection control, pressure necrosis, and current limitations of real-time viability assessment will need to be overcome.

Abstract No. 2

MOLECULAR ALTERATIONS IN DCD RAT HEARTS AFTER ASYSTOLIC WARM ISCHEMIA AND NORMOTHERMIC EX VIVO REPERFUSION

GAO L[1], VILLANUEVA J[1], DOYLE A[1], SCHEUER S[1], HICKS M[2], MACDONALD P[3]

[1]Transplantation Laboratory, Victor Chang Cardiac Research Institute, Sydney, [2]Department of Clinical Pharmacology and Toxicology, St Vincent's Hospital, Sydney, [3]Department of Heart and Lung Transplantation, St Vincent's Hospital, Sydney

Aims: Molecular alterations in hearts donated after circulatory death (DCD) are poorly understood. We aimed to characterise the phosphorylation status of key elements of signaling pathways with mitochondria as downstream target in hearts from a rat DCD model.

Methods: Male Wistar rats were anesthetized, carotid artery cannulated for blood pressure monitoring, 500IU heparin injected, and trachea ligated. Circulatory arrest was declared when pulse pressure zeroed. Animals were randomised into either 10-, 15- or 20- minute asystolic warm ischemic times (aWIT) before hearts were excised and reperfused ex vivo (Krebs-Henseleit, 37oC, 1hr). Sham group hearts were removed after heparin injection without tracheal ligation. Cardiac functional recovery was assessed by measurement of cardiac output, heart rate and coronary flow during reperfusion. LV tissues were collected at the end of reperfusion for western blots of total and phosphorylated AMPK, Erk, Akt, Stat3 and Drp1.

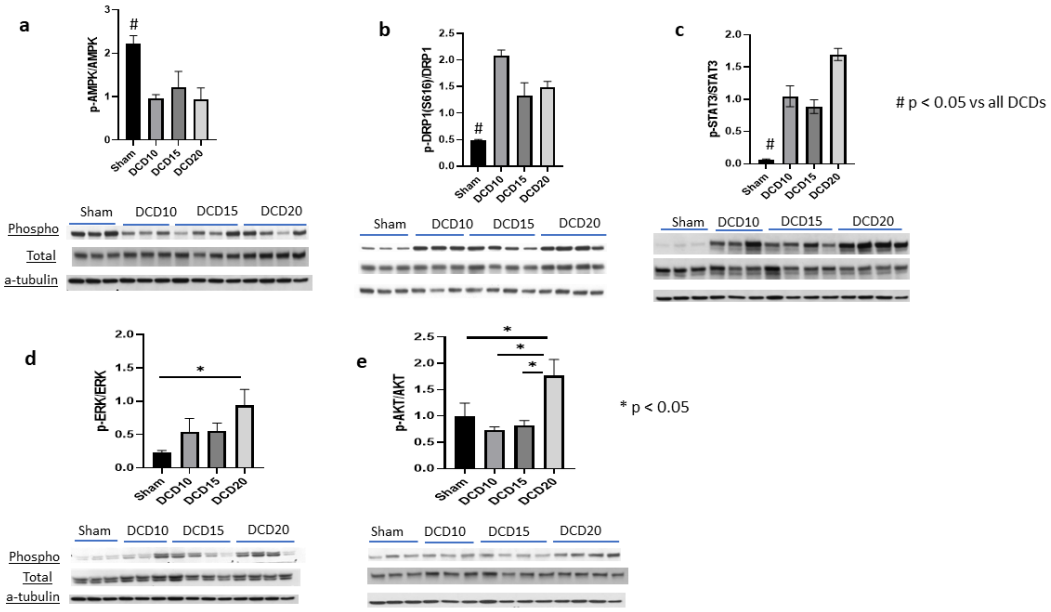
Results: Compared to sham, cardiac functional recovery after reperfusion of all DCD hearts were significantly decreased proportional to aWIT (Table1). AMPK phosphorylation was significantly decreased in DCD hearts at the end of reperfusion (Fig1a), while Drp1 and Stat3 phosphorylation were increased (Fig1b,1c). Differences between DCD hearts were not significant. Phosphorylated Erk and Akt were increased significantly only in DCD20 hearts (Fig1d,1e).

Conclusions: The down-regulation of AMPK phosphorylation in parallel with up-regulation of Drp1S616 in all DCD hearts may suggest a role of mitochondrial fission mediated mPTP opening1. More exploration is needed for a better understanding of increased Akt and Erk phosphorylation in DCD hearts after prolonged asystolic warm ischemia. 1. H. Zhou et al. Redox Biology 15 (2018) 335–346.

Table 1: Comparisons of Cardiac Functional Recovery after Reperfusion (M±SEM)

Groups (n= 3-5)	aWIT min	Cardiac output ml/min	Coronary Flow ml/min	Heart Rate bpm
Sham	0	63 ± 4.4***	20 ± 0.3**	238 ± 4**
DCD10	10	39 ± 4.3**	18 ± 2.4**	223 ± 11**
DCD15	15	19 ± 7.7*	7.4 ± 2.4*	172 ± 26*
DCD20	20	5.3 ± 2.0	3.9 ± 1.4	122 ± 30
aWIT: asystolic warm ischemic time (time between circulatory death and heart excision); ***p < 0.05 vs all DCDs; **p < 0.05 vs DCD15 and 20; *p < 0.05 vs DCD20				

Figure 1: Western blot bands and quantified phospho/total ratio of AMPK(a), Drp1(b), Stat3(c), Erk(d) and Akt(e)



Abstract No. 3

INCORPORATION OF THE SODIUM-GLUCOSE COTRANSPORTER 2 INHIBITOR EMPAGLIFLOZIN IN DONOR HEART PRESERVATION STRATEGIES.

VILLANUEVA J, GAO L, DOYLE A, SCHEUER S, JOSHI Y, HICKS M, MACDONALD P
Transplantation Laboratory, Victor Chang Cardiac Research Institute, Sydney,

Background: The sodium-glucose cotransporter 2 inhibitor empagliflozin (EMPA) is cardioprotective in Type 2 diabetes management. EMPA displays off-target sodium-hydrogen exchanger (NHE) inhibition and is cardioprotective like the NHE inhibitor zoniporide when repurposed for donor heart preservation of isolated working rat hearts.
Aim: Assess EMPA efficacy when combined with current clinical donor heart preservation pharmacological supplements – glyceryl trinitrate (GTN) and erythropoietin (EPO).
Method: Wistar male rat (350-405g; n=6-8) hearts were perfused ex-vivo (37C, Krebs-Henseleit buffer) and baseline aortic flow (AF), coronary flow (CF), cardiac output (CO), and heart rate (HR) measured. Hearts were arrested [Celsior alone or supplemented with 10μM EMPA+0.1mg/ml GTN, or 10μM EMPA+5U/ml EPO], cold stored (6h, 4C), then reperfused (37C, Langendorff 15min, working 30min). Post-reperfusion AF, CF, CO, and HR recovery was determined as the percentage of pre-storage baseline. Coronary effluent was collected for lactate dehydrogenase (LDH) measurements.
Results: Compared to Celsior alone, EMPA+EPO stored hearts showed significantly improved AF (52±8% versus 17±10%, p=0.028) and CO (64±6% versus 31±12%, p=0.048) recovery after 6h cold storage, with trends for improved CF recovery (89±6% versus 59±17%, p=0.189) and reduced LDH efflux. However, AF, CF, or CO recovery was unchanged with EMPA+GTN supplementation compared to Celsior alone. No differences in HR recovery were observed between groups.
Discussion: EMPA+EPO, but not EMPA+GTN, significantly improved cardiac functional recovery after prolonged cold storage suggesting that GTN reduces the previously observed functional benefit of EMPA alone1. EMPA+EPO may benefit extended cold (>6h) or warm ischaemia.

[1] Villanueva JE et al, *J Heart Lung Transplant*, 2020, 39(10):1151-1153

Abstract No. 4

TH1 AND TH2 CYTOKINES RECIPROCALLY MODULATE B CELL REGULATORY FUNCTIONS

PERKINS G[1], KIM J[1], HOPE C[2], COATES T[3], HURTADO P[4]

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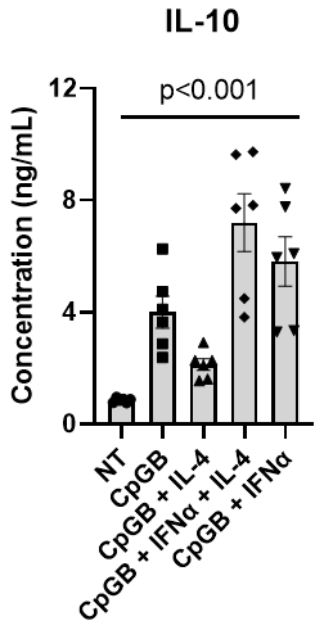
Background: Th1 vs Th2 cytokines in allograft rejection is well established. More recently, B-cells cytokines have also been found to play an important role. Immature B-cells in particular have been implicated in transplant tolerance, and their polarisation towards IL-10 producing regulatory cells is predictive of favourable long-term kidney transplant outcome. Cytokine secretion is driven by toll-like receptor (TLR) ligands, which are released during transplantation, and initiate and direct the immune response.

Aim: To identify mechanisms regulating the cytokine profile of TLR-stimulated B-cells, and to measure the influence exerted on the human immune response.

Methods: Untouched human B-cells (purity >97%) were cultured with CpGB DNA to stimulate IL-10 production, and Th1 and Th2 cytokines were investigated as regulators of the B-cell IL-10 response by ELISpot, ELISA, cytokine bead-array, intracellular flow cytometry, and using a B-cell-derived NF-kB reporter cell line. Regulatory capacity was assessed with a novel plasmacytoid dendritic cell (pDC) suppression assay.

Results: In response to TLR9 stimulation, secretion of cytoplasmic IL-10 was decreased in IL-4 primed B-cells by 60-80% (p=0.01). Conversely, IL-6 secretion was increased (p=0.017). IL-4 selectively modulated cytokine secretion without affecting canonical TLR signalling, or activation. In preliminary experiments, IL-4 primed B-cells were impaired in their capacity to suppress pDC function (p=0.2). Interferon-α/β/γ all restored IL-10 secretion in a dose-dependent manner.

Conclusion: Th1 and Th2 microenvironments counter-regulate the suppressive function of TLR-activated B-cells. This work adds to our understanding of the immune networks governing tolerance vs inflammation and will inform ongoing research into B-cell targeted therapies for transplantation.



Outcomes and Complications#1

Abstract No. 5

ASSESSMENT OF DQ RISK EPITOPE MISMATCH AFTER LUNG TRANSPLANTATION AS A PREDICTOR OF CHRONIC LUNG ALLOGRAFT DYSFUNCTION

ENNIS S, MALOUF M, BENZIMRA M, THOMSON C, PEARSON R, HAVRYK A, PLIT M, DARLEY D
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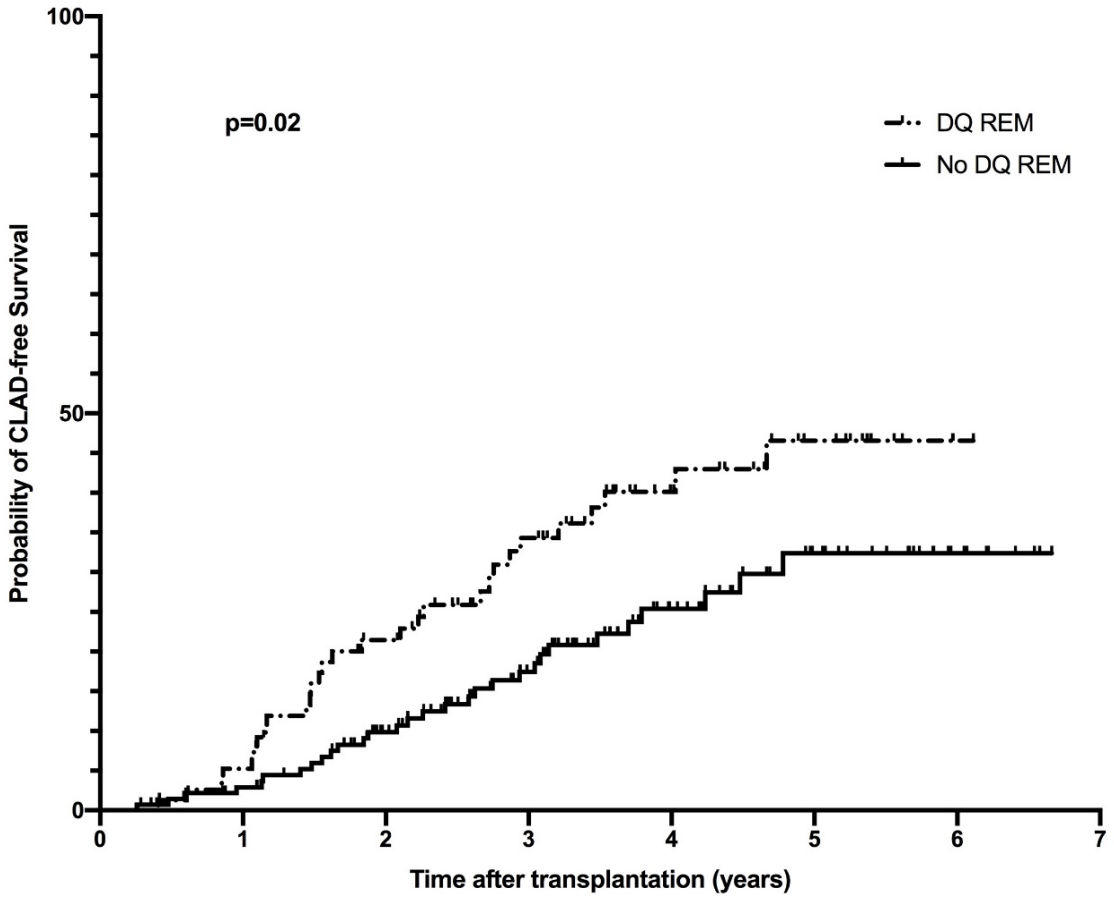
Aims: Chronic lung allograft dysfunction (CLAD) is a common cause of reduced survival following lung transplantation. We hypothesised that recipients with specific HLA-DQ risk epitope mismatches (REMs) would demonstrate an increased risk of CLAD and shorter CLAD free survival.

Methods: A retrospective cohort analysis was conducted of all bilateral lung and heart-lung transplant recipients at a single centre between Jan-2014 and Dec-2018. DQ REM was defined as recipients mismatched with their donor at DQA1*05-DQB1*02 (DQ2) and/or DQA1*05-DQB1*03:01 (DQ7). Baseline recipient and donor characteristics were extracted from an established database. CLAD was adjudicated as per the ISHLT 2019 Consensus criteria. Multivariate Cox proportional hazards models were used for time-to-event analyses.

Results: Complete molecular typing was available on 241/248. 156 (64.7%) recipients had no DQ REM, 37 (15.4%) had a DQ7 REM, 42 (17.4%) had a DQ2 and 6 (2.5%) had both. In univariate analysis, DQ REM status was significantly associated with an increased risk of CLAD (HR 1.78, 95% CI 1.06-2.98, p=0.03). In multivariate analysis, DQ REM status was significantly associated with an increased risk of CLAD after adjustment for native lung disease (HR 1.85, 95% CI 1.10-3.12, p=0.02). There was a significant difference in the cumulative incidence of CLAD based on DQ REM status p= 0.03 [Figure 1].

Conclusion: DQ REM status was significantly associated CLAD free survival. Avoidance of DQ REM at the time of transplant, represents a possible strategy to reduce early onset CLAD. However, transplantation across DQ REM may be an acceptable strategy for urgent recipients. Figure 1. Cumulative incidence of CLAD in bilateral lung transplant recipients based on DQ REM status. Curves compared using the Log Rank test.

Cumulative Chronic Lung Allograft Dysfunction (CLAD) incidence based on DQ REM Status



Abstract No. 6

MATERNAL CHARACTERISTICS AND BIRTH OUTCOMES FOR MOTHERS AFTER KIDNEY TRANSPLANTATION: AN ANALYSIS OF LINKED ANZDATA REGISTRY AND PERINATAL DATASETS OVER 22 YEARS

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Aims: We aimed to determine the perinatal outcomes in transplanted mothers compared to births in dialysed mothers, births occurring before a mother started any kidney replacement therapy (before-KRT), and mothers who never received KRT (non-KRT).

Methods: The Australia and New Zealand Dialysis and Transplant Registry (ANZDATA) was linked to perinatal datasets (which capture all births ≥20 weeks gestation) in SA, WA, ACT and NSW from 1991-2013. **Results:** We analysed 2,948,084 births (1,628,181 mothers) representing ~50% of all births in Australia during 1991-2013 (Table 1). Transplanted mothers were older compared to others and had higher rates of pre-existing diabetes and hypertension than the non-KRT cohort. A higher proportion of transplanted mothers underwent caesarean sections than non-KRT cohort, similar to dialysis and before-KRT cohorts. Transplanted mothers had similar proportion of livebirths compared to before-KRT cohort, higher than in dialysed mothers and lower than the non-KRT cohort, and a large proportion of babies were admitted to neonatal intensive care unit or special care nursery. Babies born to mothers receiving KRT had lower gestational age and birthweight. These babies had lower APGAR scores, needed resuscitation, and stayed longer in the hospital.

Conclusions: The incidence of maternal comorbidities, adverse pregnancy and birth outcomes remain as major concerns for transplanted women. The novelty of the findings was the fact that birth outcomes in transplanted mothers were similar to that of before-KRT cohort. These findings will underpin the evidence-base for parenthood planning, decision-making and care for women who are considering or faced with parenthood, with kidney transplantation.

Table 1: Maternal characteristics and birth outcomes for mothers according to KRT status at birth

Maternal characteristics and birth outcomes	**Non-KRT** **n=2,946,640 babies** **n=1,628,032 mothers**	**Before-KRT** **n= 1196 babies** **n=761 mothers**	**Dialysis** **n=37 babies** **n=31 mothers**	**Transplant** **n=211 babies** **n=137 mothers**	**p-value**
Maternal age, years, median (IQR)	30.0 (26.0-33.7)	29.0 (24.4-33.3)	30.4 (26.0-34.1)	33.0 (29.6-36.0)	<0.001
Pre-existing diabetes, n (%)	15,681 (0.6)	169 (15.5)	4 (11.1)	9 (4.8)	<0.001
Pre-existing hypertension, n (%)	26,449 (1.1)	166 (15.2)	15 (41.7)	46 (24.5)	<0.001
Caesarean section, n (%)	790,612 (43.7)	546 (63.1)	24 (75.0)	135 (73.0)	<0.001
Birth status, n (%)					<0.001
Livebirth	2,926,962 (99.4)	1147 (96.1)	35 (94.6)	204 (96.7)	
Stillbirth	18,564 (0.6)	47 (3.9)	2 (5.4)	7 (3.3)	
NICU/SCN	371,764 (14.6)	458 (42.2)	24 (66.7)	96 (49.7)	<0.001

admission, n (%)					
Neonatal death, n (%)	11,601 (0.4)	29 (2.4)	4 (10.8)	6 (2.8)	<0.001
Gestational age, weeks, median (IQR)	39 (38-40)	38 (35-39)	34 (31-35)	36 (33-38)	<0.001
Birthweight, grams, median (IQR)	3400 (3052-3730)	2960 (2240-3420)	2008 (1540-2440)	2580 (1910-3055)	<0.001
APGAR score 1 min					<0.001
≥7 (normal)	2,596,888 (88.4)	861 (73.2)	23 (63.9)	145 (69.1)	
<7 (low)	340,226 (11.6)	316 (26.9)	13 (36.1)	65 (31.0)	
APGAR score 5 min					<0.001
≥7 (normal)	2,875,768 (97.9)	1,082 (92.3)	31 (86.1)	185 (88.1)	
<7 (low)	60,592 (2.1)	90 (7.7)	5 (13.9)	25 (11.9)	
Needed resuscitation, n (%)	946,102 (37.4)	461 (54.6)	17 (58.6)	87 (52.4)	<0.001
Hospital length of stay for baby, days, median (IQR)	4 (2-5)	6 (4-15)	20 (6-29)	6 (5-18)	<0.001

Abbreviations: KRT, Kidney Replacement Therapy; NICU, neonatal intensive care unit; SCN, special care nursery; IQR, interquartile range; APGAR, appearance, pulse, grimace, activity and respiration score.

Abstract No. 7

DEFINING DONOR IN SITU ISCHAEMIC TIME (DISIT) AND ITS IMPACT ON KIDNEY ALLOGRAFT FUNCTION

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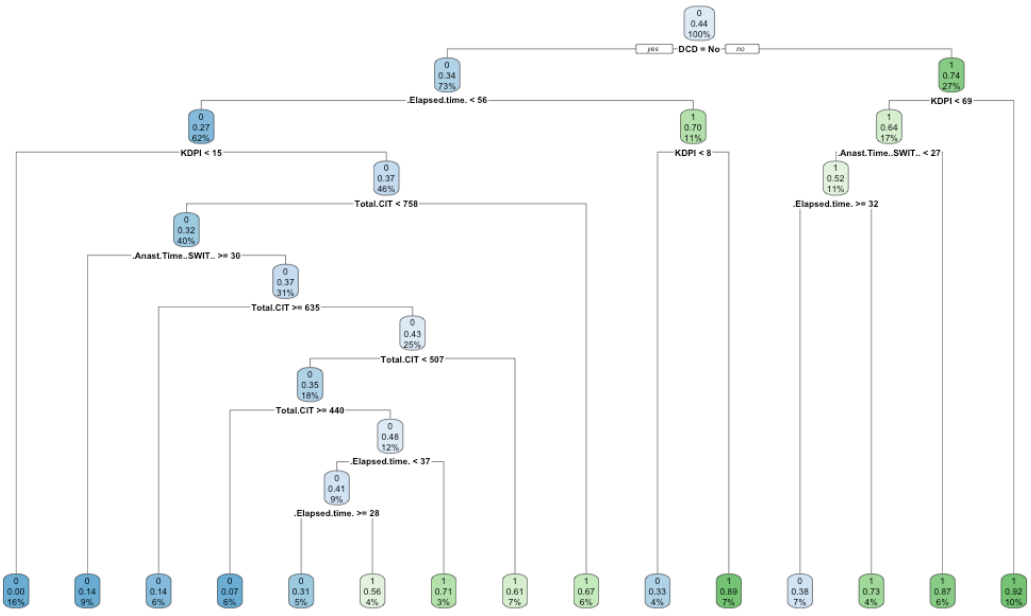
Background: Multiple factors influence allograft outcomes such as kidney quality (KDPI), first warm ischaemia time (WIT) in DCD donors and anastomosis time (SWIT) in the recipient. We looked at 246 consecutive renal transplants at a single centre to study the effect of these factors in conjunction with an additional factor which we have termed the Donor Insitu Ischaemic Time (DISIT). DISIT is a new definition which has been used to describe the time from commencement of cold perfusion in the donor until the organ is removed from the body and placed on ice. The authors hypothesised that this time is another potential ischaemic period, until cellular metabolism has been fully arrested when placed on ice.

Methods: A retrospective analysis on a single centre data set containing 246 patients was conducted. The criteria for DGF was specified by patients requiring haemodialysis immediately post transplantation or having a less than 10% fall in serum creatinine in 24 hours post transplantation. A one way ANOVA was utilised to assess the correlation between DISIT and DGF.

Results: DISIT ranged from 12 minutes to 107 minutes with a mean DISIT time of 39.2 minutes. DISIT is slightly longer in in BD donors (40 mins) v DCD donors (37 minutes). DISIT time was found to be significantly correlated with the initial function of the organ (p=0.007). Further, a generalised linear model demonstrated the predictive power of DISIT time and other surgical variables on the initial outcome of the graft. These results demonstrate the importance of surgical variables on DGF.



Conclusion: Surgeons need to be aware of the impact of DISIT on renal allograft outcomes and the effect of the additional ischaemic injury period. Our further aims are to analyse longer term graft function and evaluation of protocol biopsy to analyse the effect of DISIT on kidney injury and recipient outcomes.

Abstract No. 8

AUSTRALIAN EXPERIENCE WITH TOTAL PANCREATECTOMY WITH AUTO ISLET CELL TRANSPLANT (TP-IAT) TO TREAT CHRONIC PANCREATITIS

BAMPTON T[1], DROGEMULLER C[2], JANE H[3], LYLE P[4], KAY T[5], PLEASS H[6], CHEN J[1], COATES T[2]

[1]Royal Adelaide Hospital, [2]Central Northern Adelaide Renal and Transplantation Service, Royal Adelaide Hospital, [3]Westmead Millennium Institute, Westmead Hospital, Sydney, [4]School of Public Health, University of Adelaide, [5]St Vincent's Institute, Melbourne, [6]Westmead Hospital, Sydney

Introduction: Total pancreatectomy with Islet Auto Transplantation (TP-IAT) is a novel procedure used to treat chronic pancreatitis. The primary indication for TP-IAT is relief from intractable pain. The procedure involves surgical removal of the chronically inflamed pancreas with subsequent islet cell isolation and re-infusion into the liver. TP-IAT was first performed in Australia in 2010 at Westmead Hospital in Sydney.

Aims: To describe the clinical outcomes of TP-IAT in Australia.

Methods: Individuals selected for TP-IAT surgery according to Minnesota Criteria without evidence of diabetes were evaluated including time to transplantation from pancreatectomy, islet numbers infused, and post transplantation HbA1c, C-peptide, total daily insulin, and analgesic requirement.

Results: Sixteen individuals underwent TP-IAT from Australia and New Zealand between 2010 and 2020. Two recipients are deceased. Median Islet Equivalents (IEQ) /kg infused was 4244 [IQR = 2290 – 7300] Median C-peptide one month post TPIAT 384 [IQR = 210 – 579] pmol/L and at median 29.5 [IQR = 14.5 – 46.5] months from transplant was 395 [IQR = 139 – 862] pmol/L. Insulin independence was achieved in 8/15 (53.3%) of surviving recipients. A higher IEQ transplanted was most strongly associated with the likelihood of insulin independence (Pandgt;0.05). 14 of 15 surviving recipients demonstrated substantial reduction in analgesic requirement.

Conclusion: The TP-IAT program in Australia has been a successful new therapy for the management of individuals with hereditary pancreatitis and chronic pancreatitis refractory to medical treatment to improve pain management with 50% insulin independence rates.

Donation and Allocation

Abstract No. 9

HEALTH SERVICE UTILISATION AFTER ORGAN DONATION AMONG LIVING DONORS IN NSW, AUSTRALIA: THE SAFE-BOD DATA LINKAGE STUDY

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[1]School of Public Health, University of Sydney, [2]School of Medicine, Faculty of Health Sciences, University of Sydney, [3]Department of Surgery Westmead Hospital, Sydney, Brisbane, [4]ANZDATA

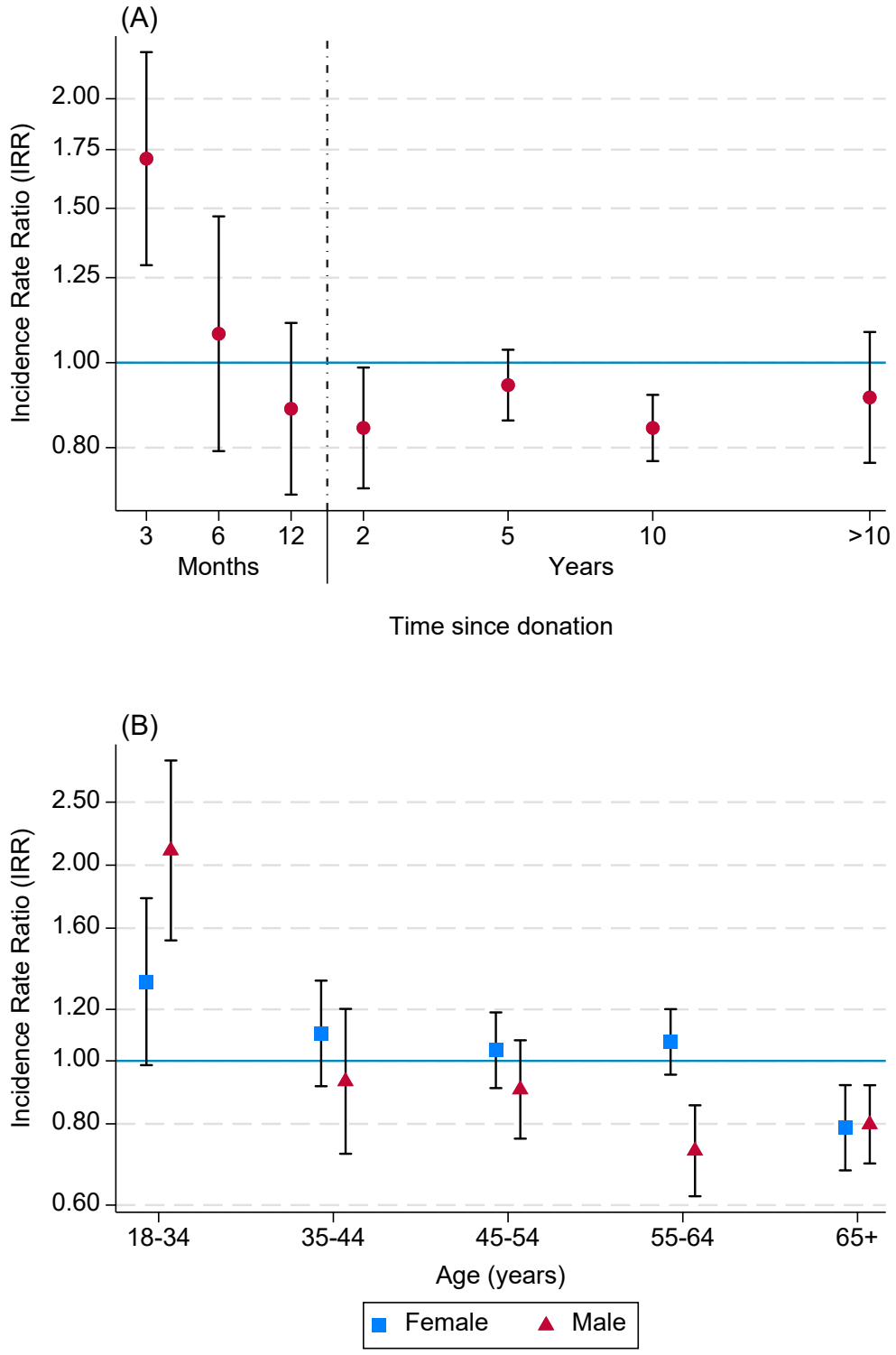
Aims: Living organ donation does not impact survival however, the lived experience and health utilisation of donors after donation is less understood. We sought to evaluate hospital admissions among living donors following donation.

Methods: We included all solid-organ living donors who donated in NSW, 2004-2015, using the NSW Biovigilance Public Health Register (SAFEBOD), linking donors and recipients to administrative health databases. We evaluated all hospitalisations after donation and estimated incidence rate ratios (IRR) relative to hospitalisation rates in the NSW general population, adjusting for age, sex and year.

Results: Of 966 living donors, 99% donated a kidney and median age at donation was 48 years. Hospitalisation for organ donation was <5days for most (65%) and 5-9days for one-third of donors, with only 2% in hospital for ≥10days. Over the 7,470 person-years follow-up post-donation (median 8.0 years), there were 13 deaths and 2,745 hospitalisations including 1,393 emergency presentations. Relative to the general population, hospitalisation rates were 70% higher than expected in the first 3 months post-donation (IRR:1.71; 95%CI: 1.29-2.26) and, at any given time, were twice that expected for males aged 18-34 years (IRR:2.11; 95%CI:1.53-2.90). Hospitalisation rates were similar or lower than expected for donors who were female, aged ≥35 years or after 3 months post-donation (Figure1). No excess hospitalisations were seen over calendar period.

Conclusions: Hospital utilisation was greater than expected among young men and <3 months post-donation. After 3 months post-donation, living organ donors did not have increased hospital use, supporting the safety of live organ donation.

Figure 1. Hospital re-admissions among living donors over: (A) time since donation; and (B) age (years)



Abstract No. 10

THE IMPACT OF VICTORIAN KEY PERFORMANCE INDICATORS (KPIS) ON WAIT LISTING FOR KIDNEY TRANSPLANTATION FOR INDIGENOUS AND NON-INDIGENOUS PATIENTS STARTING DIALYSIS.

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[1]Department of Nephrology, St Vincent's Hospital, Melbourne, [2]Renal and Pancreas Transplantation Unit, Monash Medical Centre, Melbourne, [3]ANZDATA, ANZDATA, [4]Central Northern Adelaide Renal and Transplantation Service, ANZDATA

Background: In 2007 Victorian Health Department introduced reportable KPI for patients starting dialysis aged 18-65 years with target of 30% and 40% of patients active for transplant by 3 and 6 months.

Aims: To determine if the existence of this KPI influenced timeliness of kidney transplant work-up for Victorians and if any benefit extended to Indigenous Australians.

Methods: The dialysis start date and date of 1st listing for transplantation for all patients aged between 18-65 years from 2007-2018 was extracted from ANZDATA. Median time to WL and or Tx and percentage of patients WL or Tx at 3, 6 and 12 months was calculated for four, two yearly cohorts.

Results: Of 17616 (16.2% Indigenous) patients starting dialysis, 6327 (4.9% Indigenous) were listed for Tx. A higher proportion of both Victorian Indigenous and non-Indigenous patients were on W/L compared to Non-Victorian Groups (Table). For 2007-2009 cohort proportion of patients on W/L at 3, 6 and 12 months was similar between Victorian and non-Victorian groups. From 2009 onwards there was a progressive improvement for Victorian patients to 2016-2018 compared to non-Victorian patients (Table). There was no significant change for non-Victorian patients on W/L at 3, 6 and 12 months over the eight-year study period.

Conclusion: Victorian KPI were associated with a progressive reduction in median time to W/L and greater proportion of dialysis patients on W/L. Indigenous Victorians appear to have also benefited but to a lesser degree and over a greater time-period. Consideration should be given to establishing National KPI's.Table: Proportion of patients starting dialysis and active on Kidney Tx waiting list (W/L).

Patient group	Proportion starting dialysis 2007-2018 andamp; Kidney Tx waiting list (%)	Median time to W/L 2007-2009;2016-2018 cohorts (months)	Percentage on W/L by 3 months 2007-2009;2016-2018 cohorts (%)	Percentage on W/L by 6 months 2007-2009;2016-2018 cohorts (%)	Percentage on W/L by 12 months 2007-2009:2016-2018 cohorts (%)
Victoria non-Indigenous	47	12:4.2	6.6:15.3	12:23.6	23.5:32.3
Victoria Indigenous	27	43:7.1	0:4.2	0:4.2	6.7:12.5
Australia non-Indigenous	38	10.4:6.5	7.7:7.8	13.6:12.5	23.9:20.5
Australia Indigenous	10	27:14.9	1.1:0.1	1.6:0.5	4.9:1.9

Abstract No. 11

CANCER TRANSMISSIONS AND NON-TRANSMISSIONS FROM SOLID ORGAN TRANSPLANTATION: A NSW COHORT STUDY

HEDLEY J, WALLER K, THOMSON I, DE LA MATA N, ROSALES B, WYBURN K, KELLY P, WEBSTER A

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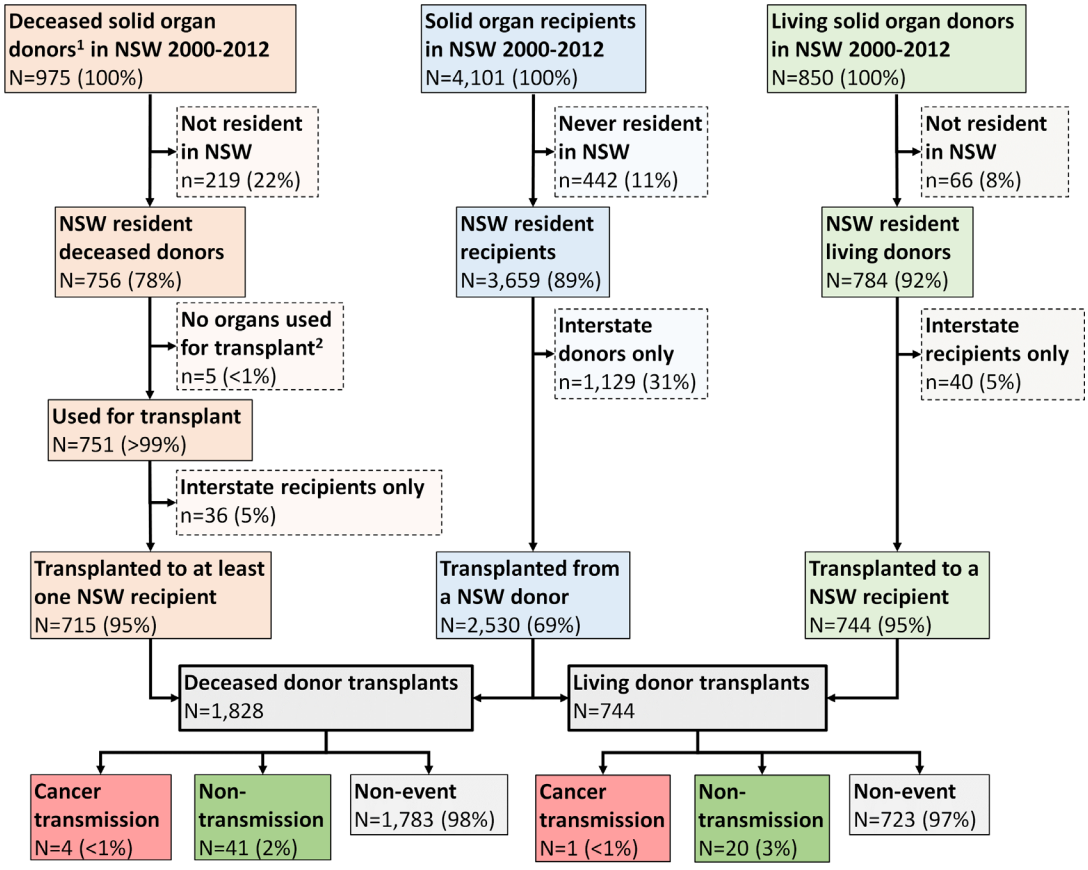
Aims: Large-scale studies of cancer transmission from donors to recipients are sparse. We sought to identify any cases of cancer transmission or non-transmission from transplantation in a cohort of NSW donors and recipients.

Methods: We included all NSW resident solid organ donors and recipients from 2000-2012 in a cohort study using linked data from the NSW Biovigilance Public Health Register (SAFEBOD). Linked data from the Central Cancer Registry (CCR) was available to 2013 (minimum one-year follow-up). Donor-recipient pairs (transplants) were classified as having likely, possible, or excluded transmission events using international guidelines. Non-transmissions were recipients with transmission excluded, but where the donor either had a cancer history in the CCR or a possible/likely transmission to another recipient. All other transplants were non-events.

Results: In our cohort 2,530 recipients underwent 2,572 transplants, 1,828 (71%) deceased donor and 744 (29%) living. We found 4 (andlt;1%) transmissions from deceased donors (2 likely, 2 possible), and 1 (andlt;1%) possible transmission from a living donor (Figure 1). Four transmissions were from donor kidney cancers found and excised during retrieval, while one was a family reported cancer of unknown site that could not be verified in the CCR. The 4 deceased donors involved in transmissions donated to 10 recipients with 4 transmissions and 6 non-transmissions. Overall, 61 (2%) non-transmissions occurred (55 with donor cancer history, 6 from donors who transmitted to a different recipient).

Conclusions: Cancer transmission from transplantation is rare, and donors with a cancer history may be safe to transplant.

Figure 1: Flowchart of donors and recipients included in the study cohort, and cancer transmission and non-transmission events



[1] Actual donors (commenced organ retrieval)

[2] Donor discard rate. Includes organs not retrieved, and organs discarded

Abstract No. 12

VERIFICATION OF SUSPECTED MELANOMAS IN DECEASED ORGAN DONOR REFERRALS: A POPULATION-BASED COHORT STUDY USING DATA-LINKAGE, 2010-2015

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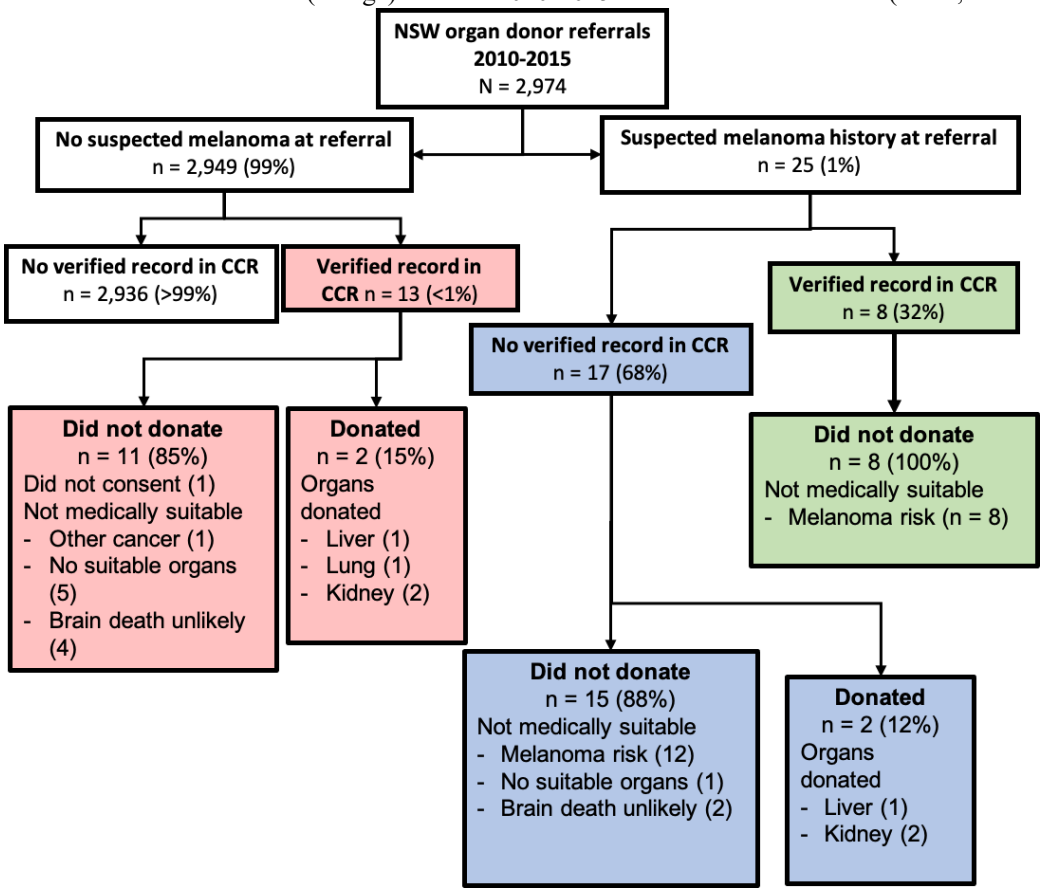
Aims: Deceased donor assessment is time-sensitive and medical history often relies on imperfect information. Misclassification of skin cancers at referral may lead to missed opportunities in organ donation or harm. We sought to compare melanoma history suspected at referral with cancer records.

Methods: For all deceased-donor referrals in NSW, 2010-2015, we linked Organ and Tissue Donation Service (OTDS) logs with the Central Cancer Registry (CCR), reporting cancers notified in NSW, 1976-2013, including in-situ melanomas. We compared suspected melanoma in OTDS referrals with verified melanoma notifications in CCR. Melanoma (C43) and melanoma in-situ (D03) were identified using ICD-10-AM. Suspected and verified melanomas were compared and cross-tabulated against donation outcomes.

Results: Of 2, 974 referrals, 25(andlt;1%) had suspected melanoma (Figure 1). Of these, only 8/25 (32%) were registered as melanomas in CCR. None of these referrals proceeded to donation. There were thus 17/25 (68%) suspected melanomas with no matching CCR record. Of these, 12/17 were declined as donors for melanoma risk alone but could have safely donated. Acceptance of these donors would have increased the 2010-2015 donor pool by 2%. Additionally, 13/2,949 (andlt;1%) referrals not suspected to have had melanomas by OTDS had verified melanoma recorded in CCR). Of these, 2/13 donated at least 1 solid organ; both donors had in-situ melanomas, with no evidence of transmission to recipients (median follow-up 14 years; IQR12.3-15.3). **Conclusion:** Including CCR records in the donor referral process may aid in melanoma risk classification at the time of donation and identify more opportunities for donation.

Figure 1. Organ donor referrals suspected of melanoma which were verified (green), unverified (blue) or unknown at the time of donor referral (orange) in NSW 2010-2015 with donation outcomes. (NSW, New South Wales)



T Cell Biology

Abstract No. 13

PD-L1/PD-1 INTERACTIONS ARE CRITICAL FOR TOLERANCE INDUCTION IN PRIMED SKIN GRAFT RECIPIENTS FOLLOWING LIVER-DIRECTED MHC CLASS I GENE TRANSFER

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Background: Transduction of C57BL/6 hepatocytes with donor MHC class I results in tolerance to subsequent skin grafts expressing the same mismatched allomorph. C57BL/6 (H-2^b) $CD8^+$ T cells encountering H-$2K^d$ in the liver express high levels of PD-1[1]. We aimed to determine whether PD-L1/PD-1 axis contributes to resolution of inflammation and investigate the contribution other coinhibitory molecules TIM3 and TIGIT may have towards tolerance induction.

Methods: Naïve or primed C57BL/6 or PD-L1 KO mice (both H-2^b) were inoculated with AAV-K^d $5x10^{11}$ vgc and samples collected for biochemistry, immunostaining and flow cytometry. Mice were challenged with B6.Kd skin grafts d7 post inoculation with AAV-K^d alone, or in combination with twice weekly administration of anti-TIM3, anti-TIGIT or isotype control antibodies post AAV-K^d administration.

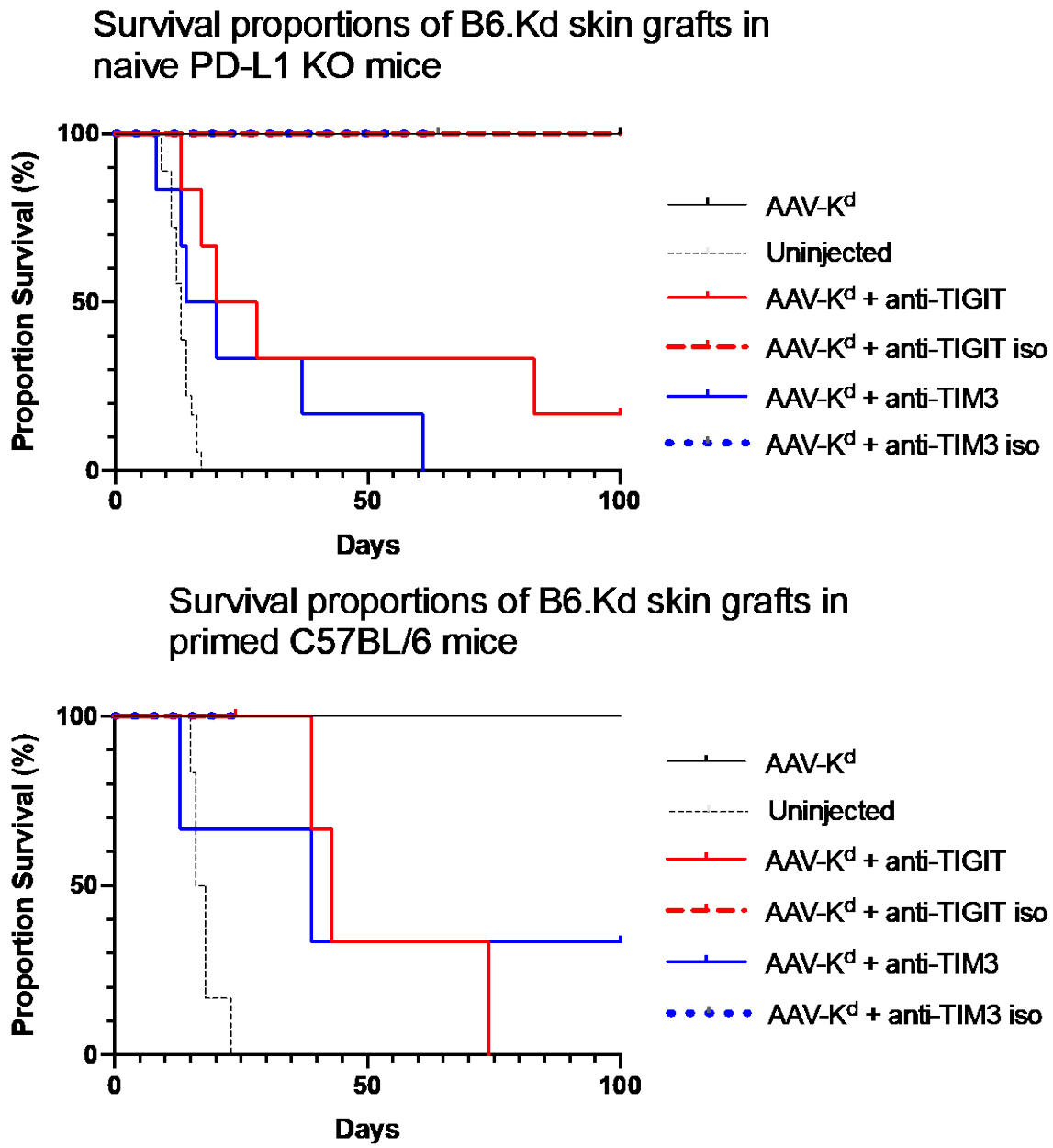
Results: Liver ALT levels and morphology remained normal in AAV-K^d -treated naïve C57BL/6 and PD-L1 KO mice. K^d expression was near maximal by d7 persisting though d28 post inoculation. In primed C57BL/6 mice ALT peaked on d7 (269 ± 18.8 IU/L) before returning to baseline levels by d28. K^d expression reflected that in naïve mice. Severe widespread inflammation was seen in primed PD-L1 deficient mice. ALT levels peaked on d7 (1364 ± 273.6 IU/L), with marked elevation of $CD4^+$ and $CD8^+$ T cells. K^d expression was rapidly lost by d28 post inoculation.

Untreated C57BL/6 and PD-L1 KO mice all rejected B6.Kd skin grafts. Tolerance to B6.Kd skin grafts was achieved in all AAV-K^d treated naïve C57BL/6 and PD-L1 KO mice, and in C57BL/6 mice primed by rejection of a K^d-bearing skin graft. In PD-L1 KO mice, concurrent blockade of TIM3 after AAV-K^d resulted in abrogation of tolerance (MST 17 days) and concurrent TIGIT blockade resulted in 1 of 6 grafts surviving indefinitely. In primed C57BL/6 mice, blockade of TIM3 after AAV-K^d resulted in 1 of 3 recipients achieving indefinite survival, and TIGIT blockade resulted in abrogation of tolerance (MST 43 days).

Primed PD-L1 KO mice receiving AAV-K^d rejected B6.Kd skin grafts with rapid tempo (MST 9.5 days).

Conclusions: The PD-L1/PD-1 axis is dispensable for control of inflammation and tolerance induction after AAV-K^d inoculation in naïve mice, presumably because of the redundancy of co-inhibitory pathways. Blockade of these co-inhibitory pathways resulted disrupted tolerance induction and resulted in incomplete tolerance induction or complete abrogation of tolerance.

1 - Paul-Heng M, Leong M, Cunningham E, Bunker DLJ, Bremner K, Wang Z, et al. Direct recognition of hepatocyte-expressed MHC class I alloantigens is required for tolerance induction. *JCI Insight.* 2018;3(15).


Survival proportions of B6.Kd skin grafts in naive PD-L1 KO mice
Proportion Survival (%)
100
50
0
0
50
100
Days
AAV-Kd
Uninjected
AAV-Kd + anti-TIGIT
AAV-Kd + anti-TIGIT iso
AAV-Kd + anti-TIM3
AAV-Kd + anti-TIM3 iso
Survival proportions of B6.Kd skin grafts in primed C57BL/6 mice
Proportion Survival (%)
100
50
0
0
50
100
Days
AAV-Kd
Uninjected
AAV-Kd + anti-TIGIT
AAV-Kd + anti-TIGIT iso
AAV-Kd + anti-TIM3
AAV-Kd + anti-TIM3 iso

Abstract No. 14

DETERMINING THE TCR REPERTOIRE IN DIRECT PMHC ALLORECOGNITION BY CD8$^+$ T CELLS

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[1]Transplantation Immunobiology Group, University of Sydney, [2]Monash Biomedicine Discovery Institute, Monash University, [3]Department of Biochemistry and Molecular Biology, Monash University

Aims: We have recently identified over 40 H-2K^b-peptide epitopes that are directly recognised by CD8$^+$ T cells from allogeneic B10.BR (H-2^k) or BALB/c (H-2^d) mice. Some "super-epitopes" are strongly recognised by T cells from both strains. Here, we aimed to characterise the T cell receptor (TCR) repertoire responding to these epitopes.
Methods: B10.BR or BALB/c mice were primed with a K^b-bearing skin graft, and boosted by inoculation with AAV-K^b. Single-cell index sorting was followed by multiplex nested PCR and sequencing of PCR products. The TCR sequences from dextramer-positive and PD-1$^-$ bystander populations were compared. Results for K^b-SNYLFTKL are described.
Results: 5-7 dominant clonotypes each representing between 4.2 and 26.7% of TCRs were found in the dextramer-positive cells from both B10.BR and BALB/c mice, while no clonal expansion was detected in the PD-1$^-$ cells from either strain. Among the dominant clonotypes, 85.8% of B10.BR clones and 60.1% of BALB/c clones used the TRBV13-2 segment, and strong pairing preferences were observed, with B10.BR cells using mainly TRAV14-1 or TRAV16D/DV11 in combination with TRBV13-2, while BALB/c cells principally used TRAV12D-2 or TRAV16D/DV11 in conjunction with TRBV13-2. Despite the pairing of TRAV16D/DV11 – TRBV13-2 being utilised by both B10.BR and BALB/c, only one CDR3b sequence was common to clones from the two strains.
Conclusions: A limited number of dominant clonotypes are present within the T cell populations recognising K^b-SNYLFTKL. Biophysical and structural studies of these and additional receptor-ligand pairs will enhance our understanding of the basis for alloreactivity.

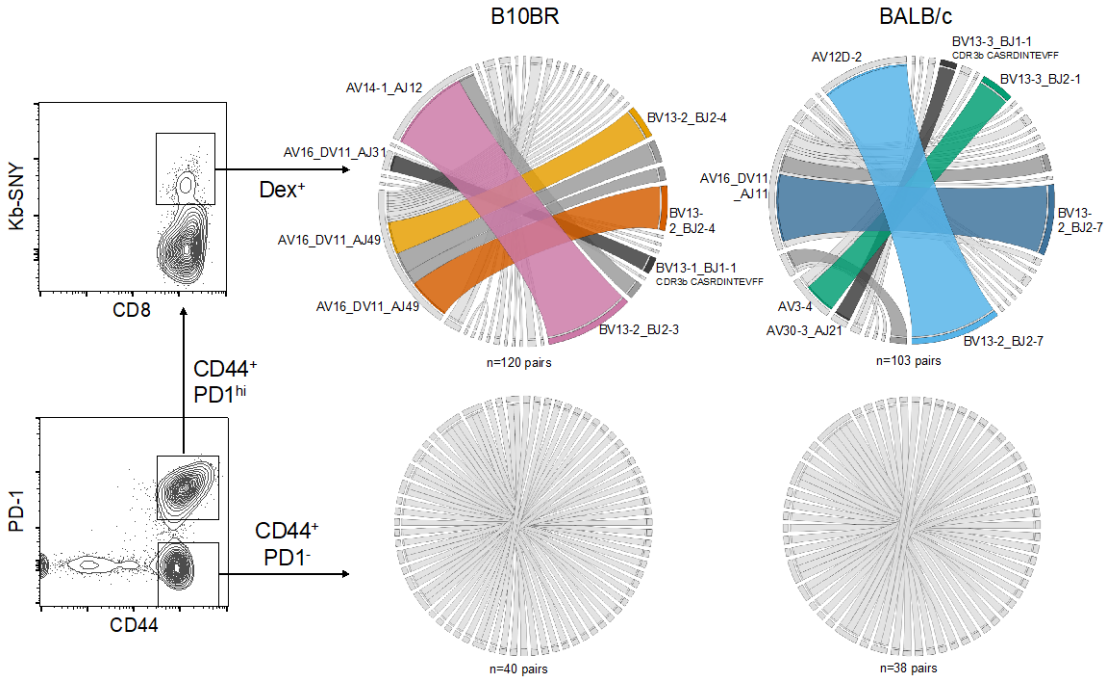

Figure 1. Dominant clonotypes were discovered within the activated (CD44$^+$PD1^{hi}) K$^{b\text{-}SNYLFTKL}$ Dex$^+$ CD8$^+$ T cell populations from both B10.BR and BALB/c mice, indicated in shading. Clone with common CDR3b region shown in black shading. By comparison, no clonal expansion was present in the PD1$^-$ cells.

Abstract No. 15

PURINERGIC SIGNALLING IN A HUMANISED MOUSE MODEL OF GRAFT-VERSUS-HOST DISEASE (GVHD)

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Background: Graft-versus-host disease (GVHD) remains a major complication of blood cancer treatment, following donor stem cell transplantation. The purinergic signalling pathway has been shown to play a role in GVHD development.
Aim: To investigate further the purinergic signalling system using a humanised mouse model of GVHD.
Methods: NOD-SCID-IL2Rγ^{null} (NSG) mice were injected intraperitoneally (i.p) with 10×10^6 human (h) peripheral blood mononuclear cells (PBMCs), and assessed for human cell engraftment by flow cytometry, and clinical signs of GVHD by weight loss, clinical scoring, and histology.
Results: NSG mice show engraftment of hCD45+ leukocytes predominately hCD4+ and hCD8+ T cells as early as Day 21. From Week 4, mice display signs of clinical GVHD, production of circulating human cytokines, increased murine P2rx7 and P2rx4 expression in GVHD tissues, and histological evidence of GVHD at endpoint (Day 70). Studies of humanised mice in which roles for purinergic molecules were established were as follows. Injection of the CD39/CD73 antagonist, α,β-methylene ATP (APCP), which potentially increases extracellular ATP, increased weight loss and liver GVHD. In contrast, injection of the P2X7 antagonist, Brilliant Blue G (BBG), decreased weight loss and liver GVHD. Unexpectedly, injection of PBMCs from human donors encoding an *ENTPD1* (CD39) polymorphism, which increases the proportion of CD39+ T regulatory cells, worsened GVHD.
Conclusion: These studies support an important role for purinergic signalling in the development of GVHD, and this humanised mouse model affords the opportunity to investigate targeting this pathway to further understand its role in GVHD development.

Abstract No. 16

DONOR LYMPHOCYTES ARE RETAINED IN TISSUE MISMATCH BUT NOT MHC MISMATCH TRANSPLANTATION

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Background: During solid organ transplantation, donor tissue-resident leucocytes are transferred along with the organ itself, which has implications for the post-transplantation immune response. Currently, human liver transplant recipients are not major histocompatibility complex (MHC) or tissue matched to donors, and despite immunosuppression up to 30% of livers are rejected within ten years.
Aim: Our aim was to investigate the immune response to transplantation between donors and recipients with different levels of MHC and tissue mismatch.
Methods: We performed orthotopic liver transplants in mice to examine the immune response. We used two models; a haploidentical model (donor and recipient mice shared 50% of their MHC) and a minor histocompatibility antigen mismatch model (complete MHC match but expressed different tissue antigens). Leucocytes were isolated from the graft liver and recipient tissues post-transplantation and assessed by flow cytometry.
Results: In both models, donor lymphocyte numbers in the graft were reduced within the first day post-transplantation and were detectable in recipient tissues. Simultaneously, recipient lymphocytes infiltrated the graft and developed a resident phenotype. In the haploidentical model all donor lymphocytes were depleted by day 7 post-transplantation. In contrast, in the tissue mismatch model, donor CD4, CD8 and NK cells were retained in the graft and recipient tissue. Interestingly, all donor regulatory T cells were depleted by day 7.
Conclusions: These data demonstrate key differences in immune response to variations in tissue and MHC mismatch in transplantation in the absence of immunosuppression. These findings may help us to better target immunosuppression post-transplantation in organ recipients

Outcomes and Complications#2

Abstract No. 17

PATIENT DYNAMICS ACROSS A LIFESPAN OF KIDNEY WAITLISTING AND TRANSPLANTATION: AN AUSTRALIAN COHORT STUDY

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Aims: To achieve a cadaveric kidney transplant requires the recipient to first be put on the waiting list. Individual patient transitions on and off the waiting list are not well described. We aimed to describe progression from waitlist to subsequent clinical states, regardless of receiving a transplant or not, over an individual's lifespan.

Methods: We included all incident patients waitlisted for kidney transplant in Australia, 2006-2016, using ANZDATA. We described transitions from waitlist entry to transplant, off-waitlist, continued waiting or death during follow-up. We calculated median time in these transition states by number of times off-waitlist. Demographic and clinical factors were summarised by time off-waitlist.

Results: Of 8,867 patients who entered the kidney waitlist, 6,704 (76%) received a transplant, 1,573 (18%) had not been transplanted, and 590 (7%) died without receiving a transplant. 3,798 (43%) patients were off-waitlist at least once before receiving a transplant. Median time from waitlist to transplant increased with number of times off-waitlist, from 0.6 years (IQR:0.2-1.5) in patients never off-waitlist to 3.6 years (IQR:2.2-5.5) in patients with ≥3 times off-waitlist. Patients who spent ≥2 years off-waitlist had more comorbidities, and were more likely to be Aboriginal Australian and Torres Strait Islander (8% vs 5%) and have diabetic kidney disease (25% vs 17%).

Conclusions: The individual experience on transplant waiting list was not straightforward, where many patients were off-waitlist at least once and had longer time to transplant. Patients with higher comorbidity load or from Aboriginal ≥ Torres Strait Islander backgrounds experienced longer time off-waitlist.

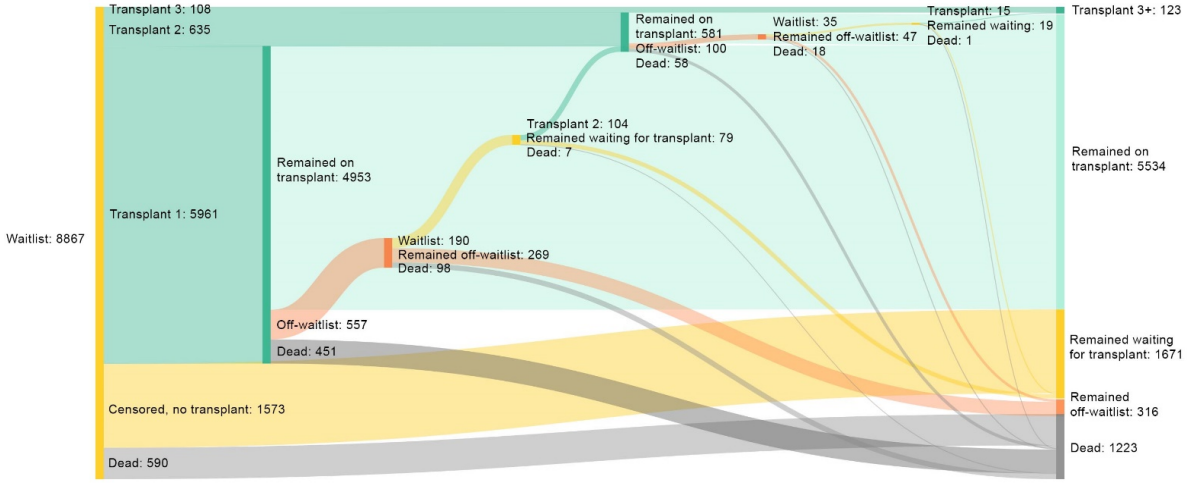

Figure 1: Transitions between treatment states from inclusion into analysis.

Abstract No. 18

ARTERIAL RECONSTRUCTION IN SPLIT LIVER TRANSPLANTATION USING INTERPOSITION GRAFTS IS SAFE AND EFFECTIVE

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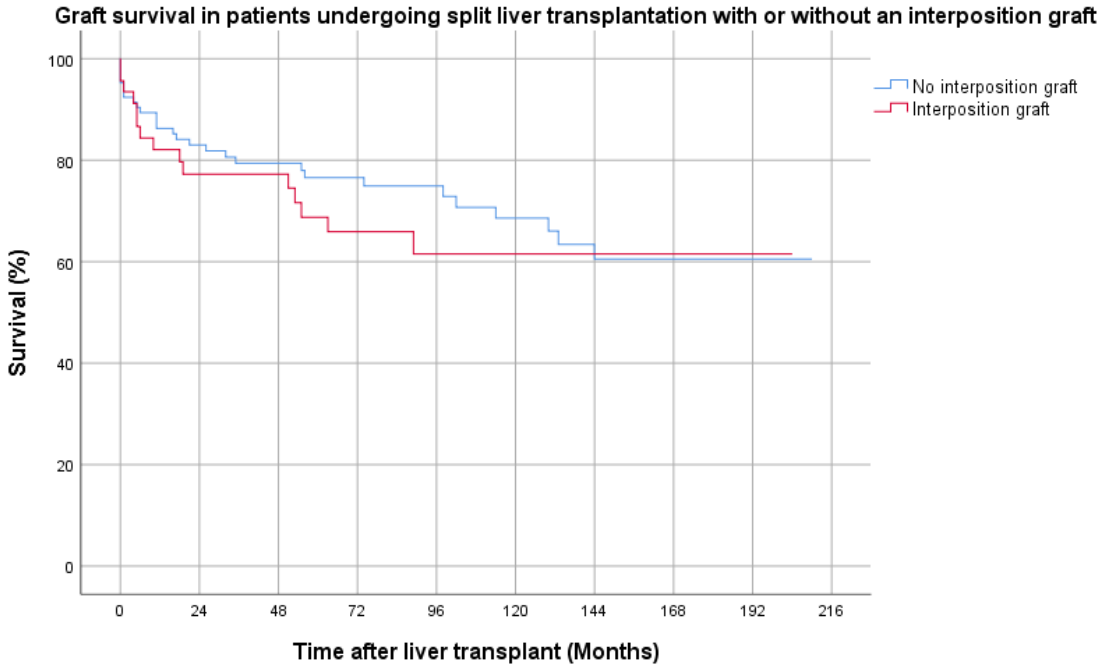
Aims: Split liver transplantation (SLT) addresses donor shortages by providing two partial grafts from a single donor liver but its use has been limited to ideal recipients due to technical challenges and a perceived increased risk profile. Arterial reconstruction using an interposition graft facilitates use of split grafts with difficult recipient anatomy but has been reported to have an increased risk of complications, and therefore remains controversial in high-risk recipients and retransplantation.

Methods: A retrospective review of the prospectively maintained Australian National Liver Transplantation Unit database was performed. We included all adults receiving a SLT between July 2002 and November 2019 and extracted donor, recipient, operative and complications data.

Results: Arterial reconstruction required an interposition graft in 46/155 patients. Overall graft and patient survival were not significantly different between the groups with 1-, 3- and 5-year graft survivals of 82%, 77% and 69% for those requiring interposition grafts and 86%, 79% and 77% for those not requiring interposition grafts respectively (Figure 1). There were more cut liver edge bile leaks in the interposition graft group (26% vs 9%), but there were no significant differences in the rate of biliary anastomotic leak (11% vs 11%) or stricture (13% vs 19%); hepatic artery thrombosis (7% vs 10%) or hepatic artery stenosis (13% vs 10%).

Conclusions: Interposition grafts when required for arterial reconstruction in SLT can be used safely and without increased risk of complications. This supports broadening the applicability of SLT to potentially include high-risk recipients and retransplantation.

Figure 1: Graft survival is not significantly different between those patients requiring an interposition graft and those not requiring an interposition graft during split liver transplantation.



Abstract No. 19

THE EFFECT OF SURGICAL CLOSURE OF HEMODIALYSIS ARTERIOVENOUS FISTULA AFTER SUCCESSFUL KIDNEY TRANSPLANTATION

MARUI Y, SHIRAI D, YAMADA R, TSUKADA H, ADACHI H, YOZA N, MATSUMURA K, USUBA W, AIDA K, HAYAKAWA N, NAKAZAWA R, SASAKI H, KIKUCHI E

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Aim: The hemodynamic burden induced by arteriovenous fistulas (AVF) may contribute the deleterious effect of left ventricular hypertrophy, which may subside by AVF closure after successful kidney transplant shown by case reports. But the influence on the kidney graft remained a matter of debate. So, we investigated the impact of the closure on the graft function after kidney transplantation.

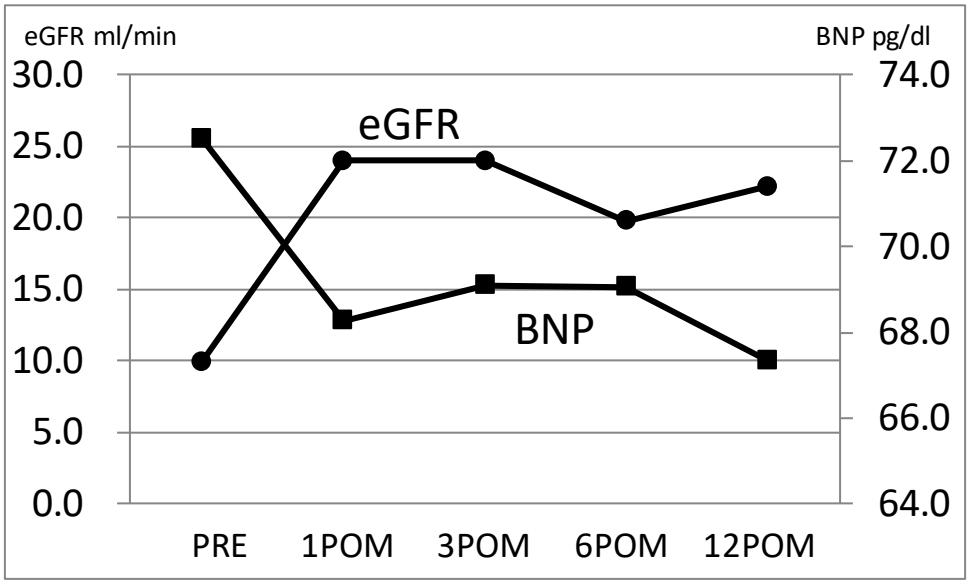
Methods: We compared changes in transplanted kidney function before and after AVF closure for 28 recipients who underwent the surgical closure between 2011 and 2018. The t-test was used for statistical examination.

Results: Patients, median age 50 years, underwent the surgical AVF closure with a median period of 28 months from kidney transplantation. Compared to the mean eGFR(ml/min) before AVF closure, which was 48.0±10.5, and the means after 1 month, 3 months, 6 months, and 1 year, which were 49.8±11.6, 50.5±11.9, 49.6±12.4 and 49.0±11.7 respectively, the graft function was significantly improved after 1 month and 3 months ($p<0.05$). In a case where the brain natriuretic peptide (BNP) was measured before and after the closure, the eGFR improved as BNP decreased. (figure)

Conclusions: The improved cardiac function possibly due to AVF closure may have had a positive impact on the kidney graft function. Given the result of an improvement trend of the graft function in the short term, with definite indications such as heart failure due to high flow AVF, painful aneurysm and aesthetic reasons, the surgical AVF closure appears to be safe and reasonable in well-functioning kidney recipients.

Figure

Change of BNP and eGFR after AVF closure



Abstract No. 20

EARLY VERSUS LATE RENAL ACUTE ANTIBODY MEDIATED REJECTION: A COMPARISON OF TREATMENT APPROACHES AND OUTCOMES IN AUSTRALIA AND NEW ZEALAND

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[1]Department of Nephrology, Monash Medical Centre, Melbourne, [2]Nephrology and Renal Transplant, Monash Medical Centre, Melbourne

Background: Antibody mediated rejection (AMR) is a major cause of renal allograft failure which appears to have different dynamics and responsiveness to treatment depending on whether it occurs early (<6 months) or late (>6 months) after transplantation.

Aim: To describe treatment approaches and response to treatment in early and late AMR in Australia and New Zealand.

Methods: Transplant characteristics were obtained for patients with an AMR episode reported to ANZDATA from Jan 2003 to Dec 2019. Comparisons were made between early and late AMR for treatments provided, response to treatment and graft (death as a competing risk) and patient survival using comparison of proportions and Cox regression models. AMR and vascular rejection were modelled with an interaction with follow-up time due to non-proportional hazards.

Results: Early AMR was treated more aggressively than late AMR with greater use of steroids, plasma exchange and monoclonal/polyclonal antibody. There was substantial variation between transplant units. Early AMR resolved with improved graft function (71%) more frequently than late (32%). From 3-months post-diagnosis, late AMR was associated with an increased risk of graft loss and death from diagnosis compared to early AMR. This association held after adjustment for multiple factors (Table 1) including eGFR at diagnosis (not shown).

Conclusion: Late AMR confers a higher risk of death and graft loss than early AMR. The heterogeneity in the treatment of AMR, particularly late AMR, across Australia and New Zealand, highlights the need for high-quality trial data and effective therapeutic options for this condition.

Variable	Sub-Hazard ratio	95% confidence interval	p-value
Late AMR (vs. early) – time post-diagnosis			
0-3 months	0.74	0.40, 1.38	0.35
3-6 months	3.59	1.48, 8.71	0.01
6-12 months	2.40	1.41, 4.08	<0.001
12-24 months	3.96	2.28, 6.90	<0.001
>24 months	2.62	1.86, 3.68	<0.001
Age at AMR (per 10-year increase)	0.77	0.69, 0.85	<0.001
Sex (male)	1.19	0.92, 1.54	0.17
Racial origin			
Caucasian	1.00	ref	
ATSI	2.59	1.55, 4.33	<0.001
Asian	0.87	0.57, 1.31	0.50
Maori	2.40	0.99, 5.82	0.05
Pacific	1.40	0.71, 2.76	0.34
Other/NR	1.16	0.58, 2.30	0.68
Vascular rejection (versus none)- time post-diagnosis			
0-3 months			
3-6 months	2.00	1.13, 3.52	0.02
6-12 months	0.85	0.27, 2.65	0.77
12-24 months	0.84	0.38, 1.83	0.66
>24 months	0.80	0.39, 1.66	0.56
Cellular rejection (versus none)	1.04	0.70, 1.56	0.83
Glomerular rejection (versus none)	1.29	1.00, 1.66	0.05
	1.52	1.16, 1.98	0.002
Peak PRA			
0-20 %	1.00	ref	
20-50 %	1.24	0.78, 1.95	0.36
50-80 %	2.51	1.62, 3.90	<0.001
>80 %	1.80	1.22, 2.64	0.003
Diabetes at AMR diagnosis	1.25	0.91, 1.72	0.17

ATSI – Aboriginal or Torres Strait Islander, NR -not reported, PRA = **panel reactive antibodyTable 1:** Multivariate Cox regression of risk of graft failure with death treated as a competing risk

Clinical; Other

Abstract No. 21

IMPLEMENTATION OF INCREASED VIRAL RISK DONOR WAITING LIST FOR PRE-CONSENTED WAITLISTED KIDNEY TRANSPLANT RECIPIENTS IN VICTORIA: TWO-YEAR DATA

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[1]Department of Nephrology, Austin Health, VIC, [2]Department of Renal Medicine, Eastern Health Clinical School, Monash University, VIC, [3]DonateLife Victoria, VIC, [4]Victorian Transplantation and Immunogenetics Service, Australian Red Cross Lifeblood, VIC, [5]Department of Infectious Diseases, Royal Melbourne Hospital, VIC, [6]NSW Organ and Tissue Donation Service, NSW, [7]Department of Renal Medicine, Alfred Hospital, VIC, [8]Department of Nephrology, Royal Children's Hospital, VIC, [9]Department of Nephrology, Royal Melbourne Hospital, VIC, [10]Department of Nephrology, Monash Health, VIC, [11]Department of Nephrology, St Vincent's Hospital Melbourne, VIC

Aims: Increased viral risk donors (IVRDs) with at-risk behaviours for blood borne virus infection and negative nucleic acid testing (NAT) have a low absolute risk of window period infection. We reviewed a new Victorian allocation system for these kidney donors to pre-consented recipients two years post-implementation.

Methods: We examined the characteristics and utilisation of IVRDs (31/07/2018-31/07/2020). Continuous data was expressed as median (IQR).

Results: Thirty-one IVRDs (56 kidneys) were utilised, comprising 13% of donors. Waitlisted recipients pre-consented to accept IVRD kidneys increased from 33% to 41% at 1 and 2 years respectively, with the non-utilisation rate reducing from 17% (3/18) to 0% (0/16). Injecting drug use (61%) was the commonest at-risk behaviour. NAT window was 3 (2-4) days. 9 (29%) IVRDs had positive HCV Ab but negative NAT. No viraemia was detected in any recipient post-transplant. 3-month eGFR (CKD-EPI) from IVRD recipients was superior compared to Victorian recipients from ANZDATA (65 (53-78) vs 57 (44-74) mL/min/1.73m^2; P<0.01). Compared with non-IVRDs, IVRDs were younger (36 (30-44) versus 51 (35-60) years; P<0.0001), with lower kidney donor profile index (KDPI) (25 (13-40) versus 57 (29-75); P<0.0001). There was a trend toward fewer declines for IVRD offers (1 (1-2) versus 2 (0-7); P=0.10), and donor offers with >10 declines were less frequent (3% versus 19%; P<0.05).

Conclusions: IVRDs represent a not insubstantial donor pool that offer kidneys of superior quality and graft function. The Victorian IVRD program efficiently allocates these kidneys. Ongoing improvements in the pre-consent rate will be important to facilitate utilisation.

Abstract No. 22

GENE EXPRESSION ANALYSIS IDENTIFIES POTENTIAL LINKS BETWEEN CYTOMEGALOVIRUS INFECTION AND CHRONIC REJECTION FOLLOWING LUNG TRANSPLANTATION

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Aims: The 10-year survival following lung transplantation is only 30-40%, largely attributed to chronic lung allograft dysfunction (CLAD). Infection with the common opportunistic pathogen, cytomegalovirus (CMV), is strongly associated with the development of CLAD, however, the underlying molecular pathways that underpin this observation is unclear. We hypothesized that CMV replication leads to the activation of distinct gene pathways, ultimately causing damage to the allograft and leading to the development of CLAD.

Methods: We utilised Nanostring technology to analyse gene expression in the bronchoalveolar lavage (BAL) from lung transplant recipients experiencing active CMV replication. RNA was extracted from BAL cells before, during and after the detection of CMV replication and evaluated using the nCounter Human Organ Transplant Panel. Results were analysed using the nSolver software.

Results: Genes upregulated during active viral infection were indicative of a strong inflammatory response. Although most returned to pre-CMV levels, several genes continued to be elevated, suggesting chronic immune activation. Interestingly, genes associated with airway remodelling, tissue damage and structural alterations associated with graft damage were also elevated during CMV. Intriguingly, genes associated with the promotion of fibrosis and graft damage continued to be upregulated even after CMV replication subsided.

Conclusions: Our data indicates that CMV induces a molecular phenotype in the lung allograft that is persistent and indicative of immune cell activation that can potentially lead to permanent tissue damage. These findings may identify early molecular markers associated with CLAD, thereby providing opportunities to offer early therapeutic interventions and improving lung transplant outcomes.

Abstract No. 23

THE EPIDEMIOLOGY OF HEREDITARY PANCREATITIS IN SOUTH AUSTRALIA

WU D[1], COATES PT[2], PALMER L[3], BAMPTON TJ[4], COUPER R[4], SCOTT H[1], CHEN J[5]

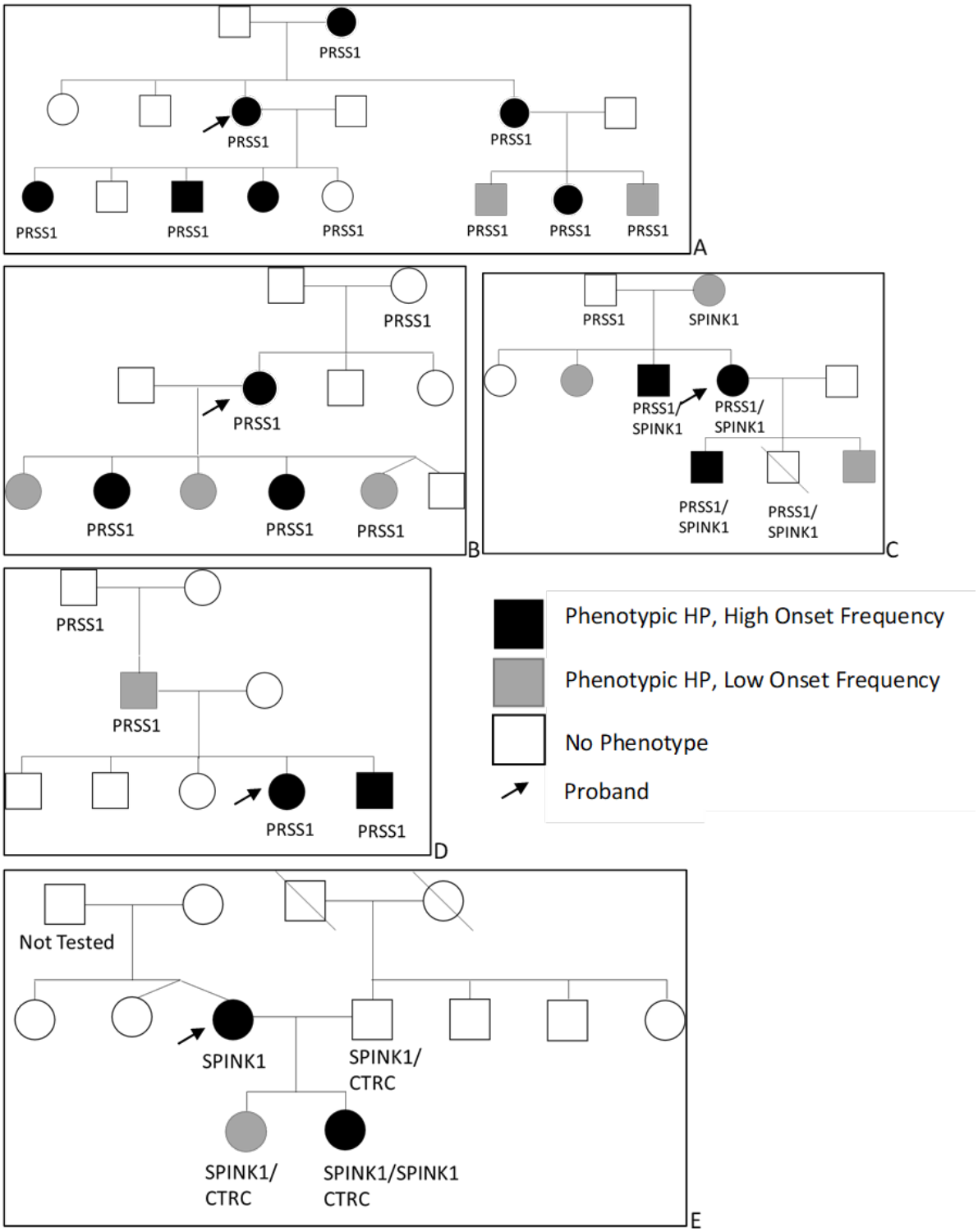
[1]School of Medicine, Faculty of Health Sciences, University of Adelaide, [2]Department of Renal Medicine, Royal Adelaide Hospital, [3]School of Public Health, University of Adelaide, [4]School of Medicine, University of Adelaide, [5]Department of Surgery, Royal Adelaide Hospital

Introduction: Hereditary Pancreatitis (HP) is a debilitating condition caused by inheritance of a variety of genetic mutations. HP results in inflammation of the pancreas from a young age, chronic abdominal pain, and dependency upon pain management opioids. Severe cases of HP are candidates for total pancreatectomy and islet auto transplant (TP-IAT) surgical treatment. This project is the first to identify Australian families suffering from HP and assess correlation between phenotypic disease outcome and genotypic variant.

Methods: Patients with HP were identified from existing hospital records and interviewed for phenotype. Salivary biosamples were obtained from patients and family members to be whole-exome-sequenced (WES) and analysed in silico using bioinformatics toolkits (GATK).

Results: A total of 5 pedigrees and 4 individual probands comprising 47 individuals were recruited for the project. 4 families possess the mutation PRSS1(3 family with R122H, 1 family with A86T). In total, 23 PRSS1 and 9 SPINK1 variant carriers across multiple generations were identified, 13 of which self-identified as Indigenous Australian. Our estimated prevalence of HP in South Australia is much higher than the value of 0.1-0.3/100,000 previously described in European populations. Bioinformatics analyses of WES genotypic data yielded three potentially pathogenic variants identified outside of known HP-associated gene: ECE1, GJA5, and SPTBN5.

Conclusions: The study described the prevalence of HP in an Australian population for the first time, highlighted the importance of utilising genetic studies to guide medical decision-making in HP, and successfully established a patient database for candidates of TP-IAT treatment.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Abstract No. 24

DUAL KIDNEY TRANSPLANTATION: TWO GOOD OR DOUBLE TROUBLE?

HANNA T, SAM T, DITTMER I, O'MAHONY K, LANGLANDS J, MUTHUKUMARASWAMY C
Auckland City Hospital, New Zealand

Introduction: Dual kidney transplantation (DKT) is an underused strategy to expand the donor pool. The literature offers no consensus on DKT allocation protocols and published outcomes following DKT are limited by selection bias. We aimed to assess our DKT protocol by comparing DKT outcomes with a matched cohort of single kidney transplants (SKT).

Methods: Between January 2015 and July 2019 all ECD kidneys were biopsied and allocated to SKT, DKT or discarded according to the histological New Zealand Kidney Score. Donor characteristics between the groups were compared and a matched cohort (1:1) of the SKT group were selected based on significant differences. Complication rates, graft function and survival were compared between the matched SKT control group and all DKTs between 2009-2019.

Results: 86 ECD kidney pairs were biopsied and allocated to either SKT- 70, DKT-10 (20 kidneys) or discarded-6 (12 kidneys). Donor age and terminal creatinine were significantly higher in the DKT group compared to the SKT group: 66.9 years vs 62.3 years; p=0.01 and 96.9µmol/L vs 74.8µmol/L; p=0.032, respectively. After matching 1:1 for both variables, 18 SKT recipients were compared to 18 DKT recipients; no significant differences in donor or recipient characteristics remained. The DKT group had significantly better graft function at one month (eGFR 53.4 vs 38.7; p=0.047) and one year (eGFR 60.5 vs 41.8; p=0.051) with no difference in complication rates, graft and patient survival.

Conclusions: DKT offers superior graft function compared to matched SKT recipients without compromising safety.

Basic Science; Other

Abstract No. 25

TITLE: INNATE IMMUNE SENSING AND TISSUE REMODELLING OF A BIODEGRADABLE TEMPERING MATRIX SUPPORTED ISLET GRAFT

WALTERS S[1], BAILEY J[1], CULTRONE D[1], ROJAS-CANALES D[2], DROGEMULLER C[2], PENKO D[2], LOUDOVARIS T[3], KAY T[3], KORBUTT G[4], CHTANOVA T[1], GREENWOOD J[5], COATES T[5], GREY S[1]

[1]Garvan Institute of Medical Research, Sydney, [2]University of Adelaide, [3]St Vincent's Hospital, Melbourne, [4]University of Alberta, [5]Royal Adelaide Hospital

The subcutaneous site represents an accessible alternative islet transplant site but suffers from poor vascularisation. Here we test a clinically proven Biodegradable-Temporising-Matrix; NovoSorb™ (IDT) repurposed from use in burn and wound treatment that may provide a platform for subcutaneous islet-transplants. IDT showed no impact on human islet viability in-vitro (Glucose-Stimulated-Insulin-Secretion). Mouse islets transplanted under the renal capsule of diabetic recipients pre-implanted with IDT resulted in complete recovery and long-term maintenance of euglycemia (>100-days). Neonatal porcine islets (NPI) transplanted with IDT showed increasing porcine insulin production through time (>300-days). Therefore IDT does not interfere with physiological function of human islets, mouse islets and NPI's. Mice were then transplanted with IDT alone to model the in-vivo foreign body reaction and assess formation of blood vessels and the tissue remodelling process (Zeiss 7MP two-photon microscope). We used transgenic (LysM-GFP+/tdTomTg) mice: blood vessels express tdTomato red and Lysozyme+ myeloid cells express GFP. At day 7 infiltrating LysM-GFP positive cells were clearly seen within the graft site with some cells showing proximity to the IDT. At day 14, LysM-GFP cell fusion events had occurred with the formation of giant cells, which appeared to be enriched along the exposed surface of the IDT. At day 30 the infiltrating cells changed to cells with dendritic appearance. Changes in cell populations accompanied tissue remodelling at the graft site. Vascular networks expressing tTomato red were further revealed by systemic infusion of Evans Blue. This allowed the visualisation of fine but scattered immature vascular networks at day 7 with dispersed loose collagen fibrils. By day 30 the vessels were characterised by increased branching and density whereas collagen increased in fibre thickness and density. This was particularly evident on the 'dorsal' face of the IDT in direct contact with the kidney parenchyma. To assess whether innate sensing of the islet graft would occur in the absence of a supportive scaffold, we transplanted islets from whole body tdTomTg mice (Tomato positive islets) into (LysM-GFP/+) mice and grafts were imaged 24 hour post transplantation. LysM-GFP positive cells were readily imaged migrating over the surface of Tomato-positive islets, and in some fields LysM-GFP positive cells were observed exhibiting neutrophil like 'swarming' behaviour with evident remodelling of Tomato-positive islet tissue. This analysis reveals a dynamic interaction between the innate immune system and both the newly engrafted islet and supportive matrix. This analysis reveals a dynamic interaction between the innate-immune system and the islet graft +/- IDT and that IDT can provide a neo-vascularization platform advantageous for subcutaneous islet transplantation.

Abstract No. 26

COMBINATIONAL THERAPY WITH POST-TRANSPLANT CYCLOPHOSPHAMIDE AND THE P2X7 ANTAGONIST BRILLIANT BLUE-G REDUCES LIVER DISEASE IN A HUMANISED MOUSE MODEL OF GRAFT-VERSUS-HOST DISEASE

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Background: Graft-versus-host disease (GVHD) is a severe and often lethal complication arising following allogenic haematopoietic stem cell transplantation. We have previously shown that treatment with post-transplant cyclophosphamide (PTCy) significantly reduces clinical signs of GVHD and extends survival in humanised mice. However, this treatment reduces regulatory T cells (Tregs). We have also demonstrated that the P2X7 antagonist Brilliant Blue G (BBG) preserves Tregs and reduces clinical disease in humanised mice. **Aim:** To investigate the combination treatment of PTCy with BBG in a humanised NOD-scid IL2Rγnull (NSG) mouse model of GVHD.
Methods: NSG mice were injected i.p. with 20 x 10^6 hPBMCs (day 0). Mice were injected (i.p.) with BBG (50 mg/kg) or saline (days 0-10) and cyclophosphamide (33 mg/kg) (days 3/4). Mice were monitored for clinical GVHD for 3 or 10 weeks. Human cell engraftment was examined by flow cytometry, and tissue damage via histology.
Results: Combination treatment with PTCy/BBG did not impact engraftment of human immune cells in NSG mice. Humanised mice treated with PTCy/BBG show slightly decreased weight loss and clinical score, compared to PTCy alone. Treatment with BBG/PTCy shows increased Tregs compared to PTCy/saline at day 21 (P=0.08), however there was no difference in Tregs at endpoint (P=0.75). Finally, combination treatment with PTCy/BBG significantly reduced histological disease in the liver and skin at endpoint.
Conclusion: This study shows combination treatment with BBG/PTCy reduces disease severity in the liver and skin, however this did not significantly improve survival in this model, compared to PTCy alone.

Abstract No. 27

POST-TRANSPLANT CYCLOPHOSPHAMIDE REDUCES BLASTING T CELLS IN HUMANISED MICE WITH SUBCLINICAL GRAFT-VERSUS-HOST DISEASE

BIRD K[1], ADHIKARY S[1], CASOLIN S[1], CUTHBERTSON P[1], SLUYTER R[1], ALEXANDER S[2], WATSON D[1]

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Background: Post-transplant cyclophosphamide (PTCy) decreases graft-versus-host disease (GVHD) incidence in humanised NOD-SCID-IL2Rγ^{null} mice, as demonstrated by lowered clinical scores and prolonged survival. However, the mechanism of PTCy-mediated protection remains unclear. Furthermore, the involvement of the skin in GVHD remains largely unexplored in humanised mice.

Aim: To investigate the mechanism of PTCy-mediated protection against GVHD and to further characterise GVHD involvement in the skin in humanised mice.

Methods: NOD-SCID-IL2Rγ^{null} mice were injected i.p. with 20 x 10^6 human peripheral blood mononuclear cells (day 0) followed by PTCy (33 mg/kg) or saline (day 3 and 4). Mice were monitored for GVHD for up to 10 weeks. Human cell engraftment was examined by flow cytometry and gene expression measured by qPCR.

Results: At week 3, PTCy-mice with subclinical GVHD (clinical score < 5) displayed significantly decreased proportions of blasting (proliferating) hCD3$^+$ T cells in the blood. PTCy-mice with subclinical GVHD showed prolonged survival (MST >70 days) compared to PTCy-mice with clinical GVHD (clinical score > 5) and saline control mice. PTCy-mice with subclinical GVHD displayed reduced Tregs and increased hCD4$^+$:hCD8$^+$ T cell ratios compared to PTCy-mice with clinical GVHD. PTCy did not impact *TBX21*, *RORC*, *GATA3* or *FOXP3* gene expression in the spleen, liver, small intestine or skin, or *IFNG*, *IL17* and *mREG3G* gene expression in the skin.

Conclusion: These findings indicate that the impact of PTCy on effector donor T cells may be of greater importance than donor Tregs or Th cell subsets in delaying GVHD development in this humanised mouse model.

Abstract No. 28

INTRACUTANEOUS BIODEGRADEABLE TEMPORIZING MATRIX (BTM) AS AN ALTERNATIVE SITE FOR ISLET TRANSPLANTATION

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Introduction: One of the major limitations currently for islet transplantation is loss of pancreatic islets due to the instant blood mediated inflammatory response (IBMIR). IBMIR is triggered when the islets are delivered into the portal circulation during transplantation into the liver. Furthermore, islets that survive IBMIR still need to embed themselves into the liver vasculature and reestablish their own intra-islet blood supply to survive and function long-term. Previous work within our lab has demonstrated the ability of a Biodegradeable Temporizing Matrix (BTM) scaffold to create a hypervascularised intracutaneous site suitable for islet transplantation in a porcine transplant model, thus avoiding the IBMIR.

Aim: To investigate alternate delivery method of islets into the hypervascularised intracutaneous space. **Method:** Elliptical wound of 80mmx40mm created in Large White x Landrace on side flank near hind leg by removing skin and subcutaneous tissue for BTM implantation (Figure1). Following engraftment of BTM (15-35days), islets are delivered into crease of BTM formed by folding the site prior to suture closure. Islet survival and vasculature was assessed by histological analysis following graft removal at 7, 14 and 28 days following transplantation.

Results: Chromogranin A positive islets present in intracutaneous BTM space 7, 14 and 28 days following transplantation. Intra-cutaneous space was well vascularised, with islet graft in close proximity to vasculature which was evident from day 7 following transplantation.

Conclusion: The current site poses great potential as a viable site for islet transplantation that can be applied in a clinical setting.

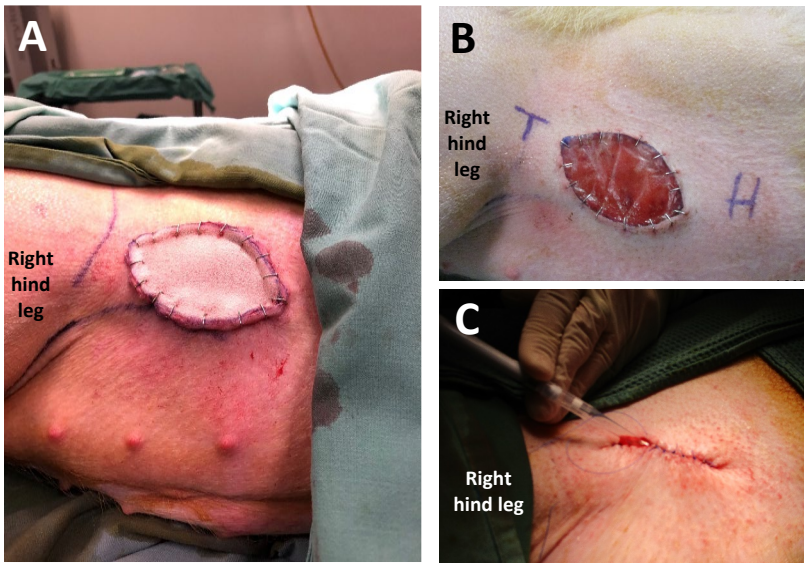

Figure 1. Islet transplantation in hyper-vascularised intracutaneous space. BTM implanted into wound on side flank near hind leg following the removal of skin and subcutaneous tissue (A), integration of BTM at day3 (B), infusion of islets into folded sutured hyper-vascularised BTM (C).

Outcomes and Complications#3

Abstract No. 29

CHARACTERISATION OF CHRONIC LUNG ALLOGRAFT DYSFUNCTION BY AIRWAY OSCILLOMETRY IN POST-LUNG TRANSPLANTATION: A MULTI-CENTRE CROSS-SECTIONAL STUDY

SIM JP[1], DARLEY D[2], NILSEN K[3], SHIROL R[2], BORG B[3], VAZIRANI J[3], LEVVEY B[3], SNELL G[3], PLIT M[2], TONGA KO[2]

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Aim: Chronic lung allograft dysfunction (CLAD), as diagnosed on spirometry, is a major cause of reduced patient survival post-lung transplant (LTx). Airway oscillometry characterises lung mechanical properties with greater sensitivity than spirometry in airways disease. This study aims to characterise CLAD with airway oscillometry post-LTx.

Methods: Oscillometry was performed on all bilateral LTx recipients at 2 Australian centres between Jan-Oct 2020 using TremoFlo C-100 to obtain resistance (R5, R5-19), reactance (X5), and reactance area (Ax). Single LTx and those with acute lung allograft dysfunction were excluded. CLAD was diagnosed and staged using spirometry (ISHLT 2019 Consensus Criteria). Multivariate logistic regression model measured the association between oscillometry parameters and risk of CLAD. Spearman's correlations assessed correlations.

Results: A total of 179 LTx recipients [47% males; median (IQR) age 54 (IQR 39–64) years; duration post-LTx 5 years (IQR 2–9)] were recruited; represented by CLAD 0 (63%), 1 (16%), 2 (6%), 3 (8%), 4 (7%). R5, R5-19, X5, Ax, were all significantly and independently associated with CLAD (pandlt;0.01), with Ax being the strongest predictor (aOR 1.14 per 1-unit increase, area-under-ROC 0.82). There was a significant difference in each median oscillometry parameter between each CLAD stage ($p<0.01$). Median R5, R5-19, X5, Ax were moderately correlated with concurrent FEV1 ($rs = -0.60, -0.64, 0.78, -0.69$ respectively, $p<0.01$).

Conclusion: The association between oscillometry parameters and CLAD demonstrates that oscillometry provides complimentary information for detecting lung allograft dysfunction in LTx patients. Longitudinal studies are required to ascertain oscillometry's potential role in earlier CLAD detection.

Abstract No. 31

GRAFT SURVIVAL AND VISUAL ACUITY FOLLOWING SURGICAL VARIATIONS OF CORNEAL TRANSPLANTATION IN EYES WITH FUCHS ENDOTHELIAL DYSTROPHY

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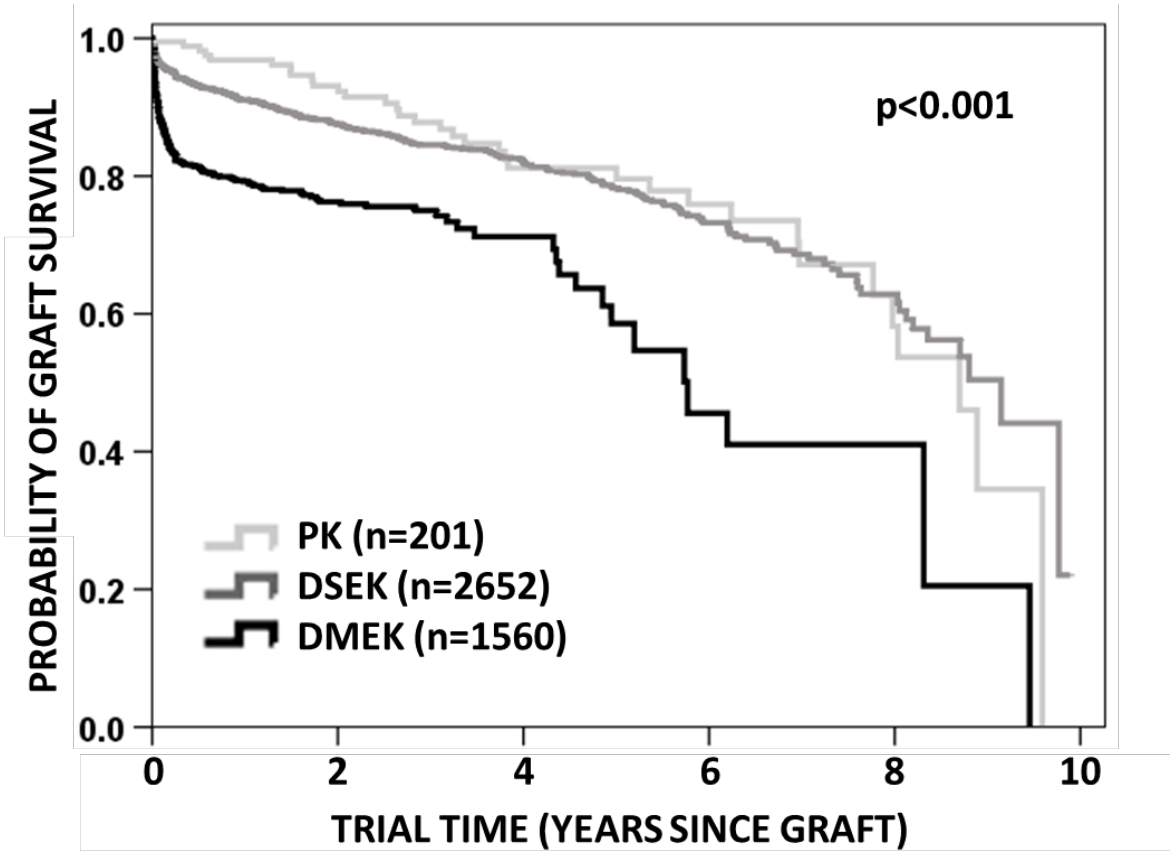
Australian Corneal Graft Registry, Flinders University, Adelaide

Aims: To compare the primary non-functioning graft (PNFG) rate, long-term graft survival, and best corrected visual acuity (BCVA) following penetrating keratoplasty (PK) or variants of partial-thickness endothelial keratoplasty (DSEK or DMEK) for Fuchs endothelial dystrophy (FED).

Methods: Analyses on all 4413 corneal grafts for FED registered with the Australian Corneal Graft Registry from 2010-2019.

Results: The number of grafts performed annually for FED doubled over 10 years. The rate of PNFG differed significantly amongst grafts (greater for DMEK and DSEK compared with PK, $p<0.001$). Longer term, poorer Kaplan-Meier graft survival was observed with DMEK compared with DSEK or PK (see figure, both $p<0.001$). This difference remained for DSEK when PNFG were excluded from analysis ($p=0.008$). While survival of DSEK compared with PK was significantly worse early after graft ($p=0.006$), there were no significant differences in long-term survival ($p=0.600$). Pre-graft median BCVA was worse for PK than DSEK or DMEK, and worse for DSEK than DMEK (all comparisons $p<0.001$). Significant improvement in median BCVA was seen by three months post-graft for DSEK ($p=0.013$) and DMEK ($p<0.001$), and at one year post-graft for PK ($p=0.013$). Significant improvements were observed at yearly intervals to two years post-PK, three years post-DMEK, and seven years post-DSEK. Median post-graft BCVA was best following DMEK, reaching 6/9 vision by three months.

Conclusions: Excellent visual outcomes are attained quickly following endothelial keratoplasty but are counter-balanced by higher rates of PNFG and poorer long-term graft survival. Together these factors contribute to continued, increasing demand on eye banks.



Abstract No. 32

PREDICTING KIDNEY TRANSPLANTATION OUTCOMES; IS DONOR TERMINAL, ADMISSION OR HIGHEST ESTIMATED GLOMERULAR FILTRATION RATE BEST?

IRISH G[1], COATES P[2], CLAYTON P[1]

[1]ANZDATA, ANZDATA, [2]School of Medicine, Faculty of Health Sciences, University of Adelaide

Aim: When assessing deceased kidney donors, a key factor in organ acceptance and allocation is donor kidney function. It is unclear whether terminal, admission, or the highest of terminal and admission donor estimated glomerular filtration rate (eGFR) is most predictive of recipient outcomes. We examined which measurement best predicts outcomes.

Methods: Using data from the Australia and New Zealand Organ Donation and Dialysis and Transplant Registries, we included adult recipients of deceased donor kidney-only transplants over 2003-2017. We compared the 3 different exposure variables of admission, terminal or highest eGFR. We created logistic regression models for delayed graft function, multilinear regression models for 6/12 month eGFR and Cox proportional hazards models for graft, death censored graft and patient survival.

Results:7303 transplant recipients were included. There was strong evidence of an association between terminal, admission and highest donor eGFR and delayed graft function and recipient eGFR at 6 and 12 months. eGFR was a strong predictor of graft survival and death censored graft survival, but not patient survival. Terminal and highest eGFR were better predictors than admission eGFR.

Conclusions: In assessing kidney donors, terminal or highest eGFR were better predictors of a number of clinically important transplant outcomes, though these differences were not large. Given this, as a component of prediction of graft outcomes, this comprehensive study supports the use of eGFR at any time point to assess donor kidney function.

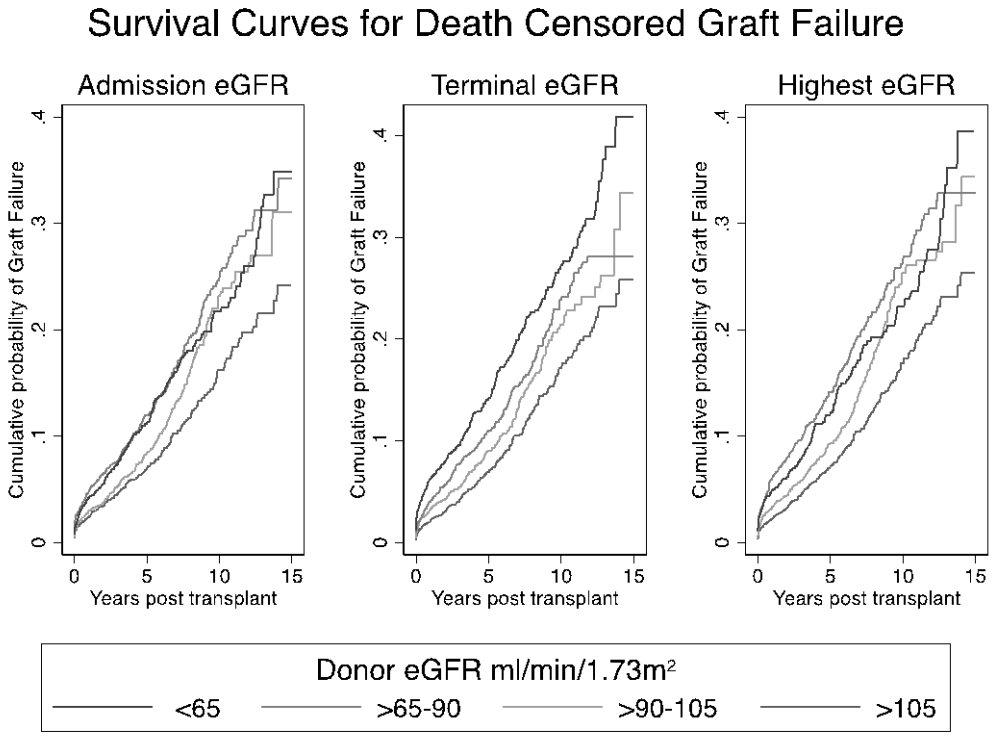


Figure 1: Kaplan-Meier plots of death censored graft survival for admission, terminal and Highest eGFR, by donor eGFR category

Transplantation Surgery

Abstract No. 34

TITLE: NORMOTHERMIC EX VIVO MACHINE PERFUSION PRIOR TO TRANSPLANTATION OF THE KIDNEY (NEXT-KIDNEY)

YOON P[1], HAMEED A[1], WONG G[2], HAWTHORNE W[3], LEE T[1], YUEN L[1], ROGERS N[2], GASPI R[2], ZHANG C[2], ROBERTSON P[2], CHOI J[1], WEBSTER A[2], WANG Z[2], PLEASS H[1]

[1]Department of Surgery, Westmead Hospital, Sydney, [2]Department of Renal Medicine, Westmead Hospital, Sydney, [3]The Westmead Institude for Medical Research,

Aims: We report the first case of normothermic machine perfusion (NMP) for kidney from donation after circulatory death (DCD) in Australia.

Methods: After experience using a non-clinical NMP device and successfully perfusing 15 discarded human kidneys, a TGA approved device, the Kidney Assist (Organ Assist Products, Groningen, Netherlands) was used for 4 further perfusions of discarded human kidneys. Following ethics approval and patient consent the Kidney Assist was used in November-2020 on a DCD kidney. The 52-years-old male donor who died from trauma had a total duration of cardiorespiratory withdrawal to cold perfusion of 11 minutes. The right DCD kidney had single vessels and ureter. After 219 minutes of cold storage, the graft was placed in NMP for 65 minutes at 36˚C and was pumped with combination of oxygenated packed red blood cells, prime solution, infusions of glucose/nutrients and a vasodilator at a pressure of 75mmHg. After further 16 minutes of second cold ischaemic time (IT), the donor graft was successfully implanted in the recipient via standard technique.

Results: During NMP, the renal perfusion improved with blood flow increasing from approximately 100 to 240ml/min by the end of NMP and had comprehensive global pink appearance and a urine output of 46mls (Figure 1). A 64-years-old male with chronic glomerulonephritis received the graft with second warm IT of 27 minutes. After transplantation, the recipient experienced immediate graft function. Serum creatinine fell from a peak of 780umol/L to 164umol/L on day 17 post-transplant, with an average urine output of 1.4L/day. Immediate post-operative ultrasonographic findings showed excellent perfusion (renal index: 0.72) and peak renal artery/vein anastomotic velocity of 93cm/s and 30cm/s respectively (iliac artery velocity: 70cm/s). There were no short term vascular, urological or wound complications. Pre-implant biopsy showed acute tubular necrosis with mild tubular atrophy, fibrosis, and chronic inflammation. C4D and BK virus stains were both negative.

Conclusions: Our initial experience demonstrates that NMP for DCD kidneys is feasible in the Australasian setting. This first case has shown promising outcomes. Our ongoing pilot trial will provide a preliminary assessment of benefits and evidence that a larger and definitive trial can be undertaken.

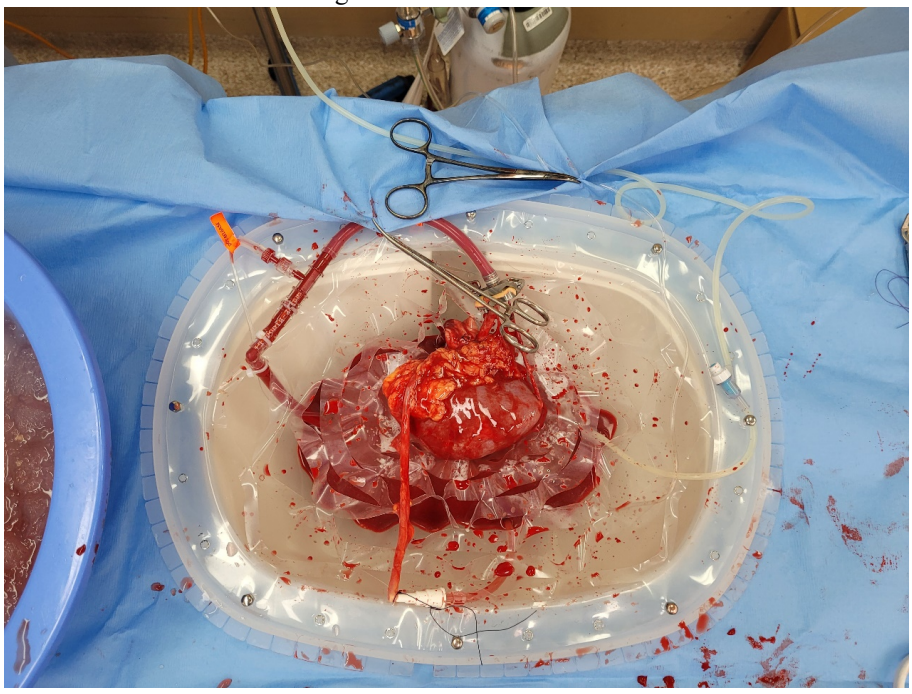


Figure 1.: DCD kidney connected to NMP

Abstract No. 35

PROSPECTIVE EVALUATION OF A CLOSED INCISION NEGATIVE PRESSURE WOUND THERAPY SYSTEM ON SURGICAL SITE INFECTIONS AND WOUND COMPLICATIONS IN KIDNEY TRANSPLANT RECIPIENTS.

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[1]Transplantation Services, Royal Prince Alfred Hospital, Sydney, [2]Westmead Hospital, Sydney [3]Department of Renal Medicine, Royal Prince Alfred Hospital, Sydney

Aim: Closed incision negative pressure wound therapy systems are effective in reducing wound complications in numerous surgical specialties. Data however, is lacking for kidney transplantation, a specialty constantly contending with wound complications due to inherent patient factors inclusive of obesity, diabetes mellitus, and immunosuppressive drug therapy. The aim of this study was to determine the effectiveness of closed incision negative pressure wound therapy (ciNPWT) in preventing wound complications in kidney transplant recipients.
Methods: A prospective cohort of overweight (BMI ≥25kg/m2) adult kidney transplant recipients utilised a closed incision negative pressure wound therapy, 'Prevena', and were compared with those who used conventional dressings ('Comfeel Plus ®') over an iliac fossa incision. The primary outcome assessed was wound complications and surgical site infections in both conventional and Prevena dressings.
Results: There were 80 eligible subjects (54 conventional vs. 26 Prevena), and 26 unmatched pairs after propensity score matching. Wound complications were similar in the unmatched cohort for the convention dressing and Prevena groups (27.8% vs. 23.1% respectively, p=0.654), and matched cohort (34.6% vs. 23.1% respectively, p=0.358). Surgical site infections rates were similar for both groups in the unmatched cohort (7.4% vs. 11.5% respectively, p=0.676) and matched cohort (7.7% vs. 11.5% respectively, pandgt;0.999).
Conclusion: There is no significant differences in wound complications and surgical site infections in kidney transplant recipients with the use of ciNPWT compared to conventional dressings. This data can be used to inform power calculations for future randomised controlled trials.

Abstract No. 36

TITLE: INCIDENTAL RENAL LESIONS FOUND DURING CADAVERIC DONOR SURGERY AND SUBSEQUENT USE IN RENAL TRANSPLANTATION AFTER EX-VIVO TUMOURECTOMISATION

RAVICHANDRAN K[1], HEWA-GEEGANAGE S[2], TAN A[2], LOCKWOOD D[2], RAY M[2], KANAGARAJAH V[2], LAWSON M[2], PRESTON J[2], GRIFFIN A[2], RHEE H[2]

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Aims: Occasionally during cadaveric retrieval surgery, small renal lesions are identified that have the appearance of a malignant lesion. Following multidisciplinary assessment and consent of patients to the risks of cancer recurrence and surgical complications, tumourectomised kidneys are transplanted. This study analyses the outcomes of patients who received tumourectomised kidneys from cadaveric donors with incidental small renal lesions.
Methods: Retrospective review was performed of transplant recipients of a cadaveric tumourectomised kidney at the Princess Alexandra Hospital between May 1996-May 2020. Demographics, rate of recurrence, tumour characteristics, graft survival, surgical and immunological complications as well as creatinine at 1 and 5 years was completed by chart review.
Results: Of 63 patients whom received tumourectomised kidneys, 10 received a cadaveric graft. All patients had histopathologically confirmed renal cell carcinoma (RCC). Mean age of recipients was 65.6 (+/-8.9) years. Overall and graft survival for recipients at 1, 5 and 10 years was 100%, 80% and 66.6% respectively. Average creatinine for patients at 1 and 5 years was 184 (+/- 43) umols/L and 197 (+/-39) umols/L. Recurrence free survival rate was 100% after 5 years of follow up. One local relapse occurred at 5.5 years post transplantation; surveillance demonstrating no further progression. Urine leak occurred in 3 patients, which settled with drainage. Delayed graft function, acute and delayed rejection occurred in 2, 2 and 1 patients respectively.
Conclusion: The study demonstrates acceptable oncological and renal function outcomes from using cadaveric tumourectomised kidneys from selected donors with small RCC. However stringent protocol of follow up imaging to determine recurrence should be utilised.

President's Prize Symposium

Abstract No. 37

TARGETING CD47 IMPROVES INSULIN SECRETION AND ISLET TRANSPLANT OUTCOMES

Kale A[1], BURNS H[2], NICHOLSON L[1], HAWTHORNE W[1], ROGERS N[1], GHIMIRE K[1]

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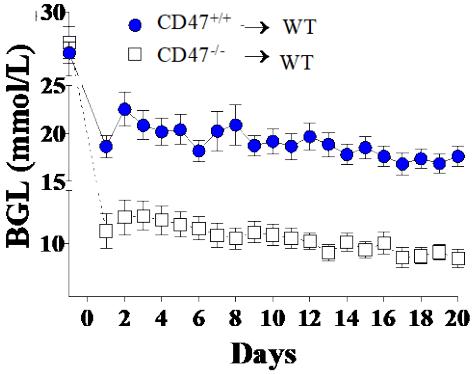
Background: Type I diabetes mellitus is caused by autoimmune destruction of β-cells in pancreatic islets. Insulin replacement provides some management of glycemia but cannot provide normal metabolic control, which is only achievable with islet transplantation. Strategies that reduce islet fragility and improve insulin secretion can improve post-transplant outcomes. CD47 is a cell surface receptor that regulates cell stress responses. We investigated the impact of CD47 on islet function and transplant survival.

Methods: Human islets from the National Islet Transplant Consortium and MIN6 cells were investigated for CD47 expression, glucose-stimulated insulin secretion and ultrastructural changes. Islets and whole pancreas isolated from C57BL/6 (WT) and CD47KO mice were investigated for insulin expression. Syngeneic islet transplantation was performed using CD47KO or CD47-antibody-treated WT islets.

Results: CD47 was expressed in islets and co-localised with insulin in whole pancreas. Hypoxia increased CD47 expression but reduced insulin production. Under electron microscopy, CD47KO islets demonstrated increased insulin granule docking and exocytosis compared to WT islets. Inhibition of CD47 expression via siRNA, morpholino oligonucleotide, or blockade with antibody, increased insulin secretion following glucose stimulation. This coincided with phosphorylation changes and increased activity of insulin regulatory proteins Lyn kinase and Cdc42. Administration of CD47-antibody to WT mice significantly improved glycaemic response following a glucose load. Finally, transplantation of CD47KO islets or CD47-antibody treated WT islets rapidly led to euglycemia compared to WT islets alone.

Conclusion: CD47 levels can be manipulated to improve insulin secretion and islet transplantation outcomes and represents a novel therapeutic strategy.



Abstract No. 38

ADOPTIVE TOLEROGENIC DENDRITIC CELL THERAPY PROTECTS AGAINST RENAL ISCHEMIA REPERFUSION INJURY

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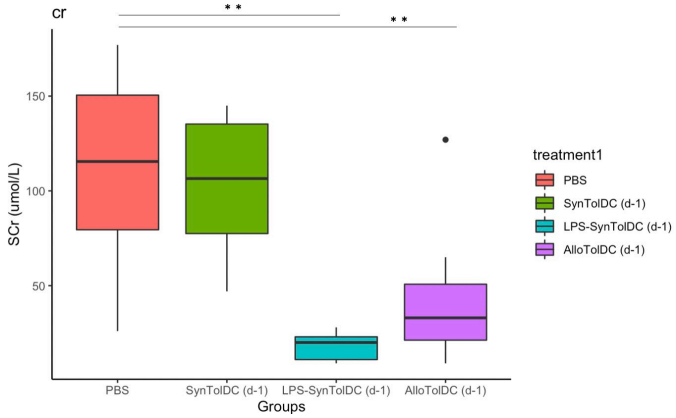
Centre for Transplant and Renal Research, The Westmead Institude for Medical Research

Background: Tolerogenic dendritic cells (TolDC) have the ability to regulate the innate immune response and we hypothesize they can provide protection in acute kidney injury (AKI).
Aims: To determine if adoptively transferred TolDCs can reduce inflammation and severity of AKI.
Methods: Bone marrow-derived TolDC were cultured from C57BL/6 (SynTolDC) or BALB/c mice (AlloTolDC) in media containing vitamin-D and interleukin-10 ± LPS on day 6. TolDC were harvested at day 7, enriched by $CD11c^+$ sorting and $1x10^6$ cells were infused into 12-week-old male C57BL/6 mice the day prior to bilateral renal ischemia reperfusion injury (IRI). Mice were analyzed 24hours post-reperfusion for renal function, histology and biomolecular phenotyping.
Results: Both AlloTolDC and alternatively activated LPS-SynTolDC protected against IRI compared to PBS-treated controls (creatinine 43.5±38.4, 18.2±8 vs 122±49.7μmol/L respectively, $p<0.001$). There was less histological injury in AlloTolDC and LPS-SynTolDC groups compared to control, with diminished cell death (2.3±1.5, 4.87±3.2 vs 25.9±6.7 TUNEL+ve cells/hpf respectively, $p=0.02$). mRNA analysis of kidney homogenate demonstrated significant reduction in pro-inflammatory cytokine expression (IL-6, IL-1β, TNFα, CCL2, CXCL2) but no changes in antioxidant profile (SOD, iNOS, NADPH oxidase). CellViolet-labelled TolDC allowed detection in the kidney 24hrs post-IRI and tended to be higher in the LPS-STolDC group compared to STolDC alone (13.6% vs 6.7% of CD45+ cells, $p=0.18$). Whole kidney flow cytometry of immune cell populations demonstrated pro-inflammatory macrophages (CD11b+F480+Ly6C-hi) were lower in the LPS-SynTolDC group compared to controls (15.9 vs 33.5%, $p=0.05$).
Conclusion: TolDCs demonstrate potent protective effects against renal IRI, with reduced levels of inflammation and cell death.



Abstract No. 39

IDENTIFICATION OF A NOVEL SUBSET OF XENO-ANTIGEN SPECIFIC MEMORY CD4+FOXP3+TREGS IN ISLET-XENOTRANSPLANT TOLERANCE

NICHOLSON L[1], ZHAO Y[1], QIAN YW[1], CHEW YV[1], BURNS H[1], ZHANG G[2], YI S[1], ROGERS N[1], HAWTHORNE W[1], ALEXANDER S[2], O'CONNELL P[1], HU M[1]

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Background: Blockade of the B7-CD28 and CD40-CD154 pathways induces tolerance towards porcine-islet-cell-cluster (NICC) xenografts in mice.
Aims: 1) Investigate $CD4^{+}Foxp3^{+}$Tregs in mouse-model of NICC xenograft-tolerance, 2) identify *in situ* immune-cell subtypes using imaging mass cytometry (IMC) and 3) assess the function of these $Foxp3^{+}$Tregs.
Methods: C57BL/6-DEREG-mice with diphtheria-toxin (DT)-receptor/GFP attached to Foxp3-gene were transplanted with NICC under renal-capsule. Recipient-mice received CTLA-4-Fc and MR-1 mAb. $Foxp3^{+}$Tregs were depleted by DT from day 3-17 (induction-phase), or 80-100 days post-transplantation (maintenance-phase). NICC-xenograft function determined by insulin/glucagon staining and serum porcine-c-peptide concentration. A 16-antibody panel for IMC was used to identify *in situ* cells and a bioinformatics pipeline was created for data analysis.
Results: More $CD4^{+}Foxp3^{+}$Tregs were seen in NICC-xenografts of treated mice on day-8 and 100 than day-20. Foxp3+ cells increased significantly in the draining-lymph-nodes of treated mice on day-8 (P=0.0010) and 100 (P=0.0128) when compared to the untreated/rejecting groups. $CD4^{+}Foxp3^{+}$Treg depletion led to rapid xenograft rejection. $CD4^{+}Foxp3^{+}$Tregs from lymphoid-organs of graft-tolerant DEREG-mice showed a significant increase in CD127, downregulated CD25, and reduced CD27 and CD62L expression compared to naïve/rejecting xenografts. IMC successfully quantified *in situ* immune-cell subsets (*Fig.1*). $CD127^{+hi}CD25^{+/low}CD44^{+hi}CD62L^{-}CD27^{-}CD4^{+}Foxp3^{+}$Tregs were transferred to NICC-transplanted Rag-\- mice and had a greater suppressive capacity than naïve-Tregs.
Conclusion: Foxp3+Tregs are essential for NICC-xenograft survival in this model. Importantly, $CD127^{+hi}CD44^{+hi}CD62L^{-}CD27^{-}CD25^{+/low}CD4^{+}Foxp3^{+}$Tregs were a subpopulation of Tregs that showed features of antigen-specific memory. IMC successfully visualised and quantified immune cell subgroups within the graft area, using supervised machine-learning and high-dimensional data analysis in R programming language.

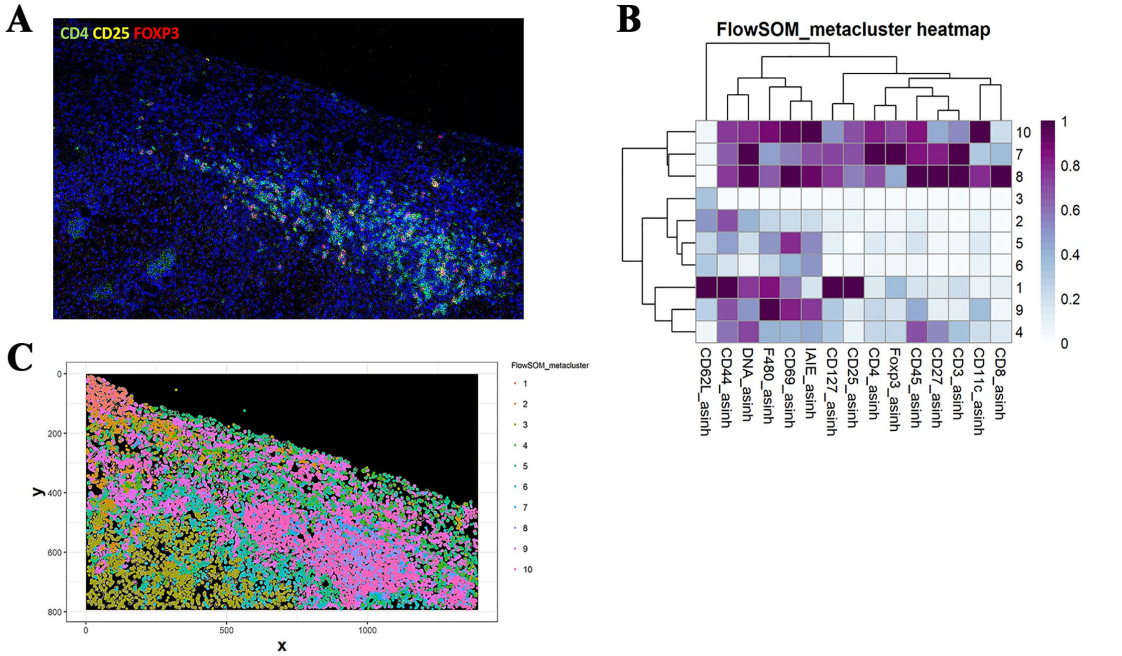

Fig.1. A. An IMC image showing CD4, CD25 and Foxp3 staining in a day 20, rejection NICC graft. Any combination of the 16 antibodies can be chosen to view on the single image. *B.* A preliminary example of heatmapping IMC data clusters post-acquisition. *C.* A preliminary example of overlaying each cell subset cluster back onto the original graft image (*A*) to visualise multi-marker cell groups at once.

Abstract No. 40

SELECTION OF A NOVEL AAV2/TNFAIP3 VECTOR FOR LOCAL SUPPRESSION OF ISLET XENOGRAFT INFLAMMATION

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Neonatal porcine islets (NPIs) can restore glucose control in mice, pigs, and non-human primates, representing a potential abundant alternative islet supply for clinical beta cell replacement therapy. However, NPIs are vulnerable to inflammatory insults that could be overcome with genetic modifications. Here we demonstrate in a series of proof-of-concept experiments the potential of the cytoplasmic ubiquitin-editing protein A20, encoded by the TNFAIP3 gene, as a NPI cytoprotective gene. Forced expression of A20 in NPI grafts using a recombinant adenovirus 5 (Ad5) vector suppressed TNF-stimulated NF-κB activation by inhibiting IκBα phosphorylation and degradation and reduced the induction of pro-inflammatory genes Cxcl10 and Icam1. Forcing the expression of A20 had no negative impact on glucose stimulated insulin secretion. A20-expressing NPIs exhibited superior functional capacity when transplanted into diabetic immunodeficient recipient mice, evidenced by a more rapid return to euglycemia and improved GTT compared to unmodified NPI grafts. Adeno-associated vectors (AAV) are clinically preferred vectors but exhibit poor transduction efficacy in NPIs. To overcome this obstacle, we screened a series of AAV serotypes, and optimised NPI culture conditions selecting for a combination with maximal NPI transduction efficiency. We report an AAV2 based procedure that achieves >70% transduction rates in NPIs without adverse impact upon NPI maturation and is able to deliver therapeutic A20 to suppress NPI inflammatory responses. This new protocol allows for high-efficiency genetic modification of NPIs, which can be utilised to introduce candidate genes without the need for germline engineering. This approach would be suitable for preclinical and clinical testing of cytoprotective molecules like A20.

Abstract No. 41

NOTIFIABLE INFECTIONS AMONG ORGAN TRANSPLANT RECIPIENTS: AN AUSTRALIAN DATA-LINKED COHORT STUDY, 2000-2015

WALLER K[1], DE LA MATA N[1], WYBURN K[2], HEDLEY J[1], ROSALES B[1], KELLY P[1], RAMACHANDRAN V[3], SHAH K[4], MORTON R[4], RAWLINSON W[3], WEBSTER A[1]

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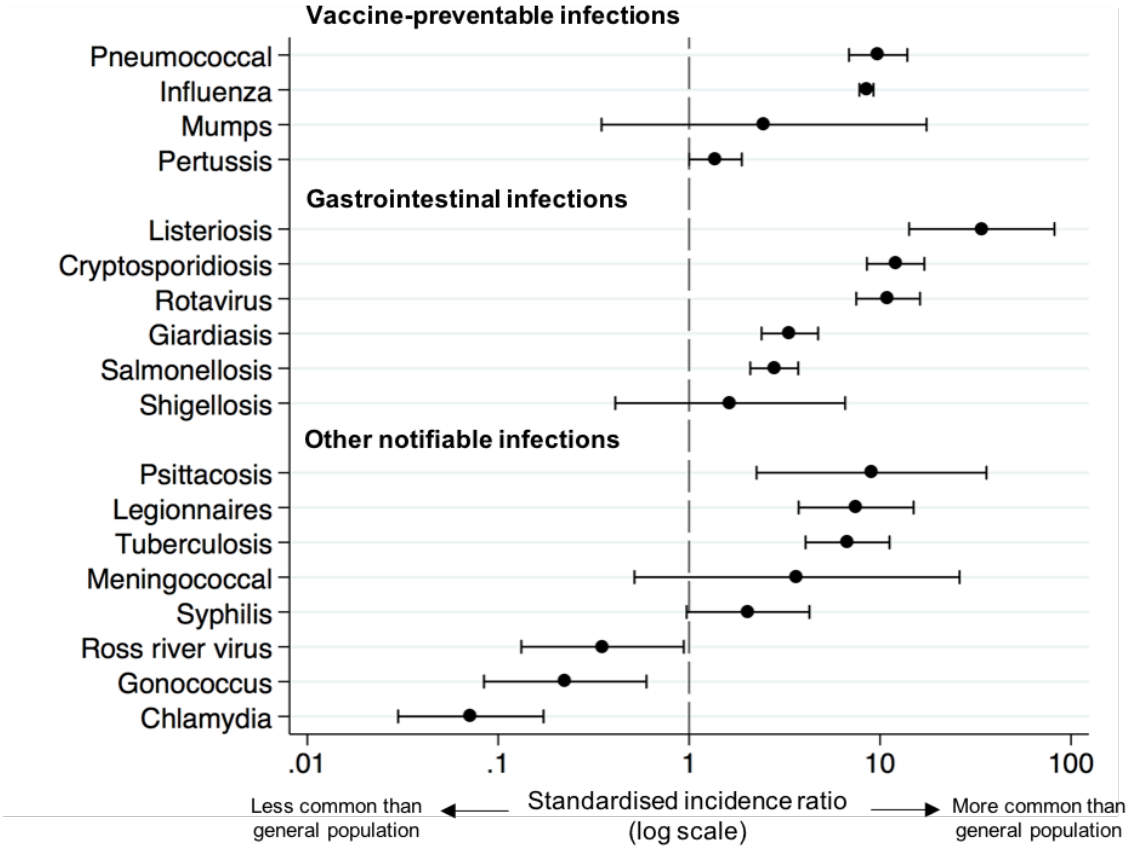
INTRODUCTION: Infections, including common communicable diseases, are increased in organ transplantation. We aimed to understand the burden of notifiable infections among transplant recipients.

METHODS: Cohort study of all New South Wales solid organ recipients transplanted from 2000-2015. Data-linkage of transplant registries to hospital admissions, notifiable diseases database, and the death register. Standardised incidence ratios (SIR) were calculated relative to general population notification rates, accounting for age, gender, and calendar year. Hospitalisations and deaths due to infections were identified.

RESULTS: Among 4,858 recipients followed for 39,183 person-years (pys), there were 792 infection notifications. Influenza was the most common infection (532 cases, crude incidence 1358/100,000 pys, 95%CI: 1247-1478), followed by salmonellosis (46 cases, crude incidence 117/100,000 pys, 95%CI: 87-156) then pertussis (38 cases, crude incidence 97/100,000 pys, 95%CI: 71-133). Influenza and invasive pneumococcal disease showed significant excess cases compared with the general population (influenza SIR 8.5, 95%CI 7.8-9.2, pneumococcal SIR 9.8, 95% CI 6.9-13.9), associated with morbidity (hospitalisation rates 47-68%) and some mortality (4 deaths due to influenza, 1 death due to pneumococcal). By 10 years post-transplant, the cumulative incidence of a vaccine-preventable infection was 12% among all recipients, generally similar by organ but higher among lung recipients. Gastrointestinal infections, tuberculosis and legionellosis also had excess cases among transplant recipients (Figure 1). There were few sexually transmitted or vector-borne infections.

CONCLUSIONS: Common preventable infections are over-represented among transplant recipients, causing significant morbidity and health system costs. Preventive strategies should be targeted, including vaccination, food-hygiene and hand-hygiene education, and assessment for latent infection.

Figure 1: Standardised incidence ratios with 95% confidence intervals of notifiable infections after transplant



Abstract No. 42

SPECIFIC HUMAN LEUKOCYTE ANTIGEN EPLET MISMATCHES AND ACUTE REJECTION IN SIMULTANEOUS PANCREAS-KIDNEY TRANSPLANT RECIPIENTS

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Aims: The number of human leukocyte antigen (HLA) eplet mismatches is associated with acute rejection in solid organ transplant recipients, but the specificity of individual eplet mismatches associated with acute rejection is largely unknown.

Methods: All eplet mismatches at HLA class I and II loci were calculated for each donor and recipient pair in a cohort of consecutive adult simultaneous pancreas-kidney (SPK) transplant recipients from 2005-2017. Cox regression (regularized and proportional hazards) models, adjusted for donor and recipient characteristics and presence of pre-transplant DSA, were utilized to determine the association between specific eplet mismatches and biopsy proven acute rejection outcomes.

Results: 202 recipients of a first SPK transplant (mean age (SD) 39.1 (7.0) years) were followed for a median (IQR) of 3.9 (5.7) years. Overall, 30% (60/202) developed acute cellular and/or antibody mediated rejection at a median (IQR) time of 0.1 (0.9) years post transplantation. Recipients with class I eplet mismatches at 163EW, 156WA, 62EE, 16S, 211T, 144QL or 102HV experienced an approximately double or higher risk of acute rejection, compared to those without mismatches. Recipients with class II eplet mismatches at 67L, 4Q, 40ERV, 75IL, 57V, 25Q, 185I, 66IT, 160S or 160AD experienced a similar double or higher risk of acute rejection, compared to those without these specific eplet mismatches.

Conclusion: Specific class I and II eplet mismatches predict acute rejection outcomes after SPK transplantation.

Abstract No. 43

PAEDIATRIC KIDNEY TRANSPLANTS FROM DONORS AGED 1 YEAR AND UNDER: AN ANALYSIS OF THE AUSTRALIAN AND NEW ZEALAND DIALYSIS AND TRANSPLANT REGISTRY (ANZDATA) FROM 1963 TO 2018

YAO J[1], CLAYTON P[2], WYBURN K[3], CHOKSI H[4], CAVAZZONI E[5], TOVMASSIAN D[1], LAU H[6], ALLEN R[1], YUEN L[1], LAURENCE J[7], LAM V[8], PLEASS H[1]

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Aims: Kidneys from very small donors have the potential to significantly expand the donor pool. We describe the collective experience of transplantation using kidneys from donors aged ≤1year in Australian and New Zealand.

Methods: The ANZDATA registry was analysed on all deceased donor kidney transplants from donors aged ≤1year. We compared recipient characteristics and outcomes between 1963 to 1999 and 2000 to 2018.

Results: From 1963-1999, 16 transplants were performed (9(56%) adults, 7(44%) children). Donor and recipient characteristics are shown in table 1. Death-censored graft survival was 50% and 43% at 1 and 5 years, respectively. Patient survival was 90% and 87% at 1 and 5 years, respectively. From 2000-2018, 26 transplants were performed (25(96%) adults, 1(4%) children). Mean creatinine was 73µmol/L+/-49 at 5 years. Death-censored graft survival was 85% at 1 and 5 years. Patient survival was 100% at 1 and 5 years. Incidence of delayed graft function (DGF) was 15% from 2000-2018; data for DGF was largely missing for 1963-1999. Thrombosis was the cause of graft loss in 12% of recipients in the first era from 1963-1999, and 8% of recipients in the second era from 2000-2018.

Conclusions: We advocate the judicious use of these small paediatric grafts from donors ≤ 1year old. Meticulous surgical technique and careful monitoring of clinical course, especially in the early postoperative period, is the key to good long term graft outcomes. We encourage strategies to reduce discard of this precious resource as well as techniques to reduce early graft loss.

Table 1. Donor and recipient characteristics

	Child recipient (1963-1999)	Child recipient (2000-2018)	Adult recipient (1963-1999)	Adult recipient (2000-2018)
n	7	1	9	25
Donor weight, median (IQR)	14 (12, 15)	10 (10, 10)	12 (10, 15)	11 (10, 12)
Donor gender Female Male	 3 (50%) 3 (50%)	 0 (0%) 1 (100%)	 4 (50%) 4 (50%)	 6 (24%) 19 (76%)
Total ischaemia, median (IQR)	14 (8, 19)	14 (14, 14)	14.5 (10, 17.5)	13 (11, 15)
Recipient age at transplant, median (IQR)	4 (1, 10)	16 (16, 16)	46 (40, 50)	45 (37, 48)
Recipient weight (kg), median (IQR)	21 (12, 27)	48 (48, 48)	59 (55, 65.5)	70 (64, 89)
Recipient gender Female Male	 3 (43%) 4 (57%)	 0 (0%) 1 (100%)	 3 (33%) 6 (67%)	 9 (36%) 16 (64%)
Waiting time (years), median (IQR)	0.6 (0.2, 1.1)	0.2 (0.2, 0.2)	2.2 (1.1, 4.7)	4.6 (2.7, 5.7)
Graft number 1 2	 7 (100%) 0 (0%)	 1 (100%) 0 (0%)	 9 (100%) 0 (0%)	 21 (84%) 4 (16%)

Abstract No. 44

DEVELOPING A NOVEL PORCINE AUTOTRANSPLANTATION MODEL OF ROBOTIC-ASSISTED HETEROTOPIC KIDNEY TRANSPLANTATION

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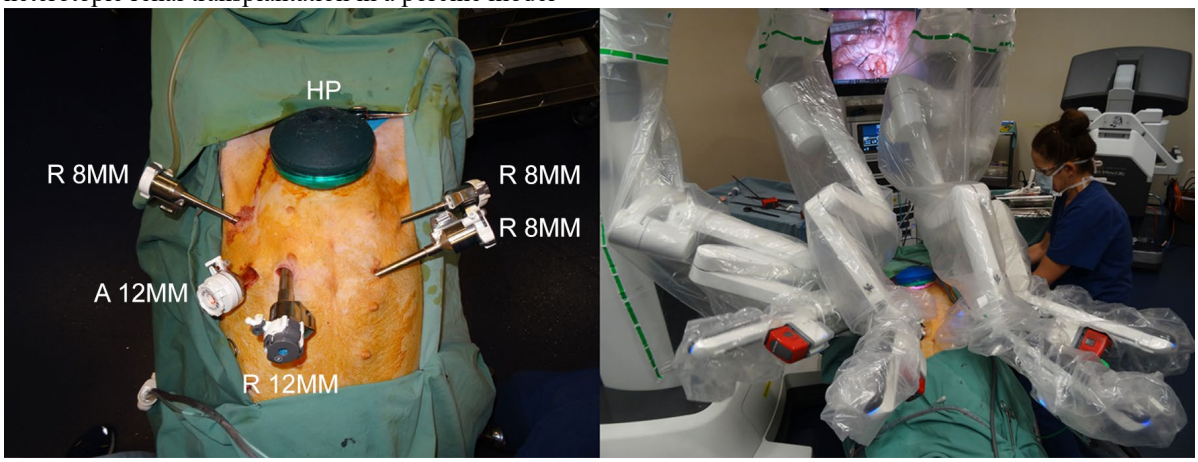
Aims: Robotic-assisted Kidney Transplantation (RAKT) may offer a path to transplantation for patients with high Body Mass Index (BMI). Currently lacking is an appropriate model for simulation training. We report an experimentally developed technique for heterotopic renal transplantation using a large animal model mimicking RAKT in humans.

Methods: Following ethics approval, four Landrace pigs were acquired. A robotic-assisted left nephrectomy was performed, the kidney was perfused with University of Wisconsin (UW) preservation solution and stored in ice. Four robotic ports (3 x 8mm and 1 x 12mm) were placed across the abdomen (Fig. 1). A suprapubic hand-port was inserted and a 10mm assistant port placed on the left between robotic ports. After introducing the kidney via the hand-port, the renal vessels were anastomosed to the external iliac vessels and the ureter to the bladder over a stent using the DaVinci Xi surgical robot (Intuitive Inc. Sunnyvale CA, USA). The pigs were euthanised on completion.

Results: After an initial unsuccessful attempt, the technique was refined by variation of port placement. Three successful concurrent RAKTs were performed with urine output observed. Mean time both anastomoses was 67.5 minutes, in line with published literature.

Conclusion: The learning curve for this operation in humans is between 5-19 cases. No method of accomplishing robotic-assisted heterotopic autotransplantation in a large animal model has been previously described. This translational model for training is hypothesised to shorten the learning curve of operators and the team as a step to adopting this procedure in humans without compromising safety. Figure: Port placement for robotic-assisted heterotopic renal transplantation in a porcine model



Abstract No. 45

THE USE OF INSULATING JACKETS IN RENAL TRANSPLANTATION

KHAN T[1], HAMEED A[1], KWARCINSKI J[1], O'GRADY G[2], BOUGHTON P[3], HAWTHORNE W[4], ROGERS N[5], WONG G[6], LEE T[7], YUEN L[8], LAURENCE J[9], PLEASS H[1], PANG T[1]

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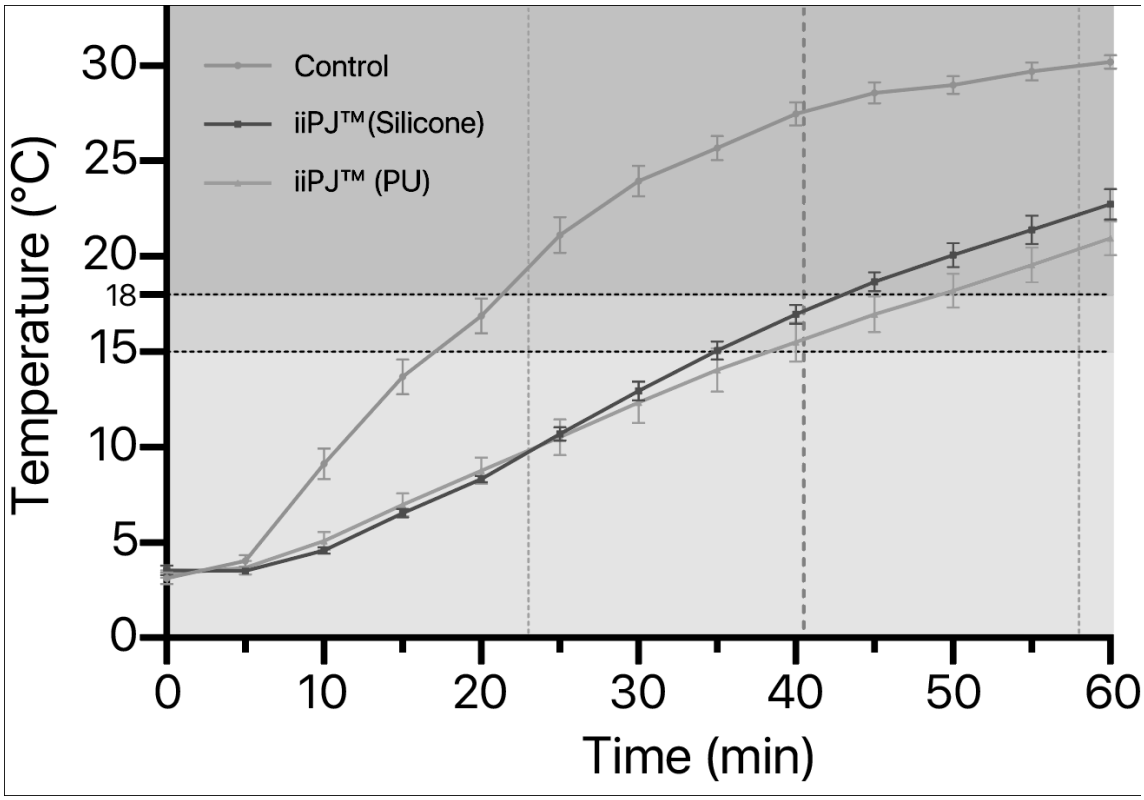
Short and long-term kidney allograft outcomes are significantly influenced by the second warm ischaemic time (SWIT), which occurs during vascular anastomoses. This leads to time pressure and potentially technical complications, resulting in allograft loss. Intraoperative thermal regulation of the kidney could reduce the second warm ischaemic injury, minimising surgical complications due to easing time pressure, and reducing the ischemia-reperfusion injury (IRI).

Methods: A novel ischaemic-injury thermal protection jacket (iiPJ™) was developed in silicone and polyurethane (PU) variants, with no thermal insulation as the control. An ex vivo water bath model was developed to determine the thermal properties of porcine kidneys and study the insulative effect of the iiPJ™. The time taken to reach 15°C (metabolic threshold) was measured, with thermal energy transfer calculated from the area under the curve.

Results: For both iiPJ™ versions, the time taken to reach the 15°C threshold was 35.2±1.4 minutes (Silicone), 38.4±3.1 minutes (PU), with 17.2±1.5 minutes for controls (n=5, P<0.001). The thermal energy transfer was also significant for both iterations of the iiPJ™ when compared to controls. The material selection of the iiPJ™ showed no significance.

Conclusion: Insulating jackets are a potential method of protection from the second warm ischemic injury. With ongoing experiments including feasibility studies using discarded human kidneys, and a pilot clinical trial, clinical translation of the iiPJ™ through collaborative multi-centre clinical trials could improve surgical performance, facilitate teaching and training, decrease the second warm ischaemic injury and incidence of IRI, with improved short- and long-term outcomes.



Abstract No. 46

TITLE: IMPACT OF THE HLA-BASED MATCHING SYSTEM ON CLINICAL OUTCOMES AND RACIAL DISPARITY IN AUSTRALIA'S DECEASED DONOR KIDNEY TRANSPLANTATION PROGRAM

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Aims: The Australian deceased donor (DD) kidney transplant program places a large emphasis on HLA matching despite a known disadvantage to racial minority groups. We sought to assess the clinical outcomes of the current allocation model, and its impact on racial minority groups.

Methods: A retrospective cohort analysis of adult DD kidney transplants from 2000-2018 using ANZDATA records was conducted. Transplants were divided into "Matched" or "Waitlist" allocation groups based on the OrganMatch score, transplant state, and the current TSANZ allocation algorithms.

Results: Of the 7440 transplant events, 40% were Matched transplants at either the national or state level. Matched transplants had a small benefit in renal function (67 vs 64mL/min/1.73m2 at 1 year; 66 vs 62 mL/min/1.73m2 at 10 years), lower incidence of rejection (23% vs 30%, $p<0.001$), longer graft survival (median 5.5 vs 4.5 years, $p<0.001$), and longer patient survival (HR 0.89 (0.78, 1.01), $p=0.07$) compared to waitlist transplants. Of those listed for transplant, a higher proportion of Caucasian (2566/5631, 45%) compared to Aboriginal and Torres Strait Islander (56/309, 18%) recipients received a Matched transplant. Dialysis time was significantly shorter for Matched transplant recipients (28.1 vs 44.8 months, $p<0.0001$), and contributed significantly to the benefit seen in graft and patient survival in Matched transplants.

Conclusions: Graft outcomes are better in HLA-matched deceased donor kidney transplants; however, a significant component of this effect is via decreased dialysis time. Racial minority groups are less likely to receive an HLA-matched kidney and are disadvantaged by the current allocation model.

Abstract No. 48

DONOR INTERLEUKIN-6 GENOTYPE INFLUENCES THE DEVELOPMENT OF GRAFT-VERSUS-HOST-DISEASE IN A HUMANISED MOUSE MODEL

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Background: Hematopoietic stem cell transplantation (HSCT) is a curative therapy for steroid refractory blood cancers. However, donor HSCT is restricted by the occurrence of graft-versus-host disease (GVHD) in up to 60% of transplant recipients. Single nucleotide polymorphisms (SNPs) in the promoter region of the interleukin-6 gene (IL6) have been associated with numerous inflammatory diseases, including GVHD. The rs1800795 (-174 G → C) SNP in the promoter region of IL6 affects expression levels of interleukin (IL)-6 and may influence GVHD in HSCT recipients.

Aim: To determine the effect of donor rs1800795 IL-6 SNP genotype of the development of GVHD in a humanised mouse model.

Methods: A retrospective analysis was performed on data from NOD-SCID-IL2Rγnull (NSG) mice injected with hPBMCs isolated from donors either homozygous or heterozygous for the G allele (IL-6GG/GC mice) or donors homozygous for the C allele (IL-6CC mice) of the rs1800795 SNP.

Results: A lower splenic CD4+:CD8+ T cell ratio was observed in IL-6GG/GC mice compared to IL-6CC mice at three weeks post-transplant. However, both IL-6GG/GC and IL-6CC mice demonstrated similar proportions of CD4+ and CD8+ T cells at endpoint. IL-6GG/CC and IL-6CC mice developed GVHD, with comparable clinical scores. However, there was a significant decrease in median survival time (MST) in IL-6GG/CC mice (MST = 36 days, n = 62) compared to IL-6CC mice (MST = 46 days, n = 15) (P = 0.0242). Donor rs1800795 SNP genotype, however, did not influence GVHD-mediated tissue damage in the liver, skin, ear or duodenum of NSG mice.

Conclusion: Donor rs1800795 SNP genotype can influence survival and T cell ratios at early time-points in humanised NSG mice, supporting a role for IL-6 in GVHD development in humanised mice and humans.

Abstract No. 49

MICROSAMPLING METHODS FOR SIMULTANEOUS ESTIMATION OF TACROLIMUS, MYCOPHENOLIC ACID AND PREDNISOLONE CONCENTRATIONS IN ADULT KIDNEY TRANSPLANT RECIPIENTS

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Aims: Successful kidney transplant survival requires repeated blood sampling to monitor immunosuppressant drug concentrations. The aim of this study was to validate microsamples involving finger-prick blood draw using dried blood spot (DBS) or volumetric absorptive microsamplers (VAMS) for simultaneous measurement of tacrolimus, mycophenolic acid and prednisolone against venepuncture and then to quantify patient burden of venepuncture.

Methods: DBS and VAMS were simultaneously collected with venous blood samples in 40 adult kidney transplant recipients, immediately prior to and 2-hours after an immunosuppressant dose. Patient's then completed a survey. Sample method comparison was made using Passing-Bablock regression and bias was assessed using Bland-Altman analysis. A Wilcoxon Signed-Rank Test was used to compare reported pain/discomfort between finger prick testing and venepuncture.

Results: Passing Bablock regression showed a significant difference between VAMS and whole blood for tacrolimus with a slope of 0.92 (0.88-0.97) and DBS slope of 0.94 (0.89-0.99). Passing Bablock regression of mycophenolic acid and prednisolone showed no significant difference between sampling methods for VAMS or DBS. Bias between all methods was within acceptable limits. There was a significant difference in pain/discomfort between the methods with finger-prick testing less painful, mean Likert score of 1.46, compared to a mean score of 1.77 for venepuncture (P= 0.01596). The majority (n=33, 85%) of participants' preferred sample collection via finger-prick.

Conclusion: VAMS and DBS collection in a controlled environment reliably measured multiple immunosuppressants simultaneously. Patients also preferred microsampling as an alternative to venepuncture in the management of their kidney transplant.

Abstract No. 50

INCREASING THE DONOR POOL: HEART TRANSPLANTATION WITH HEPATITIS C POSITIVE DONORS TO HEPATITIS C NAÏVE RECIPIENTS- THE FIRST AUSTRALIAN EXPERIENCES.

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Background: Heart transplantation (HT) is an effective treatment for advanced heart failure, however the demand for donor hearts still exceeds supply. Direct acting antivirals (DAA) for the Hepatitis C virus (HCV) have a favourable safety and efficacy profile and the potential to completely eradicate HCV, increasing the pool of donor organs.

Methods: All HCV positive donors between April 2018 and December 2020 were included. Patients provided informed consent both at the time of listing and at transplantation. Patients were followed with nucleic acid testing (NAT) at week 1, 4 and 12 for sustained virologic response.

Results: Seven HCV naive patients underwent HT with HCV positive donors. This included 2 NAT positive donors, the first in Australia. Average recipient age was 56 ± 21 years. Recipients from NAT positive donors were treated with 30 days of DAA beginning at induction pre-transplantation. Combination Glecaprevir/pibrentasvir, a pan-genotypic DAA, was used in all patients because of its limited side effect profile and minimal interaction with immunosuppression. To date, there have been no cases of donor-derived hepatitis C infection.

Conclusion: HT with HCV including NAT positive donors is now feasible in the era of highly effective DAAs and increases opportunities for transplantation.

Abstract No. 51

RANGE AND CONSISTENCY OF INFECTION OUTCOMES REPORTED IN TRIALS CONDUCTED IN KIDNEY TRANSPLANT RECIPIENTS: A SYSTEMATIC REVIEW

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Background: Infection remains a leading cause of death in kidney transplant recipients. This study aimed to assess the scope and consistency of infection outcomes reported in contemporary trials conducted in kidney transplant recipients.

Methods: A literature review of all randomized trials and trial protocols reporting infection outcomes in adult kidney transplant recipients were identified in the Cochrane Kidney and Transplant Specialized Register from January 2015 to July 2019. Characteristics and infection outcomes from the trials were analyzed.

Results: From 102 included trials, 772 outcome measures were extracted and categorized into 216 unique measures with a median of 3.2 outcome measures per trial (range: 1 to 9). Measures were further grouped into 32 outcomes based on site of infection (14 outcomes) and organism (18 outcomes). The most commonly reported site-specific outcome and organism-specific outcome was systemic infection (71% trials) and cytomegalovirus infection (62% trials), respectively. Outcome metric and methods of aggregation included mean, median, proportion, proportional change and number of patients with at least one episode. Across all trials, measures were assessed at 55 different time points with a range of 1 to 11 time points per trial.

Conclusions: Infection outcomes in kidney transplant recipients were frequently reported by site and organism but varied widely in terms of outcome, metrics, method of aggregation and time point of measurement. Establishment of core outcomes for infection based on the shared priorities of patients/caregivers and health professionals may improve the consistency, comparability and usefulness of trial evidence.

Abstract No. 52

TRENDS IN NEPHROLOGY RESEARCH AND AUTHORSHIP: THE DEATH OF BASIC SCIENCE RESEARCH IN NEPHROLOGY WITHIN AUSTRALIA AND NEW ZEALAND

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Background: The current climate of scientific research is competitive, with little support for early/mid-career researchers, insufficient protected research time, and declining funding rates. The roles of clinician-scientist or academic researcher are becoming less attractive and feasible. However, no formal study has established whether these factors have affected patterns of research.

Aim: To assess patterns in research within the field of Nephrology in Australia and New Zealand.

Methods: Analysis of abstracts submitted to the Transplantation Society of Australia and New Zealand (TSANZ) from 2005-2019, and the Australia and New Zealand Society of Nephrology (ANZSN) from 2011-2018 was performed. The category of each abstract (clinical versus basic science) and the gender of the senior authors was assessed.

Results: Preliminary findings confirmed the suspected decline in basic science abstracts submitted to both societies over the last decade. The proportion of basic science abstracts submitted to ANZSN decreased from 25.66% in 2011 to 12.62% in 2018. Similarly, TSANZ showed a decline from 47.73% (2005) to 20.34% (2019). Gender patterns of senior authorship have improved in both societies. In 2011, 19.47% of ANZSN abstracts demonstrated female senior authorship compared to 31.72% in 2018. Female senior authorship for TSANZ abstracts also increased over the study period, 17.42% (2005) to 29.66% (2019).

Conclusions: The proportion of clinical research-based abstracts has been increasing over the last decade, now far outweighing basic science research abstracts. Additionally, there is a large gender imbalance among senior authors, which has not been rectified. Fostering basic science research and gender equity needs to be urgently addressed in Nephrology.

Abstract No. 53

WHY ARE WE NOT LISTING ABORIGINAL AND TORRES STRAIT ISLANDER PEOPLE FOR KIDNEY TRANSPLANTS?

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Aims: To establish the proportion of people who are eligible for kidney transplantation with a particular focus on improving access to the waiting list for Aboriginal and Torres Strait Islander (Indigenous) people.

Methods A question was added to the end of 2019 ANZDATA end of year survey ascertaining stage of workup for transplantation. All centres were invited, with specific support from the NIKTT targeted for 20 centres with the highest number of Indigenous patients.

Results By early December 2020, results were available for 5942 people (24% Indigenous). Examining just those <65 years of age (n=3405), only 5% of Indigenous people were waitlisted compared to 25% non-indigenous (median time of 3.8 vs 2.6 years from start of dialysis). Similar proportions (20 vs 22%) were in active workup. More Indigenous people were reported as having either temporary (24 vs 20%) or permanent (28 vs 19%) contraindications to transplantation. Of those with a reported contraindication, cardiovascular disease was less common among Indigenous patients (19 vs 23%), as was cancer (3 vs 12%) and obesity (17 vs 24%). Infection (5% vs 3%) was uncommon in both groups. The largest differences in contraindications were "Other comorbidity" (26 vs 18%), and "Other" (29 vs 19%).

Conclusions. The results demonstrate a substantial proportion of the difference in waitlisting is attributable to health related issues. Improving access to transplantation will require a focus on addressing these issues. The large proportion of "other" contraindications reported among Indigenous patients raises issues that require further investigation.

Abstract No. 54

THE AUSTRALIAN AND NEW ZEALAND LIVING KIDNEY DONOR PROFILE INDEX

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Aim: Risk scores may aid risk quantification and decision-making in kidney transplantation. The Living Kidney Donor Profile Index (LKDPI) was developed to choose between living donors. The original LKDPI is moderately discriminatory (Harrel's C Statistic=0.59,95% CI 0.55-0.61) but poorly calibrated in Australia/New Zealand. We developed a risk prediction score for overall graft survival in adult recipients of a living kidney donor transplant in an Australian and New Zealand population.

Methods: Using data from the Australia and New Zealand Dialysis and Transplant Registry, we included adult recipients of living kidney donor transplants over 2004-2018. We constructed Cox models for overall graft survival. We refit the original USA variables and then constructed a new model (ANZ LKDPI) considering all available potential covariates. Model performance was validated by assessing discrimination and calibration.

Results: 4049 living donors were included. The C-statistic for the re-fit model was 0.57(95%CI 0.54-0.59). The remodeled score included the new variables history of hypertension and HLA-A mismatches. Variables excluded were donor:recipient weight ratio, HLA-B, both male, and ABO incompatibility. The ANZ LKDPI had similar discrimination (C=0.56,95%CI 0.54-0.58). The model fit and calibration was better.

Conclusions: The ANZ LKDPI had similar discrimination to the original and the refitted LKDPI. The discrimination was low for both scores and so should be used with caution to decide between donors. The new score is better calibrated for our population so could be used to predict individual graft prognosis.

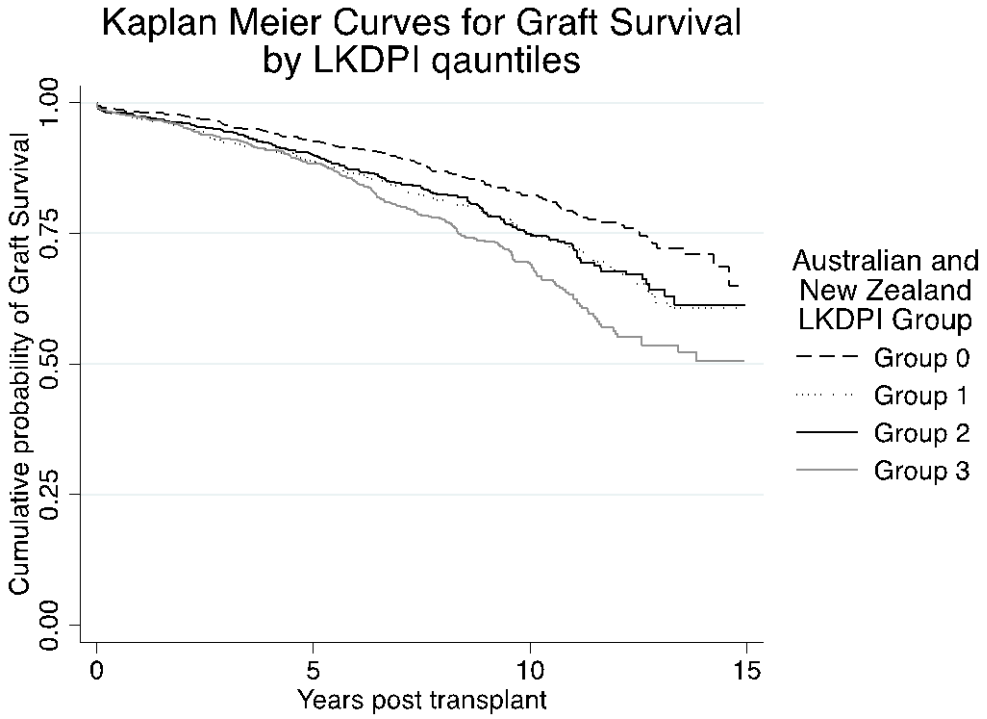

Figure 1: Kaplan Meier Graph demonstrating for graph survival stratified by ANZ LKDPI.

Abstract No. 55

T-FOLLICULAR-HELPER AND B MEMORY CELLS IN ANTIBODY-MEDIATED REJECTION AFTER KIDNEY TRANSPLANTATION.

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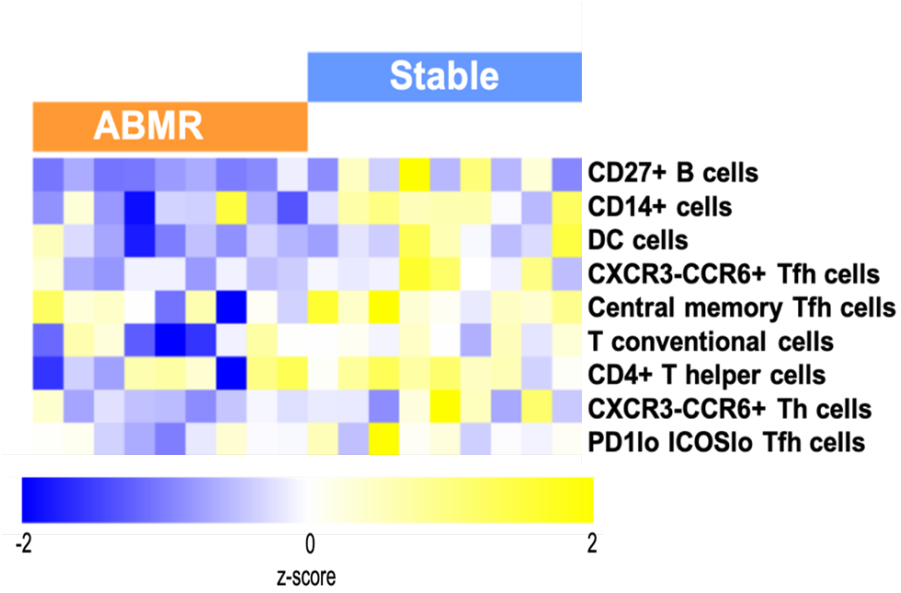
Aims: T follicular helper cells (Tfh) and B memory cells have been associated with donor-specific antibodies (DSA) and implicated in antibody-mediated rejection (ABMR). We sought to compare immune cell subsets in patients who developed ABMR with those that did not in a well described clinical cohort.

Methods: We compared immune cell subsets in 9 deceased donor kidney transplant recipients with ABMR against age- and sex-matched Stable recipients with no rejection. Pre- and 3-month post-transplant samples were immunophenotyped in a 40-monoclonal-antibody panel using cytometry by time-of-flight. Immune cell subsets were manually gated using FloJo and proportions compared using significance analysis for microarray (5%FDR).

Results: In the 9 recipients that developed ABMR (4 women, median age-at-transplant 47 years), 5 had pre-transplant DSA for which 4 received desensitisation therapy, and 4 developed de-novo-DSA. None experienced T-cell mediated rejection. Median time to ABMR was 41 days (IQR=10-358), 5/9 ABMR recipients experienced rejection within 3-months post-transplant. Of the 9 Stable recipients (4 women, median-age-at-transplant 48 years), 5 had pre-transplant DSA for which 2 received desensitisation therapy, and 3 developed de-novo-DSA. We found lower proportions of central memory Tfh (CD3+CD4+CD25-CD45RO+CXCR5+CCR7hiPD1lo), Th17-like Tfh (CD3+CXCR5+CXCR3-CCR6+) and B memory (CD19+CD20+CD27+) cells in ABMR compared to Stable recipient pre-transplant samples (Figure 1). Tfh cells fell in the Stable group at 3-months post-transplant but did not fall in ABMR recipients.

Conclusions: Despite lower levels pre-transplant, Tfh cells were maintained post-transplant in recipients that developed ABMR which may suggest a persistence of Tfh cell subsets in recipients that are susceptible to ABMR.

Figure 1: Cell surface microarray of pre-transplant samples comparing patients who developed ABMR with Stable kidney transplant recipients



Note: Forty T and B cell subsets were profiled and compared across recipient samples between ABMR (orange) and Stable (pale blue) recipients. Cell subsets (rows) that are significantly different between recipients (columns) are shown in the graph above where standardised change in expression of subsets is graded in a z-score from decreased expression (-2, blue) to increased expression (2, yellow). False detection rate was set at 0.5.

Abstract No. 56

INVESTIGATING A ROLE FOR DONOR-DERIVED LYMPHOCYTES IN OUTCOMES FOLLOWING LUNG TRANSPLANTATION.

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Introduction: Lung allografts contain large populations of donor-derived lymphocytes. The effect these lymphocytes have on lung allograft outcome it is not yet fully understood. We aimed to assess the proportion and phenotype of these "passenger" lymphocytes and establish a possible link with the development of chronic lung allograft dysfunction (CLAD).

Methods: Flow cytometric analyses was performed on blood and bronchoalveolar lavage (BAL) from 17 lung transplant recipients from 2 weeks to 18 months post-transplant utilizing antibodies to (a) delineate lymphocyte subsets and donor and recipient HLA and (b) to identify lymphocyte subsets. These findings were then correlated to the development of CLAD within 3 years post lung transplant.

Results: Donor-derived lymphocytes were observed in the blood of lung transplant recipients and constituted 0-2% lymphocytes. This frequency declined rapidly in 10 patients reaching undetectable levels of donor-derived lymphocytes at 6 months post-transplant. However, in 3 patients, low levels of chimerism (andgt;0.5%) persisted and were observed 18 months post-transplant. The frequency of donor-derived lymphocytes in BAL decreased less rapidly following transplantation, with higher levels at 2 weeks (5-90%) and 18 months (0-20%) post-transplant than blood. Interestingly, patients with confirmed CLAD at 3 years post-transplant had on average lower initial lymphocyte chimerism (Blood: 0.64% vs 0.99%, BAL: 22.6% vs 55.2%) and reached undetectable levels earlier than patients without CLAD.

Conclusion: These results support the hypothesis that donor-derived lymphocyte populations may play an important role in the modulation of the immune environment of lung allografts following transplantation.

Grant support: Lungitude Foundation

Abstract No. 57

UNDERSTANDING AND ATTITUDES TOWARD ACCEPTING AN INCREASED VIRAL RISK DONOR IN PATIENTS ACTIVE ON THE KIDNEY TRANSPLANT WAITING LIST

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Acceptance of increased viral risk donors (IVRDs) has increased internationally. Victoria recently implemented a state-wide IVRD information sheet and consent form (PICF) for potential recipients.

Aims: To assess characteristics of patients willing to accept IVRDs and reasons influencing decision-making.

Methods: All 149 patients active on the kidney transplant waiting list at our centre were posted the IVRD PICF and a survey designed to assess their understanding of risk and willingness to accept an IVRD kidney. Responses were obtained via mail or telephone.

Results: During the study period, 48 patients underwent transplantation, 15 were removed from the waiting list, and one died. 74 of the remaining 85 patients completed the survey. 28 patients (37.8%) would accept an IVRD, with the most commonly cited reason being to reduce wait-time. 26 patients (35.1%) would not accept, most commonly due to concern about infection, whilst 20 patients (27%) were undecided. Accepting patients had a longer mean wait-time (4.7±4.2 vs 2.7±2.7 years, p=0.048) and a higher median (IQR) calculated PRA(%) (97(9-99) vs 1.5(0-97.5),p=0.023) relative to those not accepting. Age and sex were not different between groups. The median acceptable infection risk from transplantation was 1 in 1000 for accepting patients. A higher proportion of patients unwilling to accept reported an incomplete understanding (19% vs 3%) of the PICF. The most feared potential infection was HIV.

Conclusions: Increased waiting time and greater HLA sensitisation were associated with an increased likelihood of accepting an IVRD. The impact of patient education on IVRD acceptance requires further examination.

Abstract No. 59

LONG-TERM METABOLIC COMPLICATIONS FOLLOWING SIMULTANEOUS PANCREAS-KIDNEY TRANSPLANTATION: A SINGLE-CENTRE RETROSPECTIVE STUDY

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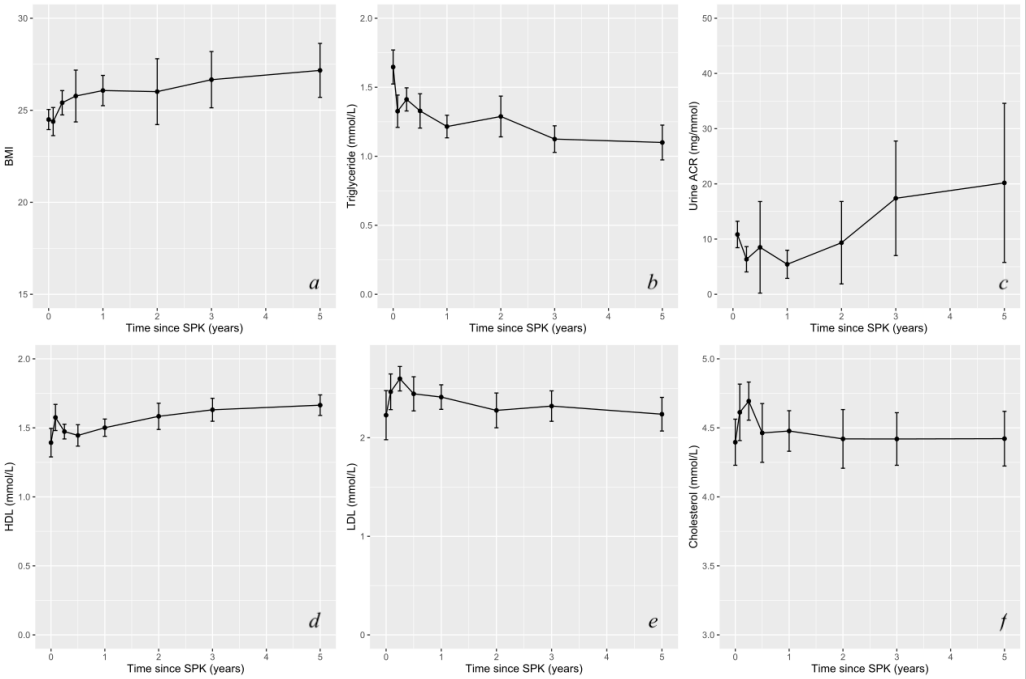
Simultaneous pancreas-kidney (SPK) transplantation is the treatment of choice for achieving insulin independence in type I diabetics with end stage renal disease. However, long-term metabolic outcomes have previously been reported poorly in this cohort.

Aims: To determine long-term metabolic outcomes in SPK recipients.

Methods: We retrospectively reviewed SPK recipient BMI, urine albumin-creatinine ratio (uACR), total cholesterol, HDL, LDL and triglyceride levels up to five years following transplant at Westmead Hospital (2009-2019).

Results: Rates of graft survival from 244 SPK recipients (59% male, median age 39 years at transplant) were 95% at five years, while patient survival was 94% at three years and 93% five years post-transplant. At the time of transplantation, 39% of recipients were treated with statins and 52% with anti-hypertensive medications. Five years post-transplant, 35% remained on statins and 50% on anti-hypertensives (n=24). Our data demonstrated a significant rise in BMI five years post-transplant as compared to pre-transplant baseline (pandlt;0.001; figure). Triglyceride levels decreased early following transplant but were stable over five years of follow-up. HDL levels increased significantly at three (pandlt;0.01) and five years (pandlt;0.01) post-transplant. However, no significant changes were observed in total cholesterol, LDL or uACR over the follow-up period.

Conclusions: SPK recipients experience significant weight gain despite improvements in lipid profile post-transplant. Further work will involve analysis of outcomes over a more extended follow-up period to evaluate discrepancies in this metabolic picture.



Follow-up of SPK recipients at Westmead Hospital (2009-2019) demonstrating cohort mean a) BMI; b) triglyceride level; c) urine ACR; d) HDL; e) LDL and f) total cholesterol, up to five years since transplant

Abstract No. 60

INCIDENCE AND MORTALITY RELATED TO CANCER IN KIDNEY TRANSPLANT RECIPIENTS: GEOGRAPHICAL VARIATION AND CENTRE-SPECIFIC IMMUNOSUPPRESSIVE

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MANAGEMENT/Aims: Cancer-related mortality rates are higher in kidney transplant recipients compared with the general population. This study aims to determine if transplant recipients living in rural areas had a higher rates of cancer incidence and mortality, and whether the transplanting centre has effect on these rates.

Methods: We analysed the data from ANZDATA between 1st January 2011 and 31st December2017. Logistic regressions were used to determine if rurality had an impact on immunosuppression and cancer incidence following transplant. Logistic values were reported as odds ratio (OR) and 95% confidence interval (95%CI).

Results: 7,410 transplant recipients with a median age of 52 years (IQR: 41-61) were analysed. More men than women received transplants (n=4,712 and n=2,698 respectively). 5,271 patients (71.1%) were living in a major city, with 2,139 (28.9%) categorised as living outside a major city. Cancer was diagnosed in 15.7% (n=1,160) of the patients a median of 29.5 months (IQR: 13.6-53.9) after transplant. Of these 102 patients had a recorded death attributed to cancer (1.4% of the total cohort). People living outside of a major city had increased odds of 1.48 (95% CI: 1.30-1.69) of being diagnosed with cancer following transplant. This risk remained unchanged (OR: 1.49, 95%CI: 1.28-1.73) after adjusting for all confounders relating to both the patient and the transplant centre. There was no significant difference in the level of immunosuppression between metropolitan and rural transplant recipients.

Conclusions: Rurality may have implications on post-transplant cancer occurrence, with no effect of long-term immunosuppressive regime. Careful routine surveillance is recommended in rural transplant patients

Abstract No. 61

COMPARISON OF IN VITRO SUPPRESSION OF CD4+CD25-T EFFECTOR CELL PROLIFERATION BY TH2-LIKE TREG AND NAÏVE TREG USING A REFINED FLOW CYTOMETRY BASED ASSAY

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Aims. Naïve $CD4^+CD25^+$T regulatory cells (Treg) activated by antigen and rIL-4 generate Ts2 cells expressing IL-5Rα. Ts2 cells activated with rIL-5 and specific antigen generate more potent Th2-like Treg. Accurate assessment of specific in vitro suppression of effector cells is difficult due to presence of stimulator cells and Treg. We assessed the suppression by Th2-like Treg using a refined flow cytometry based assay.

Methods. Th2-like Treg were generated by 4d culture of $CD4^+CD25^+$ tTreg from naïve DA rats with PVG-stimulators and rIL-4 to generate Ts2 cells, which were further cultured with PVG-stimulators and rIL-5 for 3d. Serially diluted freshly isolated $CD4^+CD25^+$ tTreg or Th2-like Treg were co-cultured for 5-7 days with constant number of $CD4^+CD25^-$T DA effector cells and PVG thymic stimulator cells. Suppression of $CD4^+CD25^-$T cell proliferation was analysed using FACS, and flow cytometry to assess the number of undivided CTV^+ $CD4^+CD25^-$T effector cells after exclusion of $CFSE^+$ stimulator cells and CD25-PE^+ Treg.

Results. $CD4^+CD25^-$T cells typically proliferated 5-6 cycles by 5d, consistent with 1-2% of original responder population proliferating against alloantigen. tTreg suppressed T effector cell proliferation at ratios of 1:1 to 1:4 (Treg:Responder). With Th2-like Treg, $CD4^+CD25^-$T cell proliferation was suppressed up to 1:128 or 1:512 in both 5 and 7 day cultures.

Conclusion. This assay specifically assessed the suppression of effector cells, avoiding interference from stimulator cells or Treg and confirmed that the two-step activation of tTreg, first with IL4/antigen then IL-5/antigen, could induce highly potent Treg that suppress at high *in vitro* ratios of 1:128.

Abstract No. 62

DEVELOPMENT OF A DONOR-RECIPIENT MATCHING ALGORITHM FOR LUNG TRANSPLANTATION IN NSW

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Aim: Whilst the United States, Germany and the Netherlands use the Lung Allocation Score to match donor lungs with the most suitable recipient, there currently exists no similar scoring system in Australia. Our objective was to develop an allocation algorithm for lung transplantation to be used at St Vincent's Hospital, Sydney.

Method: A review of the current literature and survival analyses of data from lung transplant (LTx) activity at this centre from 1 January 2015 to 31 December 2019 was performed to determine the prognostic variables to be included in our algorithm. The algorithm was developed using Microsoft Excel, then prospectively validated over a 10-week period in which transplant clinicians were surveyed about the algorithm's choice(s) of recipient. It was further validated retrospectively by comparing the patients put forward for crossmatch by the algorithm with the clinician's selection, for all LTx performed between 1 January and 22 June 2020.

Results: The patient and donor parameters scored by the algorithm are displayed in the table. The algorithm was trialled a total of 39 times. 96.7% of patients put forward for crossmatch by the clinician were within the algorithm's selection parameters. In all trials, the final recipient chosen by the clinician was within the algorithm's top 5 candidates.

Conclusion: A working lung allocation algorithm that can streamline the allocation process and assist transplant clinicians in allocating lungs to recipients in an equitable, transparent and reproducible manner was developed. Further adjustments and validation may be required before implementation at this centre.

Donor Parameters	Patient Parameters		
	Suitability	Urgency	Risk
• Blood group • Predicted total lung capacity (TLC) • Gender	• Blood group • Actual & predicted TLC • Complement-dependent cytotoxicity • (CDC) • crossmatch • Donor specific antigen • (DSA)	• Waitlist time • Priority grade • Compassionate recipient status • Level of support • Pulmonary hypertension • Calculated panel reactive antibodies • (cPRA%)	• Age • Total frailty score • Serum creatinine • Gastro-oesophageal reflux disease • (GORD) • Osteoporosis • Diabetes

Abstract No. 63

TREATMENT WITH THE SPIDER VENOM PEPTIDE HI1A IS PROTECTIVE IN A MOUSE MODEL OF RENAL ISCHEMIA REPERFUSION INJURY.

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Background. Ischemia-reperfusion injury (IRI) detrimentally affects the function of transplanted organs. Ischemia increases acidity in affected tissue, activating the cell surface acid sensor ASIC1a and triggering cell death. The prototypic ASIC1a inhibitor psalmotoxin 1 (PcTx1), isolated from a South American tarantula, protects in murine models of stroke and renal IRI. Hi1a is a highly stable ASIC1a inhibitor from the Australian funnel web spider with superior specificity, potency and pharmacokinetic properties. We investigated whether targeting ASIC1a with Hi1a would protect against injury in a mouse model of unilateral renal IRI.

Methods. C57BL/6 mice underwent right nephrectomy followed by 22 min left renal ischemia, and were euthanased 24 hr after reperfusion for analysis of renal function (serum creatinine). Treatment groups (n=8) were injected intravenously with Hi1a 30 min pre-ischemia (100 µg/kg) or immediately post-reperfusion (100 µg/kg or 1000 µg/kg). PcTx1 was used as a comparator in the post-reperfusion treatment study.

Results. IRI is induced in this model as indicated by increased serum creatinine levels in vehicle control mice compared with sham (pandlt;0.0001). Pre-ischemia administration of 100 µg/kg Hi1a was not protective. However, post-ischemia treatment dose-dependently preserved renal function. PcTx1 given post-reperfusion in an equimolar amount to the higher dose of Hi1a was similarly protective.

30min pre-ischemia treatment	Creatinine (µM)	Immediately post-ischemia treatment	Creatinine (µM)
Vehicle	219.4±5.4	Sham	19.7±0.7
Hi1a (100 µg/kg)	219.6±8.4	Vehicle	247.6±14.6
		Hi1a (100 µg/kg)	181.3±15.7*
		Hi1a (1000 µg/kg)	102.9±20.9***
		PcTx1 (540 µg/kg)	94.6±22.0***

*p<0.05, ***p<0.0001 treatment versus vehicle control.

Conclusion. Therapeutic administration of Hi1a significantly protected against renal IRI. These results confirm that ASIC1a is involved in the pathophysiology of renal IRI and identify Hi1a blockade as a promising new approach to improve organ transplant function.

Abstract No. 64

EVALUATING NEUTROPHILS AS A BIOMARKER FOR DELAYED GRAFT FUNCTION IN KIDNEY TRANSPLANT RECIPIENTS

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Delayed graft function (DGF) is a common post-transplant complication which incurs significant healthcare costs and worsens graft outcome. Ischemia reperfusion injury contributes a significant proportion to the development of DGF and neutrophils are one of the earliest responders in the pathophysiological process. Our hypothesis was that early neutrophil infiltrate may be predictive of severity.

Aims: Examine the clinical risk factors and outcomes associated with DGF and assess neutrophils as a prospective biomarker for DGF with supporting transcriptomic gene data.

Methods: Data from a single-centre cohort study of 272 kidney recipients at Westmead Hospital from 2012–2020 was collected and risk factors and clinical outcomes of DGF were assessed. Protocol kidney biopsy tissue was processed for RNAseq at 0 and 3 months, and formalin fixed tissue was stained for neutrophils.

Results: Nineteen percent of the cohort had DGF. The most important risk factors for DGF were T2DM [OR, 8.4; CI, 1.75-40.37], re-transplantation (OR=4.43; 95% CI=1.24-15.78), and DCD graft (OR=3.92; 95% CI=1.8-8.54). Incidence of BPAR was higher for DGF patients but did not significantly impact 5-year graft or patient survival. There was enrichment for neutrophil adhesion and diadepesis by ingenuity pathway analysis but this did not translate to significant difference in neutrophil counts between DGF and non-DGF groups.

Conclusions: There are clear risk factors and differences in transcript signature for DGF but neutrophil count was not a useful biomarker for this application at the time the biopsy was taken.

Abstract No. 65

TITLE: THE DEVELOPMENT OF GAD65-CAR TREGS AS A METHOD OF IMMUNOSUPPRESSION FOR ISLET TRANSPLANT RECIPIENTS

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Regulatory T cells (Tregs) have been extensively investigated as an alternative method of immunosuppression in transplantation. Antigen-specific Tregs are more superior to polyclonal Tregs in their migration to and persistence in target tissue, and prevention of unwanted widespread suppression. However, they are rare in peripheral blood, requiring significant expansion for therapeutic quantities, which can be costly and time-consuming. Therefore, this project aims to utilise chimeric antigen receptors (CARs) to confer antigen-specificity to Tregs.

Method: We have generated lentivirus expressing various CARs specific for the Glutamic Acid Decarboxylase (GAD65), a key auto-antigen expressed in islets. These CARs differ in their spacer domain length (small, medium and large), a region between the antigen binding and transmembrane domain which is important for optimal CAR binding. CD3+ T cells isolated from human peripheral blood were transduced with this lentivirus and screened for CAR expression and antigen-specific proliferation.

Results: We have generated GAD65-specific CAR T cells, with a high (70-90%) transduction efficiency. In addition, GAD65 CAR T cells with small and large spacer domains were highly viable with 88% and 73% proliferation respectively upon exposure to native GAD65 protein over a 5-day period, which was comparable with bead stimulation. Conversely, medium length spacer domain conferred andlt;20% proliferation and significantly lower viability. Moreover, when exposed to BSA, no proliferation was observed.

Conclusion: We have developed a GAD65-CAR which can be further tested in preclinical studies in Tregs as a method of immunosuppression in islet transplant recipients.

Abstract No. 67

TITLE: EXPLORING GENOMIC DATA REVEALS A CONSERVED TRANSCRIPTOME IN TOLEROGENIC DENDRITIC CELLS.

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Background: Dendritic cells (DC) are central to regulating innate and adaptive immune responses, and strategies that alter DC function provide new therapeutic opportunities. Pharmacological approaches induce tolerogenic DC (TolDC) are maturation-resistant, direct a regulatory immune response, and are being explored in clinical trials for efficacy in transplantation. While phenotypic markers of TolDC are well-established, the genes responsible for their tolerogenic effects are undetermined.

Methods: We aimed to devise an integrated gene signature set that predicted tolDC. We included publicly available microarray and RNA-seq datasets that reported immature, tolerogenic and/or mature DC in vitro. A qualitative assessment was performed to determine the quality of each dataset. Once verified, a set of differentially expressed (DE) genes was yielded. The ensemblIDs of DE genes were mapped across datasets.

Results: Utilising the twelve publicly available datasets, a set of conserved genes was identified for both immature and activated states of TolDC. A set of critical genes maintained across the immature TolDC phenotype included the upregulation of cell migration (S100), intracellular trafficking (REEP5) and an inhibitor of proinflammatory activation (VSIG4). Alternatively activated TolDC demonstrated increased expression of genes responsible for decreasing immune cell recruitment (CKLF) and cell cycle regulation (CCND2).

Conclusion: Through the comparison of several available genomic datasets, we determined a set of genes that we deem necessary for generating tolDC. This work has broad implications for the application of tolDC to clinical practice, establishing a quality control metric for their in vitro preparation.

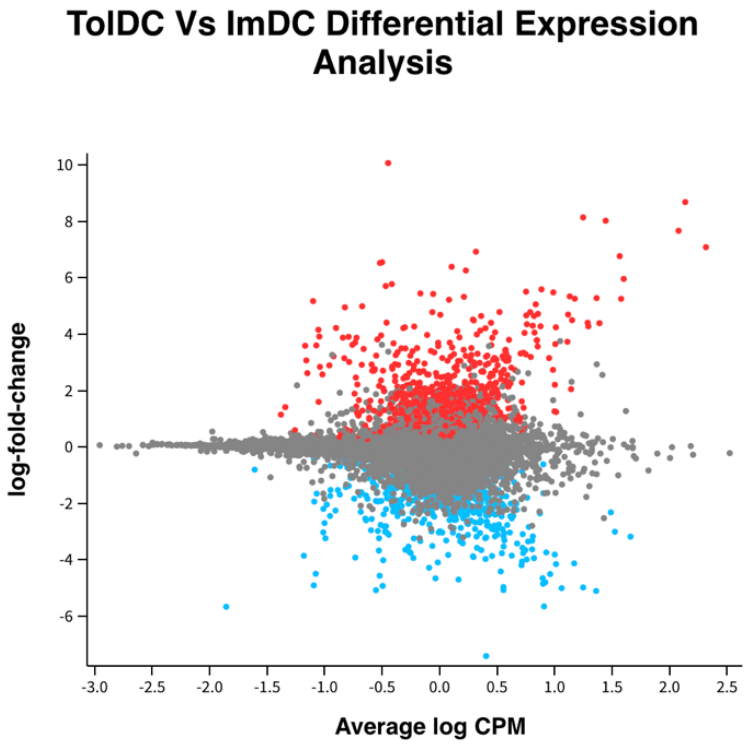

Figure 1: Mean-Dispersion plot illustrating the range of differentially expressed gene within a dataset. Significant genes are coloured according to their log fold change and significance level. Genes upregulated and downregulated when comparing tolerogenic dendritic cell groups are coloured red and blue respectively.

Abstract No. 68

OUTCOMES OF STEROID-FREE IMMUNOSUPPRESSION AND THERAPEUTIC ANTI-COAGULATION IN PANCREAS TRANSPLANTATION - THE ADELAIDE EXPERIENCE OF AN INITIAL 10 PATIENT COHORT

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Aims: Solid Organ Pancreas transplant (PT) commenced in Australia in 1984. Adelaide's clinical PT program began in August 2018. Unique to this program in Australia is being steroid-free with elective therapeutic anticoagulation for the first 6-weeks post-transplant. We describe our early outcomes with pancreas transplantation in our population.

Methods: Data collected prospectively and stored in a departmental database was extracted and analysed.

Results: 10 PTs occurred since program inception. The cohort comprised 8 SPK, 1 PTA and 1 PAK transplants. Median age was 43.5 years-old (range 39-58), with a 3:2 male-to-female ratio. Median duration of follow up was 443 days (range 45-833). There were 8 brainstem death donors (DBD) (median age 39 years-old, range 25-53) with a 1:1 male-to-female ratio. Two donors were following circulatory death (DCD), both males aged 37 and 24. Median pancreas cold ischemic time was 7.2 hours (range 5.45-12.26). Primary pancreas function occurred in all patients. 2 patients returned to theatre for post-operative haemorrhage, and 3 for complications secondary to graft pancreatitis with 2 requiring necrosectomy. Median length of stay was 16.5 days (range 10-60). One case of CMV infection occurred in a recipient not receiving valgancyclovir prophylaxis. No cases of BK virus nephropathy occurred. There was one episode of acute rejection at 9 months due to non-compliance with immunosuppression. Patient and graft survival have been 100% with an average 6-month HbA1c of 5.2%.

Conclusion: Our experience with steroid-free immunosuppression is encouraging with outcomes comparable to larger published series. There has been no added morbidity due to anti-coagulation and importantly, no graft thrombosis in this initial cohort.

Abstract No. 69

EFFECT OF PRE-TRANSPLANT SPLENECTOMY VACCINATIONS ON ANTI-A/B ANTIBODY TITRES IN ABO-INCOMPATIBLE RENAL TRANSPLANT RECIPIENTS

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Background: Splenectomy vaccination is commonly employed prior to ABO-incompatible (ABOi) transplantation in case of the need for splenectomy. Concern exists that these predominantly polysaccharide vaccines may induce increased anti-A/B titres, through cross-reactivity, given that A/B antigens are also polysaccharides.

Aim: To investigate the effect of pre-transplant splenectomy vaccinations on anti-A/B antibody titres in prospective ABOi renal transplant recipients.

Methods: All patients who underwent ABOi transplantation at our centre with anti-A/B titres either side of vaccination were included. Vaccine type and timing of administration was collected from medical records. Paired pre- and post-vaccination anti-A/B antibody titres were compared using the Wilcoxon signed-rank test. Anti-HLA antibody data was also collected.

Results: Forty-four ABOi renal transplant recipients were included. Mean recipient age at transplant was 50±11.9 years and 34% were female. The most common ABOi donor to recipient combination was A1 to O. The most frequently administered vaccines were the Quadrivalent (ACWY) meningococcal conjugate and Haemophilus influenzae type B conjugate. The median anti-A/B titre was 1:32 before (range 1:1 to 1:256) and 1:32 after vaccination (range 0 to 1:1024). For the group, there was no difference between paired pre- and post-vaccination titres (median change 0, range -3 to 5, p=0.6). The table displays titre changes by vaccine combination. Additionally there was no significant increase in anti-HLA Abs following vaccination.

Conclusion: Splenectomy vaccinations had no significant impact on anti-A/B titres prior to ABOi transplantation in this cohort. These results provide reassurance regarding the safety of splenectomy vaccination pre-transplant in terms of ABOi and HLA sensitisation.

Table 1: Change in anti-A/B titres following splenectomy vaccination by combination

Combination frequency	PCV-13	PPV-23	Men-ACWY	Men-B/C	HiB	Median (range) anti-A/B antibody titre dilution change
3	No vaccines					1 (0-2)
16		x	x	x	x	0 (-2-4)
8	x		x		x	0.5 (-3-3)
4	x		x	x	x	0 (-2-1)
4	x	x	x	x	x	3 (0-5)
3		x	x		x	0 (-1-1)
2		x		x	x	-1
1	x		x			0
1	x			x	x	1
1				x	x	0
1	x	x	x		x	-3
Total (n=44)						

PCV-13= 13 valent pneumococcal conjugate; PPV-23= 23 valent pneumococcal polysaccharide vaccine; Men-ACWY= Quadrivalent (ACWY) meningococcal conjugate; Men-B/C= Meningococcal group B/C; HiB=Haemophilus influenzae type B conjugate

Abstract No. 70

RELATIVE SURVIVAL IN KIDNEY TRANSPLANT RECIPIENTS WITH DE-NOVO CANCERS VS NON-TRANSPLANT CANCER PATIENTS: A POPULATION STUDY 1980-2016

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Introduction: Evolution of cancer therapies has improved survival in the general population. For kidney recipients with cancer, balancing transplant function with nephrotoxic and other adverse events of cancer therapies may mean survival gains are not translated. Relative survival accounts for background mortality and shows excess burden for population subgroups.

Methods: We aimed to compare relative survival from cancer diagnosis between the general population and kidney recipients in Australia and New Zealand. We included all kidney recipients in 1980-2016 with de-novo cancer post-transplant from ANZDATA. Relative survival was estimated using Ederer II in kidney recipients and compared to relative survival estimates from the general population with cancer, both using the general population as reference, adjusting for age, sex, country and calendar year.

Results: Of 3,603 kidney recipients, 2,759 had de-novo cancer post-transplant where 1,612 died over 14,181 person-years. Overall, relative survival was lower among kidney recipients (0.54, 95%CI: 0.52-0.56 at 5 years) compared to the general population with cancer (AU:0.69, NZ:0.61; at 5 years) (Figure 1A). Relative survival remained lower among kidney transplant recipients for colorectal, melanoma, breast and prostate cancer but was comparable for lung cancer (Figure 1B-F).

Conclusion: Relative survival was lower among kidney recipients with de-novo cancers, overall and in certain cancers such as colorectal, melanoma and breast. Decreased survival may be due to poorer access to, more harm or less efficacy of treatments.

Abstract No. 71

IN VITRO ACTIVATION OF HUMAN $CD4^+CD25^+CD127^{LO}$ TREG SUBPOPULATIONS

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Background: Human T regulatory cells ($CD4^+CD25^+CD127^{lo}Foxp3^+$) population is heterogenous. It can be divided into three subpopulations; Population I (Pop I) as $CD25^+CD45RA^+$ naïve Treg, Pop II as $CD25^{hi}CD45RA^-$ highly activated Treg and Pop III as $CD25^+CD45RA^-$. Activated Treg express chemokine receptors of activated T cells, including CXCR3 (Th1) and CCR6 (Th17), that promote their migration to inflammation site. Culture of whole Treg population with alloantigen and rIL-2 increased proportion of Population II (activated Treg). Here, we investigated the effect rIL-2 and allostimulation on activation on individual populations.

Methods: Healthy human blood was subjected to PBMC isolation using standard Ficoll method. PBMC were stained with CD4, CD25, CD127 and CD45RA. Subpopulations within Treg ($CD4^+CD127^{lo}CD25^+$) were sorted and cultured for 4 days with rIL-2 and alloantigen (allo). Multicolour flow cytometry assessed changes in Treg subpopulations.

Results: Pop I lost Foxp3 in absence of allo or rIL-2. Culture with both (allo/rIL-2) produced cells with higher Foxp3 and CD25 expression, which expressed CD45RA, and had increased expression of CCR4 but not CXCR3 and CCR6. Pop II or III were not increased.

Pop II died when cultured alone or with allo. Activation with rIL-2 alone or with allo increased expression of Foxp3 and CD25, maintained CCR4 and CXCR3 expression and increased $CCR6^+$ cells.

Pop III when cultured with IL-2, had mixed changes, some cells expressed less Foxp3 while others shifted to Pop II.

Conclusions: Each Treg subpopulation has a different pathway of activation. These studies may identify a way to grow antigen-specific Treg for therapy

Abstract No. 72

FACTORS INFLUENCING CELL-FREE DNA LEVELS: IMPLICATIONS FOR DONOR DERIVED CELL-FREE DNA ASSESSMENT IN TRANSPLANT PATIENTS

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Background: Detecting elevated levels of donor-derived cell-free DNA (dd-cfDNA) in the plasma of transplant recipients has been used as a metric to determine graft injury due to immunologic rejection. To clinically interpret the quantification of dd-cfDNA with respect to total cfDNA, we sought to investigate how various clinical and treatment-related factors may influence cfDNA levels.

Methods: Retrospective analysis of 3 different sample cohorts processed through a next generation sequencing platform: Pregnant Women (n = 205,052), Transplant Patients (n = 1,122) and Cancer Patients (n = 1,062) was performed. Analysis of association between cfDNA concentration and other variables such as patient weight, treatment status and time after surgery was performed using absolute or indirect measures of cfDNA levels (reported as arbitrary units [AU]).

Results: An elevated level of total cfDNA was observed to be associated with an increase in patient weight in pregnant women and early-stage cancer patients. Concentration of cfDNA was significantly elevated in patients receiving active treatment and in metastatic cases ($P<0.0001$). Additionally, major trauma such as surgery was found to significantly contribute to the increase in total cfDNA levels within 2-weeks of surgery ($P<0.01$).

Conclusion: cfDNA levels can be influenced by multiple factors including surgery and patient weight. Considering patient-related factors associated with changes in total cfDNA levels may improve the clinician's interpretation of dd-cfDNA results and patient outcomes.

Abstract No. 74

COVID-19 IMPACT OF BORDER CLOSURE ON LUNG TRANSPLANTATION

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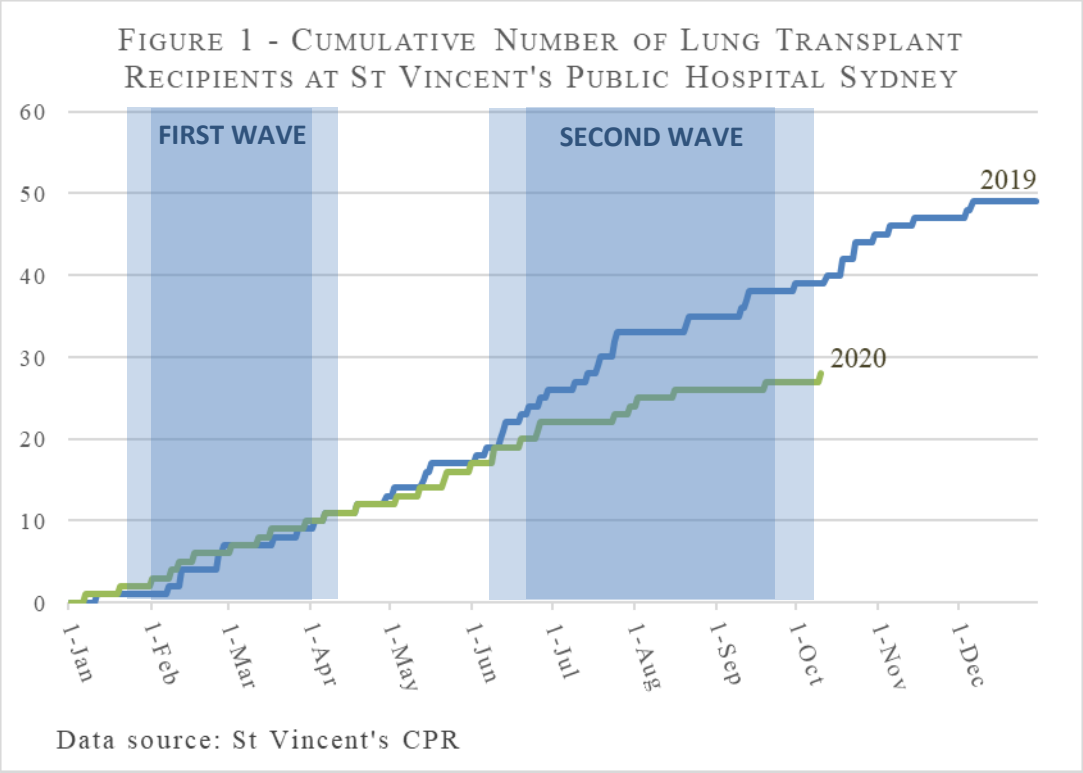
INTRO: This study reviews the effect of border closures following the second wave of COVID-19 on lung transplantation in New South Wales (NSW). During this period the NSW organ procurement team was unable to enter Victoria as well as other key states. Donation rates declined nationally. Donors in South Australia were accessed, by the creation of a local Heart Lung Retrieval team.

METHOD: A retrospective cohort study analysed the St Vincent's Hospital Transplant database and Australia and New Zealand Organ Donation Registry from Jan 2017 to November 2020. Frequency of donor offers, donor and recipient characteristics and post-operative outcomes were analysed.

RESULTS: Transplantation declined from June to November, corresponding with border closures in response to the second wave of COVID-19. During peak Victorian COVID-19 cases in September, only one lung transplant occurred in NSW. From January to November there was a decline from 47 to 37 lung transplants from 2019 to 2020. After the first COVID wave (February to March) overall lung transplant numbers decreased from 16 to 7. During the second COVID wave, (June-Nov) overall lung transplant numbers further declined from 30 to 19.

CONCLUSION: In 2020 the number of lung transplants across Australia decreased 14.5%. The number of lung transplants declined during COVID-19's first wave, then slowly increased. NSW-VIC border closures during the second COVID wave again reduced transplant numbers. Despite lower COVID cases than the first wave in NSW, local and interstate organ donation decreased in the second wave, halving the lung transplantation rate per month.



Abstract No. 75

THE IMPACT OF CHRONIC PANCREATITIS ON THE PAEDIATRIC POPULATION OF SOUTH AUSTRALIA

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Introduction: Chronic Panreatitis (CP) in the paediatric population is a rare condition, often inherited, with disabling impacts on education and a high risk of negative sequalae continuing into adulthood. Total pancreatectomy and islet autotransplantation (TP-IAT) is a novel procedure that may benefit selected individuals with CP.
Aims: 1) Investigate the epidemiology of CP in the paediatric population of South Australia (SA), 2) Estimate the burden of paediatric CP on SA healthcare and 3) Estimate the impact of CP on education.
Methods: The index cohort consisted of all individuals having a first diagnosis of CP aged ≤19 years in SA public hospitals from 1/6/2000 to 30/6/2019. Age- and sex-matched controls were drawn from the general population as well as from individuals who were diagnosed with type 1 and 2 diabetes mellitus during the same period.
Results: A total of 73 index cases were identified. Crude prevalence and incidence of paediatric CP were estimated at ~6.8/100,000 and ~0.98/100,000 respectively. Of the index cohort, 24 (32.8%) of cases of paediatric CP self-identified as Aboriginal or Torres Strait Islander. The case group averaged 11-fold more hospital visits, ~5-fold more emergency department visits and ~10-fold more days in hospital than the general public (all $P < 0.001$). The index cohort averaged two-fold higher rates of absence from education than the general public ($P < 0.001$).
Conclusion: Paediatric CP patients consume a high volume of public health services and are significantly impacted in ability to engage in education. Selected inviduals within this group may be candidates for TP-IAT.

Abstract No. 76

RENAL TRANSPLANT SCREENING FOR ADVANCED COLORECTAL NEOPLASIA IN THE WELLNESS CLINIC

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Aim: To determine whether it is appropriate to screen for advanced colorectal neoplasia with immunochemical faecal occult blood testing (iFOBT) for human haemoglobin in the renal transplant population.
Method: The screening period for this retrospective study was from 1st July 2014 to 30th June 2019 on renal transplant recipients who were invited to attend the wellness clinic conducted by a Nurse Practitioner. iFOBT x2 during that time period were requested on an annual basis for those patients who attended the wellness clinic. Renal transplant recipients with positive iFOBT were referred for colonoscopy. Advanced colorectal neoplasia was defined as an adenoma of at least 10 mm in diameter, villous features, high-grade dysplasia or colorectal cancer.
Results: 44% (n=103) of prevalent renal transplant recipients attended the wellness clinic. Baseline characteristic were 84% (n=63) male, with a mean age of being transplanted at 50 years old and 7.17 years post renal transplant. 66% (n=68) of this subgroup underwent iFOBT x2 on at least one occasion. 33.8% (n=23) of initial iFOBTs were found to be positive and were referred for colonoscopy. 69.5% (n=16) had colonoscopies. Of those, 12.5% (n=2) revealed advanced colorectal neoplasia, 25% (n=4) had non-advanced colorectal neoplasia and the remainder 62.5% (n=10) with normal or insignificant pathology. One patient within the normal subgroup developed colorectal cancer within two years after iFOBT screening and colonoscopy.
Conclusion: Screening for advanced colorectal neoplasia post renal transplantation with iFOBT may be considered worthwhile in this at-risk population.

Abstract No. 77

TACROLIMUS INHIBITS MITOGEN AND MIXED LYMPHOCYTE REACTION INDUCED PIG T-CELL PROLIFERATION IN VITRO

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Introduction: The pig has become an important and increasingly used large animal model in transplantation, and in particular in islet transplantation. However, the effects of immunosuppressive drugs on pig cells have not been extensively studied.
Aim: To assess the effect of calcineurin inhibitor tacrolimus on pig-T cell proliferation in vitro.
Methods: CellTrace™ Violet labelled pig-T cells were cultured with 1-10 µg/ml phytohemagglutinin (PHA) with or without tacrolimus (5, 20, 100 ng/ml) for 3-6 days, and in 5 day Mixed lymphocyte reaction (MLR) with human PBMC as stimulators. Suppression of proliferation was assessed by flow cytometry. The effect of tacrolimus on interleukin-2 (IL-2) messenger RNA was assessed in Real-time PCR.
Results: Pig T-cells stimulated with 10 µg/ml PHA reached over 90% proliferation after 5 days in culture, comparable to human T-cells. While 20 ng/ml tacrolimus inhibited proliferation of human T-cells at 5 days by 50-70%, pig T-cell proliferation was not inhibited. However, in PHA dose (1 – 10 µg/ml) and time response experiments, significant inhibition of pig T-cell proliferation was observed at days 3 and 4, and not days 5 and 6. In 5 day MLR, pig T-cell proliferation was inhibited by tacrolimus, comparable to inhibition in human MLR. Pig IL-2 messenger RNA was upregulated with PHA and in MLR, and downregulated with tacrolimus at 24 h, 3 and 4 days and was reduced to background levels by days 5 and 6.
Conclusion: In our in-vitro studies, mitogen and MLR stimulated pig-T cells proliferated efficiently and were inhibited by tacrolimus.

Abstract No. 78

PHOSPHOLIPASE A2 RECEPTOR CAR T CELLS LOCALISE TO THE KIDNEY

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Background: Idiopathic Membranous nephropathy (IMN) is a leading cause of autoimmune renal disease driven in many cases by the cognate antigen M-type phospholipase A2 receptor (PLA2R) expressed on podocytes. Chimeric antigen receptors (CAR) T cells use antibody fragments to direct T cells to specific antigens and have achieved clinical success in cancer. The strategy can be translated to use PLA2R targeting to direct Tregs to the kidney.
Aims: We aim to develop CAR T cells directed towards PLA2R using a PLA2R-specific monoclonal antibody which targets human, mouse and rat kidneys.
Method: Mice were immunized with PLA2R peptides to produce monoclonal antibodies (mAb) against PLA2R. Hybridomas were established, screened, and sequenced for use in making the ScFv. The PLA2R-CAR plasmid was transformed in competent *E. coli* cells for DNA extraction and transformed in GP2-293 cell line. CD4+ T cells from mice spleen were stimulated then transduced with packaged PLA2R-CAR cells, sorted and injected into mice.
Results: We have confirmed human expression of the M-type PLA2R in podocytes *in vitro*, detection of anti-PLA2R mAb in mouse sera of immunized mice, sequenced the mAb hybridoma. PLA2R-CAR plasmid and CD4+ CAR-T cells was successfully generated and injected into mice. PLA2R CAR-T cells were confirmed in circulation by flow cytometry and in kidneys by immunofluorescent staining.
Conclusion: We have developed PLA2R-CAR-T cells against a podocyte target antigen in membranous nephritis. CD4 T cells expressing a CAR construct containing a scFV targeted at PLA2R preferentially targeting kidney has been demonstrated and may be of use in kidney transplantation.

Abstract No. 79

FINGERPRICK SAMPLING WITH HEMAPEN® TO MONITOR TACROLIMUS CONCENTRATIONS

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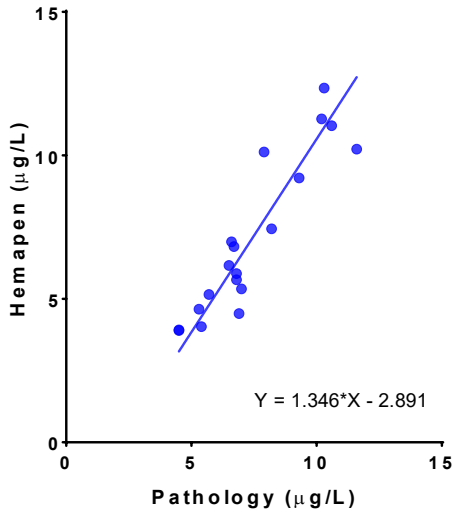
Advances in drug quantification and interest in remote sampling led us to explore novel approaches to immunosuppressant monitoring. Trajan hemaPEN® is an Australian product for sampling of 4 x 2.75 µL from a drop of blood. The sample dries in the device, can be stored at ambient temperature and analysed at a later time. With a validated assay combining liquid chromatography with tandem mass spectrometry, we were able to measure tacrolimus concentrations in microsamples.

Aims: To correlate tacrolimus concentrations in fingerprick samples from renal transplant recipients with routine hospital pathology results.

Methods: Eighteen renal transplant recipients underwent routine venepuncture as well as fingerprick sampling to determine tacrolimus trough concentrations. Tacrolimus was extracted from hemaPEN® with concentrations measured in the pharmacology laboratory. The hospital pathology service undertook routine quantification in 200 µL of venous blood with Abbott Architect® immunoassay.

Results: Tacrolimus extraction from two hemaPEN® sample pads (5.5 µL) gave reliable results for concentrations ≥ 5 µg/L (see figure). Extraction from a single pad (2.75 µL), however, was insufficient for reliable quantification due to incomplete drug recovery and assay limitations.

Conclusions: Dried samples of 5.5 µL capillary blood in hemaPEN® were sufficient to determine tacrolimus concentrations ≥ 5 µg/L and allow for additional analyses on the remaining sample pads. Improvements in drug extraction and assay sensitivity as well as validation in a larger patient cohort are planned. Consequently, microsamples of dried blood may allow remote self-sampling of transplant recipients.



Abstract No. 80

ON THE HUNT: HUNTING TRANSPLANT PROJECT – PURPLE HOUSE PANUKU MENTOR TEAM

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Panuku, Purple House

National Indigenous Kidney Transplant Taskforce (NIKTT) Equity and Access Initiative project AimsEstablish a specialised kidney transplant support team withing the Purple House – Panuku model of care. The 'hunting' team consists of a team of well patient mentors with extensive lived experience of the kidney disease journey and a clinical health professional partner. The Hunting Transplant team will seek out positive and culturally safe collaborations across service provider, community and family networks with the aim of finding 'The Right Way' "to support a targeted group of people (6 – 8) to get on the Hunt for a kidney transplant.

Methods: Recruit and support specialised mentor positions to work within a participatory action research or community driven approach to develop culturally safe methods and priorities for the project. Utilise existing community relationships and networks to provide health promotion and education to family and community members. Approach includes working with patients seeking kidney transplant, partnering with TEHS Transplant education sessions, providing community-based information sessions and reporting back to community decision makers. Use a mixed methods approach to meet the mainstream or standard requirement for kidney transplant work up process. Following the clinical requirements but also working with patients and community to identify barriers and possible solutions.

Results: Successfully recruited the mentor team and clinical partner, commenced mentor training programme in collaboration with Menzies School of Health Research Participated in 2 NTRS Transplant educations sessions Provided navigation and support to 6 potential candidates to date Coordinated and facilitated a 2day forum Hunting Knowledge: Kidney Disease and Research -Darwin Oct 2020 Provided in person report and information to Purple House Directors in Alice SpringsRegular video meetings with the SA team in Port Augusta and Adelaide Inclusion in the National Indigenous Reference Group – Transplant coordinated by Kelli Owen Working with Purple House language project Wanga Kutja to develop the kidney transplant language library in the online application.

Conclusion: Successful commencement of project despite the year of COVID19. Lots of work still to be done and process to be established but looking forward to a productive and positive 2021. Evaluation of programme will include mentor, patient and staff surveys or mapping and monitoring of effectiveness of impact of project from multiple perspectives.

Abstract No. 81

CASE STUDY: IMPACT OF COVID-19 ON CELL FREE DNA LEVELS IN KIDNEY TRANSPLANT PATIENTS

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Aims: Donor-derived cell-free DNA (dd-cfDNA) is a clinically validated non-invasive biomarker for kidney transplant (KT) rejection. Dd-cfDNA represents a percentage of the total cfDNA level. Viral infections, such as SARS-CoV-2, may influence cfDNA levels, confounding dd-cfDNA readings. SARS-CoV-2-infected KT recipients are at high-risk for allograft rejection due to reductions in immunosuppressive treatments.

Methods: Dd-cfDNA and total cfDNA levels were monitored in four KT recipients, infected with SARS-CoV-2, using Prospera. **Case 1:** A 64-year-old male presented with pneumonia and acute kidney injury (AKI). Prednisone 5mg daily replaced mycophenolate sodium (MPS); cyclosporine levels were reduced 50%; tocilizumab was given on days 1 and 3. The patient required ventilator support but passed away 23 days after COVID-19 diagnosis. **Case 2:** A 52-year-old male presented with fever and dyspnea. MPS was replaced by prednisone 10mg daily. Despite receiving Remdesivir for 5 days. The patient was intubated but passed away 26 days after COVID-19 diagnosis. **Case 3:** A 66-year-old female was hospitalized for respiratory distress 10 days after COVID-19 diagnosis. Remdesivir was administered for 5 days; MPS was replaced by prednisone 5mg daily. The patient was discharged after 4 days. **Case 4:** A 61-year-old female was hospitalized for fall, hypotension, AKI. Increase in prednisone substituted MPS. AKI resolved and the patient was discharged.

Conclusions: In the presented cases, dd-cfDNA fractions were <1.0% and accompanied by highly elevated total cfDNA levels. Accounting for variation in total cfDNA may be important for accurate interpretation of dd-cfDNA results and assessment of allograft rejection in individuals with COVID-19.

Table.

Case #	Demographic (Age, Race/Ethnicity, Gender)	Cause of ESRD	Type of KT (year)	dd-cfDNA result (Days since COVID-19 diagnosis)	total cfDNA
Case 1	64, Hispanic male	Diabetes	Deceased donor (2019)	< 0.08% (21 days)	14.6 X median
Case 2	52, Hispanic male	Diabetes, HIV	Deceased donor (2018)	< 0.08% (3 days)	18.4 X median
Case 3	66, African-American female	Hypertension	Deceased donor (2019)	0.12% (13 days)	18.1 X median
Case 4	61, Hispanic female	Diabetes	Deceased donor (2018)	0.12 % (12 days)	9.6 X median

*ESRD, end stage renal disease; KT, kidney transplantation; dd-cfDNA, Donor-derived cell-free DNA

Department of Medicine, Loyola University Medical Center, [2]Natera, Inc, USA

Abstract No. 82

TO DRAIN OR NOT TO DRAIN – THAT IS THE QUESTION? A REVIEW OF ROLE OF RETROPERITONEAL DRAINS FOLLOWING KIDNEY TRANSPLANTATION

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Aims: The role of prophylactic wound drainage in renal transplantation is to reduce incidence of post-operative wound collections, haematomas or allograft dysfunction. No consensus exists on the use of drains in retroperitoneum following transplantation. The aim of this study was to assess the clinical impact of change in drain protocol at our local institution.

Methods: Patients who underwent renal transplant in our unit were reviewed between 2018-2020 inclusive. Retrospective cohort series were analysed, single versus two drains. Normal protocol was to maintain drains in-situ until drain output was andlt;50mls/24 hours. The patient demographics, outcomes and allograft function was analysed. Both living and deceased donor transplants were included in the analysis. A systematic review was performed. GoogleScholar, MedLine and PubMED was reviewed with key words including "wound drainage" AND "transplantation".

Results: In total, 40 patients were included in the retrospective review. Cohort 1 (2 drains) n=20, Cohort 2 (1 drain) n=20. There was no difference in incidence of post-operative wound complications or lymphoceles (4% for both cohorts p= n.s.). There was no increase in duration of drain insertion (mean length of drain insertion time 5 days p=n.s.). There was no difference in rate of delayed graft function (p=n.s.). There was very low rate of overall wound infection (2.5% in each group, n =1). A systematic review retrieved several small retrospective series, one RCT and several systematic reviews (n=12). No consensus guideline could be found on the role of retroperitoneal wound drains following transplantation. The incidence of post-operative wound complications and collections did not differ between cohorts with and without drain usage. No previous studies could be found comparing single versus two drains. No impact of drain insertion was found on allograft function, renal vein thrombosis or post-operative deep vein thrombosis.

Conclusions: The insertion of two drains does not provide superiority over single drain insertion. In addition to this, the use of two drains exposes patients to the need for additional instrumentation and given that it does not provide a clinical benefit, we have changed our protocol to encourage the use of single drains.

Abstract No. 83

OPTIMAL SURGICAL MANAGEMENT OF RENAL HYPERPARATHYROIDISM

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Secondary and tertiary hyperparathyroidism are major complications of chronic renal failure, and can persist following renal transplantation. The optimal surgical treatment of renal hyperparathyroidism is uncertain. We examined our experience with an audit of consecutive cases at our centre.

In a single-centre retrospective audit of a 10 year period, we compared outcomes between total parathyroidectomy with autograft and subtotal parathyroidectomy. The theatre database ORMIS was utilised to capture all parathyroidectomies over the study period, with this list filtered for operations performed for renal hyperparathyroidism. Patient records were accessed to determine reason for referral (secondary/tertiary hyperparathyroidism), dialysis/transplant status, type of operation, weight of resected tissue, duration of post-operative calcium infusion, length of stay (LOS), calcium and parathyroid hormone (PTH) trends and complications. These data were compared between groups, with exclusion of MIP and re-exploration operations.

Of all patients undergoing parathyroidectomy for renal hyperparathyroidism (n=78), the majority were performed for tertiary hyperparathyroidism. 42% had functioning transplants or required definitive management of hyperparathyroidism before being waitlisted for transplantation. 55 patients underwent subtotal parathyroidectomy and 23 had total parathyroidectomy with autograft, with the remainder undergoing MIP or re-exploration. Median LOS was significantly less in the subtotal parathyroidectomy group (4 days vs 6 days in total parathyroidectomy, p=0.029), with a trend toward shorter duration of post-operative calcium infusion. There was no significant difference in the post-operative calcium and PTH levels over time.

Subtotal parathyroidectomy is not inferior to total parathyroidectomy with autograft, and may result in shorter duration of post-operative calcium infusion and LOS.

Abstract No. 85

"ON TRACK TO TRANSPLANT" – A PATIENT NAVIGATOR MODEL

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Aims: 'On Track to Transplant' aims to improve access, understanding and engagement with the kidney transplant and work-up process for Aboriginal and Torres Strait Islander clients. Aboriginal Patient Navigators with a unique lived experience of a kidney transplant will walk alongside clients as 'peers' to provide support and guidance to bridge language and cultural barriers, knowledge about the disease and transplantation process.
Methods: Bi-monthly culturally appropriate meetings to engage clients with the transplantation process. Painting, open fire cooking and 'yarning' time are incorporated into the delivery of the relevant content. A 'My Track to Kidney Transplant' resource developed to track individual's progress.
Results: Navigator implementation has been delayed due to COVID19 and the time frame of a new role implementation. Ground work has continued and initial meetings commenced with the Transplant Coordinator and Aboriginal Health Practitioner. Regular cultural guidance and feedback from participants has been sought in the interim. Smaller session sizes have shown greater engagement. Pre Health Literacy Surveys have been conducted to gauge an understanding of transplant process, comparable post surveys to be conducted. Patient numbers are monitored throughout the project of the work-up phase, not assessed and ineligible and transplantable. A Patient Satisfaction survey will be conducted at conclusion to gauge quality and value of the program.
Conclusions: The format of the meetings has encouraged engagement and attendance. Patients are looking forward to the Navigators sharing their experiences of the transplant process. We have already seen an increase in the number of patients entering transplant work up.

Abstract No. 86

SPLENIC ARTERY ANEURYSM MANAGEMENT IN THE CIRRHOTIC PATIENT LISTED FOR LIVER TRANSPLANTATION: A SYSTEMATIC REVIEW

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Aim Splenic artery aneurysms (SAA), although rare in general population, occur more commonly in liver transplant (LT) candidates and are at heightened risks of rupture with potentially fatal consequences. As optimal management of this condition remained undetermined, we aimed to present the first systematic review on this topic.
Methods We performed a systematic review of the literature to investigate the management options and outcomes of asymptomatic SAAs in liver transplant candidates. EMBASE, MEDLINE electronic databases were used to identify articles. The inclusion criteria used were articles published in English which reported on the management of SAAs diagnosed pre-transplant and their outcomes following LT.
Results 11 articles were selected for analysis and included 168 patients with SAA, amongst which 121 had asymptomatic SAA diagnosed pre-LT and had LT. Majority of SAA was located distally or intra-hilar (73%) and up to 44% of patients had multiple SAAs. In 121 patients diagnosed pre-LT, 34 patients had treatment instigated (25 treated surgically and 9 treated radiologically). Post-LT rupture was noted in 2 patients treated surgically (no fatality). No rupture was observed in radiologically treated group, although 1 patient died from splenic abscess and sepsis following embolisation. In 87 untreated patients, 4 post LT rupture was recorded (3/4 resulted in fatality).
Conclusions Although mostly asymptomatic, SAAs are at heightened risks of fatal rupture post LT and treatment should be considered. Both surgical and radiological treatments offer adequate control and choice of treatment is dependent of location and number of SAA present.

Abstract No. 87

TITLE: FATE OF ABSTRACTS PRESENTED AT THE TRANSPLANTATION SOCIETY OF AUSTRALIA ANDAMP; NEW ZEALAND ANNUAL SCIENTIFIC MEETINGS.

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Background: The numbers and characteristics of the abstracts presented at the Annual Scientific Meetings (ASM) of the Transplantation Society of Australia and New Zealand (TSANZ) that are converted to peer-reviewed publications have not previously been analysed.

Methods: All abstracts presented at the TSANZ ASM from 2013–2017 were reviewed. A literature search was performed using a search algorithm to identify the full-text publications of the presented abstracts. Correlation between abstract characteristics and publication rate was then examined using Cox proportional hazards regression and Kaplan-Meier curves to distinguish the predictors for publication.

Results: Over the 5-year period, 576 abstracts were presented, with a total of 164 (28.6%) presentations converted to publications. The majority of presentations occurred within the first 3 years, with the mean time to publication being 16.6 (SD = 14.6) months. The median impact factor for published research was 4.74 (IQR=3.06-5.58). Multivariate analysis identified clinical science papers, systematic reviews and surveys (LR=1.42, 5.02 and 2.01;p=0.040, 0.000 and 0.010 respectively) as the most important predictors for publication.

Conclusions: The rate of abstracts presented at the TSANZ ASM over 5 years that were converted to publication in a peer-review journal was 28.6%. Clinical papers, systematic reviews and surveys were more likely to be published. An ongoing strict abstract selection process will contribute to improving conversion of abstracts into full-text peer reviewed articles.

Abstract No. 88

OUTCOMES OF KIDNEY TRANSPLANTATION FROM ECMO-SUPPORTED DONORS: A SYSTEMATIC REVIEW

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Aim: Extracorporeal membranous oxygenation (ECMO) is used to provide prolonged cardiopulmonary support to the critically ill. Unfortunately, a significant number of patients fail to wean from ECMO, providing an added opportunity for organ donation. Our aim is to systematically review the outcomes for renal transplantation from donors that were receiving ECMO support prior to organ retrieval.

Methods: A systematic search was conducted from MEDLINE, EMBASE and CENTRAL databases for studies involving renal transplantation of kidney allografts from ECMO-dependent donors prior to death. Identified studies were screened for inclusion criteria and the quality of evidence was assessed accordingly.

Results: Five studies describing 170 kidney transplant recipients from 113 donors requiring ECMO were identified. Of these, 100 transplants were from DBD retrievals and 13 from DCD retrievals. The average 1-year kidney allograft survival from ECMO donors was 92%, which showed no differences when matched with recipients from donors without ECMO (p = 0.24-0.98). Average renal function at 1-year was 1.62 mg/dL and delayed graft function was reported to be between 34% and 42.9%. Overall risk of bias is low and the quality of evidence is low or very low for all studies.

Conclusions: Our review shows that recipients undergoing renal transplantation from donor kidneys requiring ECMO have normal renal function after 1-year and equivalent 1-year graft survival when compared to renal transplantation from standard criteria donors. Further investigation into the outcomes of transplantation from ECMO supported donors is needed to clarify whether patients requiring ECMO support remain a suitable cohort for retrieval.

Abstract No. 90

TREATMENT OF SAPOVIRUS INFECTION IN A RENAL TRANSPLANT PATIENT

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Case: 32-year-old female with a past history of ESRF secondary to IgA nephritis presented with severe diarrhoea 11 months after a non-complicated LR kidney transplant. She was on standard immunosuppression with prednisone, myfortic and tacrolimus.

Her creatinine had increased from a base line of 126 µmol/l, eGFR 49 to 204, eGFR 27 with high tacrolimus level of 29 µgm/l.

Stool cultures were positive for Sapovirus which from the literature is difficult to treat without reduction or cessation of mycophenolyate. It is associated with prolonged viral shedding often > 300 days.

She was given a course of nitazoxide over 3 days with rapid resolution of her diarrhoea and a return to baseline creatinine without reduction of her immunosuppression.

Her stool culture had rapid resolution of Sapovirus PCR

This case adds to a very limited literature using of nitazoxide in transplantation and is possibly the first case of Sapovirus successfully treated with nitazoxide without reduction of immunosuppression.

Abstract No. 91

RENAL ALLOGRAFT TORSION AND PSEUDOANEURYSMS OF THE PANCREATIC ARTERY FOLLOWING SIMULTANEOUS PANCREAS-KIDNEY TRANSPLANTATION: A CASE REPORT

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Background: We report two rare complications of simultaneous pancreas-kidney transplantation (SPKT) occurring in one patient.

Case report: A 39-year-old man with end-stage renal failure secondary to type 1 diabetes mellitus underwent successful SPKT in October 2018. Three months later, he presented with acute kidney injury (AKI) and returned to dialysis. Renal scintigraphy showed a central photopaenic region and angiogram showed absent flow in the renal transplant artery without treatable thrombus and the incidental finding of two pseudoaneurysms of the pancreatic Y-graft. He remained dialysis-dependent for three weeks before spontaneous partial recovery of allograft function; repeat renal scintigraphy showed significant improvement in perfusion. However, in April 2019 he was readmitted with a sudden deterioration in renal allograft function again necessitating haemodialysis. Clinical examination and renal scintigraphy confirmed that the renal allograft had shifted from the left iliac fossa to the midline. He underwent surgical exploration during which torsion of the renal allograft was confirmed and nephropexy performed. The kidney allograft was originally implanted in the left retroperitoneum via a midline transperitoneal approach, which likely predisposes it to torsion. The pseudoaneurysms of the pancreatic Y-graft were managed conservatively and surveillance imaging demonstrated that they had not increased in size. The patient regained reasonable renal allograft function (estimated glomerular filtration rate 48mL/min) and maintains normal pancreatic allograft function.

Conclusion: Renal allograft torsion should be considered post-SPKT in patients with AKI and absent or minimal arterial flow. Although most published case reports describe surgical management of pseudoaneurysms post-SPKT, our case demonstrates successful conservative management.

Abstract No. 92

A 25-YEAR EXPERIENCE WITH TWO-IN-ONE AND EN BLOC KIDNEY TRANSPLANTS

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Aims: The increasing waitlist for kidney transplantation and shortage of donor organs is an ongoing issue. Strategies to expand the donor pool include use of dual kidney transplantation from donors at extremes of age. Expanded criteria allow use of older kidneys, and although technically challenging, en bloc paediatric kidneys have similar graft survival rates to adult deceased donor single kidney transplants. We examined the outcomes of two-in-one and en bloc paediatric kidneys in adult recipients across a 25-year period in our tertiary referral centre.

Methods: A retrospective review was undertaken of transplant recipients of two-in-one adult kidneys or paediatric en bloc kidneys at Princess Alexandra Hospital between May 1994 and June 2020. Demographic data, creatinine at 3, 6, 12, and 60 months, technical and medical complications, and graft survival were analysed through medical records.

Results: Forty-eight patients received dual allocation kidneys. The average creatinine at 1 and 5 years was 117umol/L and 90umol/L, respectively. Only one graft was lost due to vascular complications (2%). Two others developed non-graft threatening thromboses requiring anticoagulation. Five grafts were lost to rejection or early disease recurrence (10.8%). Ureteric complications saw one en bloc graft lost 5 years post-transplant.

Conclusion: Two-in-one or en bloc kidney transplants have a role in transplant units. Marginal donor kidneys function comparably to non-marginal single kidney transplants; at 5 years, the mean creatinine was 90umol/L. Technical aspects are to be considered, including vascular complications and torsion of en bloc kidneys. Overall, the results are acceptable, and provides support for programmes to expand donor criteria.

Abstract No. 93

COMPARISON OF PANCREATA AND ISLET PREPARATIONS FROM HUMAN ORGAN DONORS - INFLUENCE OF FAMILY HISTORY OF DIABETES OR MARGINAL LEVELS OF HBA1C.

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Background: Many believe diabetes is due to a combination of genetic and environmental factors, but the importance of family history of diabetes (FHD) or levels of Glycated hemoglobin (HbA1c) in pancreatic islet quantity has never been determined. HbA1c is an important indicator of long-term glycemic control and reflects the cumulative glycemic history of the preceding two to three months. Here we compare the islet yields from organ donors who were diabetic or non-diabetic, with or without FHD, as well as the possible implication of HbA1c level.

Methods: Islets were isolated based on the Ricordi Method. A HbA1c level of ≥6.5% was considered as diabetic, a marginal level was 5.7-6.4% and ≤5.7% as non-diabetic. An islet equivalent (IEQ) is a 150µm cell sphere.

Results: Pancreata from non-diabetic organ donors with FHD (n=46), T1Diabetic (n=13) and T2Diabetic (n=24) donors had significantly less islets, with means of 298,996 IEQ, 14,657IEQ and 168,834IEQ respectively than non-diabetic donors with no FHD (n=146), 382,423IEQ. Islet yields per gram pancreas from non-diabetic donors (n=34, HbA1c < 5.7%, 5,103IEQ/gm pancreas) were significantly higher, p=0.034, than marginal/prediabetic donors (n=19, HbA1c 5.7-6.4%, 4,211IEQ/gm pancreas).

Conclusion: Our data confirms previously published results that diabetic donors are deficient in islet numbers, further validating their exclusion as an islet transplant donor. The new finding of less islets in pancreata from non-diabetic donors with a diabetic family member or with a marginal HbA1C supports the involvement of genetic predisposition in T2D and may need to be taken into consideration when accepting donors for transplant.

Abstract No. 94

A REVIEW OF STAKEHOLDER PREFERENCES FOR INVOLVEMENT IN TRANSPLANT OFFERS

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Aim: To review published literature on doctor and patient preferences for involvement in transplant offers.

Background: While shared decision making offers an opportunity to promote patient centred outcomes in transplantation, its implementation into routine clinical practice can be challenging, particularly in time pressured setting such as deceased donor transplant offers. It is unclear whether transplant candidates or doctors seek greater patient involvement in these settings.

Methods: Scientific databases including Cochrane, MEDLINE, PsychInfo, EBSCO and EMBASE were searched for publications on views of doctors and patients regarding decision making in solid organ transplantation offers. Results were then collated for thematic analysis.

Results: Seven surveys of transplant recipients were identified: two studies of British heart and/or lung transplant recipients, two studies of American and Dutch liver transplant, two studies of Swedish and Dutch kidney transplant recipients and one study of French kidney, liver, heart or lung transplant recipients. Doctor views were represented in one Canadian interview-based study of transplant nephrologists. While integration and analysis of the data was limited due to heterogeneity, it appeared that patient preferences for transplant offers involvement could vary based on organ type. In particular, significantly higher proportions of kidney and liver transplant candidates wished to be involved in these decisions compared to heart and lung recipients. There were no studies in Australian and New Zealand populations.

Conclusion: Studies in overseas populations suggest patient preferences for transplant offer involvement may differ based on organ type. It is unknown whether patients in Australia and New Zealand share these views.

Abstract No. 95

THE USE OF BURNS VICTIMS AS A SOURCE OF DECEASE ORGAN DONATION

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Aims: We aimed to conduct a systemic review investigating the prevalence and outcomes of the use of burns victims, as a source of organ donation.

Methods: PubMed and MEDLINE databases were utilised, with searches conducted between 1990 – 2020, using keywords – organ procurement, organ donation, organ transplantation, and burns. Studies were not excluded based on patient numbers and included both published abstracts/conference proceeding and journal articles. Studies were excluded if specific organs were not identified or if post-transplant outcomes were not recorded.

Results: Upon reviewing 437 articles, 7 manuscripts met inclusion criteria, published between 1995 – 2019. A total of 15 patients identified undergoing organ donation following burn injury with total body surface area (TBSA) burn of between 4 – 90% were recorded in these patients, from both donation after circulatory death or donation after brain death pathways. A total of 5 hearts, 2 lungs, 9 livers, 1 pancreas and 26 kidneys were transplanted with varying duration of follow up and outcomes (Table 1).

Conclusion: Studies suggest that post-transplanted organs such as heart and lungs provide good outcomes, as patients were alive at time of follow-up. Although 26 kidney transplants have been performed from donors with an associated burn injury, no published article has commented on the incidence of delayed graft function or short or long term function, so recommendations for the utilisation of burns victims as multi-organ donors remain guarded.

Table 1. Summary of studies involving organs procured from non-survivable burn victims.

Table 1. Summary of studies involving organs procured from non-survivable burn victims.

Article	Year of Manuscript	No. of Patients	Age of donor (yrs)	Organs Retrieved	Follow up duration (months)	Outcomes
Sheridan et al	1995	1	6	1 liver & 2 kidneys	Not recorded	No complications*
Sheridan et al	1998	5	2.5 – 12	2 hearts, 4 livers & 10 kidneys	6	No complications*
Busche et al	2011	1	22	1 heart, 1 liver & 2 kidneys	12	No complications*
Widdicombe et al	2013	2	<67	3 kidneys	Not recorded	No complications*
Travis et al	2014	1	16	2 lungs	12	No complications
Schmauss et al	2017	4	19 – 62	2 hearts, 3 livers, 1 pancreas & 8 kidneys	1 – 186	10 recipients had no complications 3 recipients had organ dysfunction 1 recipient died after 4 months from Pneumonia
Fugazzola et al	2019	1	30	1 kidney	Not recorded	No complications*

* Specific details regarding graft function not recorded

Abstract No. 96

UNDER-UTILISATION OF SODIUM-GLUCOSE COTRANSPORTERS-2 INHIBITORS (SGLT2I) AND GLUCAGON-LIKE PEPTIDE 1 RECEPTOR AGONISTS (GLP1RA) IN KIDNEY TRANSPLANT RECIPIENTS (KTR) WITH TYPE 2 DIABETES MELLITUS (T2DM)

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Aims: Type 2 diabetes mellitus (T2DM) is increasingly prevalent amongst kidney transplant recipients (KTR) and is associated with increased post-transplant mortality. Emerging studies have demonstrated cardiovascular and renal benefits from SGLT2i and GLP1RA in the general population with T2DM. However, limited data regarding their safety and efficacy exist in KTR, and SGLT2i use is currently not recommended by Kidney Disease Improving Global Outcomes (KDIGO). We aimed to determine the metabolic profile and usage of these agents in our centre.

Methods: A single centre retrospective study was performed in July 2020 on prevalent KTR with T2DM ≥6 months post-transplant. Data were collected from electronic medical records.

Results: Fifty-one out of 207 (24.6%) KTR have T2DM, with a median age of 65 years and body mass index 30 kg/m2. HbA1c was andgt;7.0% in 66.0% of KTR. While 58.8% and 51.0% of KTR were on insulin and metformin respectively, only 2 (3.9%) KTR were treated with GLP1RA and none were treated with SGLT2i. Seven (13.7%) KTR had recent genitourinary infections and none had suffered from pancreatitis. Among the 29 (56.9%) KTR with eGFRandgt;30 ml/min/1.73m2 and HbA1c andgt;7.0%, 53.6% were on metformin and 89.3% had no contraindications to neither SGLT2i nor GLP1RA.

Conclusions: SGLT2i and GLP1RA are under-utilised in this KTR cohort with T2DM. In addition to having less restrictive Pharmaceutical Benefit Scheme criteria, further studies examining their efficacy and safety in KTR may alleviate concerns and maximise their usage to potentially benefit this at-risk population.

Table 1. Demographic and Clinical Characteristics of Patients (n=51).	
Characteristics	
Age (years)	65 (56 - 70)
Gender (%)	
Male	72.5
Female	27.5
Weight (kg)	87 (71 - 94)
Height (cm)	167 (161 - 175)
Body mass index (kg/m^2)	30 (25 - 34)
Systolic blood pressure (mmHg)	135 (126 - 140)
Diastolic blood pressure (mmHg)	78 (70 - 84)
Duration of renal transplant (years)	3.7 (1.8 - 5.0)
Primary renal disease (%)	
Diabetes	35.3
Glomerulonephritis	29.4
Hypertension or renovascular	11.8
Polycystic kidney disease	7.8
Tubulointerstitial disease	1.9
Other	9.8
Unknown	3.9
Diabetes onset (%)	
Pre-transplant	56.9
Post-transplant	43.1
Co-morbidities (%)	
Ischaemic heart disease	33.3
Cerebrovascular accidents	5.9
Peripheral vascular disease	9.8
T2DM medication use	
Metformin (%)	51.0
Metformin daily dose (mg)	500 (0 - 1000)
Sulphonylurea (%)	25.5
DPP4 agonist (%)	15.7
SGLT2 inhibitor (%)	0.0
GLP-1 receptor agonist (%)	3.9
Insulin (%)	58.8
Insulin daily dose (unit)	34 (0 - 68)
Diuretic use (%)	23.5
Lipid lowering agent use (%)	82.4
Immunosuppression	
Prednisolone (%)	100.0
Prednisolone daily dose (mg)	5 (0)
Tacrolimus (%)	100.0
Mycophenolic acid (%)	98.0
Everolimus (%)	2.0
Cyclosporine (%)	0.0
Laboratory parameters	
HbA1c (%)	7.4 (6.5 – 8.1)
% with HbA1c >7%	66.0
eGFR (ml/min/1.73m2)	55 (42 - 72)
% with eGFR >45 ml/min/1.73m^2	68.6
% with eGFR >30 ml/min/1.73m^2	90.2
Serum creatinine (µmol/L)	115 (91 - 136)
Urine protein-creatinine ratio (g/mmol)¶	0.01 (0.01 – 0.03)
Urine albumin-creatinine ratio (mg/mmol)†	5.2 (1.9 - 15.9)

Data are expressed as median (interquartile range).
¶Data were available for 46 patients.
†Data were available for 25 patients.

Abstract No. 98

EVALUATION OF GRAFT FUNCTION AFTER KIDNEY RE-TRANSPLANTATION IN A SINGLE CENTRE IN VIETNAM

HOANG NU NGOC NHUNG N, DANG NGOC TUAN A
Nephrology and Renal Transplant, Vietnam

Aim: To assess the results of kidney re-transplantation performed at Hue Central Hospital, Vietnam.
Methods: 985 kidney transplants have been performed at a single hospital since July 2001, all with living donor grafts. 41(4,2%) were second kidney transplants performed between 2012 and October 2020. Cross matching used to by CDC technique, it is replaced with FCXM in Hue and histopathology specimens were forwarded to HCMC, 90 minutes flight time away. All recipients received the same immunosuppressive regimen with induction therapy of ATG or Basiliximab and maintenance therapy of tacrolimus, MMF and steroids. CMV prophylaxis with Acyclovir was applied for 41/41 (D (+) and R (+)). Long term follow-up in Vietnam is mandated in order to receive subsidized oral immunosuppressive agents.
Results: Average recipient age was 44+/-9 years, 31 were male and 10 were female. 7 recipients had initial primary graft survival of >5 years. 12 (29.3%) were HCV positive. 36 (87,81%) recipients had at least 3 HLA matches. 3 cases of acute rejection responded to treatment. All were sensitized, ABO compatible, with 29 having PRA <25%, and 2 >80%. All grafts had primary function and graft survival at one year was 100% (41/41) and five years (7/7). Graft is summarized in attached Table.
Conclusion: With carefully selected patients and using living donor grafts, excellent medium-term kidney graft function can be achieved despite limited access to reliable histopathology services.

	1 month	3 months	1 year	3 years	5 years
N	41	40	36	19	7
Creatinine mmol/L	93,21±16,62	93,53±18,49	93,30±18,66	91,81±15,11	96,00±21,43
eGFR	93.53 ±16.05	93.68 ±14.35	91.33 ±15.42	98.20 ±13.70	71,80 ±15.30

Abstract No. 99

DUAL KIDNEY TRANSPLANTATION OUTCOMES – IS IT WORTH THE RISK?

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[1]Vascular Surgery, Royal North Shore Hospital, [2]Renal Medicine, Royal North Shore Hospital

Aims: Dual kidney transplantation is a recognised technique to maximise transplanted nephronic mass from expanded criteria donor kidneys (ECD). Significant heterogeneity have been reported in short and long-term allograft outcomes. This study will to assess the surgical outcomes in patients who have undergone bilateral kidney transplantation at Royal North Shore Hospital from January 1, 2010 to December 31, 2019.

Methods: Patients have been retrospectively identified using the transplant database in a single institution from 2010-2020 inclusive. Patient characteristics, surgical technique and allograft characteristics were reviewed. Outcomes were reviewed in terms of patient complications and graft function. Results In total, 245 transplants have been performed in the studied time-frame. The incidence of dual kidney transplantation was 4.5% (n=11). The mean warm ischaemia time (WIT) was 84.5minutes. The mean cold ischaemia time (CIT) was 811.7 minutes. The mean donor age was 69 years old. Majority of the patients had bilateral transplantation (n=10), with one patient undergoing unilateral placement of both kidneys. All patients received similar induction therapy (ATG/basiliximab) and maintenance therapy (standard triple medication).Minority of patients had immediate graft function of 18% (n=2), the remaining 88% (n=9) displaying delayed graft function. Of those with delayed function, one patient had partial graft loss (unilateral nephrectomy), one had complete graft loss (bilateral nephrectomy). Complete graft loss was secondary to hyper-acute rejection in that patient. 3 of the 11 patients displayed signs of rejection in immediate post-operative phase, with 2/3 responding to anti-rejection therapy. 36.3% (4 out of 11) patients have been noted to be requiring dialysis in their latest follow up. The average creatinine (micromole/L) level for this group of patients was 274.19 at mean of 1856.27 days of follow up postoperatively.

Conclusions: Dual kidney transplantation is a recognised means for expanding the donor pool in renal transplantation. We have noted the high incidence of delayed graft function and unsuccessful transplantation in this cohort of patients. Further studies would be required to assess outcomes in this group of patients.

Abstract No. 100

SEQUENTIAL MULTI-ORGAN TRANSPLANTATION FOR DYSKERATOSIS CONGENITA

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Background: Dyskeratosis congenita (DC) is a rare, inherited, progressive, and multi-system disease of aberrant telomere maintenance. Significant morbidity and mortality arise from bone marrow failure, haematological malignancies, solid tumours, pulmonary fibrosis, and liver disease. The classical mucocutaneous clinical triad seen in 80-90% consists of dysplastic nails, lacy reticulated skin pigmentation, and oral leukoplakia. In DC, organ transplantation including lung, liver and haematopoietic stem cell transplants are life-saving interventions.

Case Report: We report on the first case of DC treated with simultaneous liver and kidney transplantation after prior bilateral lung transplantation for hepatopulmonary syndrome and pulmonary fibrosis. The diagnosis of DC was established by the detection of a pathogenic TERT gene variant and measurement of telomere length <1st percentile for age. The aetiology of kidney failure requiring dialysis was thought to be multifactorial, including calcineurin inhibitor toxicity, steroid-induced diabetes, and cirrhosis-related glomerulonephritis. The lung transplant was complicated by post-operative atrial fibrillation, multi-lobar pneumonia, and restrictive tuberculous pericarditis requiring pericardiectomy. The combined kidney and liver transplant were complicated by low-grade CMV viraemia, cytopenia, and mixed rejection. An eGFR of 76 ml/min and satisfactory liver function was achieved ten months post-transplant. Pancytopenia present before the combined liver-kidney transplant has resolved, but an allogenic bone marrow transplantation is likely in future given the natural history of DC.

Conclusion: Multi-organ transplantation is increasingly used to prolong life for the progressive genetic disease dyskeratosis congenita. This case provides a unique example of the challenges of multi-organ failure and the multi-disciplinary involvement required for this condition.

Abstract No. 101

HOW TO REPAIR A DONOR RENAL VEIN INJURY WITH INFERIOR VENA CAVA PATCH

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[1]Transplant Surgery, Westmead Hospital, Sydney, [2]Transplant Surgery, University of Sydney,

Retrieval of organs in deceased donors for transplantation is a time sensitive endeavour that can result in technical complications. Both non-beating-heart donation and donation after brain death have inherent challenges associated with it. Shortage of supply of organs for donation means that every viable organ should be given the best chance possible for transplantation. As such, we present a method of renal vein reconstruction of a deceased donor kidney following injury during the organ recovery process. There are multiple articles detailing reconstruction of the donor renal artery (1, 2) and right renal vein with vena cava or gonadal vein extensions (3). We detail how to repair a right renal vein injury from a deceased donor with an inferior vena cava patch.

Abstract No. 102

SERUM SICKNESS FOLLOWING ANTI-THYMOCYTE GLOBULIN TREATMENT FOR ALLOGRAFT REJECTION. A REPORT OF TWO CASES WITH PRIOR EXPOSURE TO RABBITS.

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Background: Rabbit derived anti-thymocyte globulin (ATG) is used to treat allograft rejection. Serum sickness is an immune-complex mediated hypersensitivity reaction and is a known complication of ATG usually manifesting 7-14 days following therapy. Circulating antigen-antibody complex deposition and complement activation leads to systemic tissue injury. Previous rabbit exposure is a reported risk factor

Case Reports: A 45 yo male presented with high fevers, migratory polyarthritis, jaw pain, and rash, 8 days following ATG therapy for pancreas transplant rejection. Investigations revealed an elevated C-reactive protein (CRP) of 377 mg/L (0-5) and suppressed complements C3-0.71g/L (0.8-1.50), C4-0.05g/L (0.16-0.38). His daughter had a pet rabbit. The second case was a 40 yo male who presented with migratory polyarthritis, myalgias, fevers and jaw pain, 7 days following treatment with ATG for pancreas transplant rejection. His family owned a rabbit farm during his childhood. He had suggestive markers of elevated CRP-138mg/L, and suppressed C3- 0.78g/L and C4-0.08g/L. Both cases were successfully treated with intravenous hydrocortisone for three days followed by weaning doses of oral prednisolone over 2-weeks. CRP and complements normalised prior to discharge. The rabbit was able to remain in the family in the first case.

Conclusion: Serum sickness is an important complication to consider following treatment with ATG, particularly with a history of rabbit exposure and characteristic clinical and biochemical features including jaw pain, migratory arthritis, fevers, rash, elevated inflammatory markers (CRP), and suppressed complements.

Abstract No. 103

NO ABSTRACT FILE FOUND OR INCORRECT FORMAT

ROWLANDSON M[1], TREVILLIAN P[1], MALLESARA G[2], FORMBY M[3], HARDSTAFF R[1]

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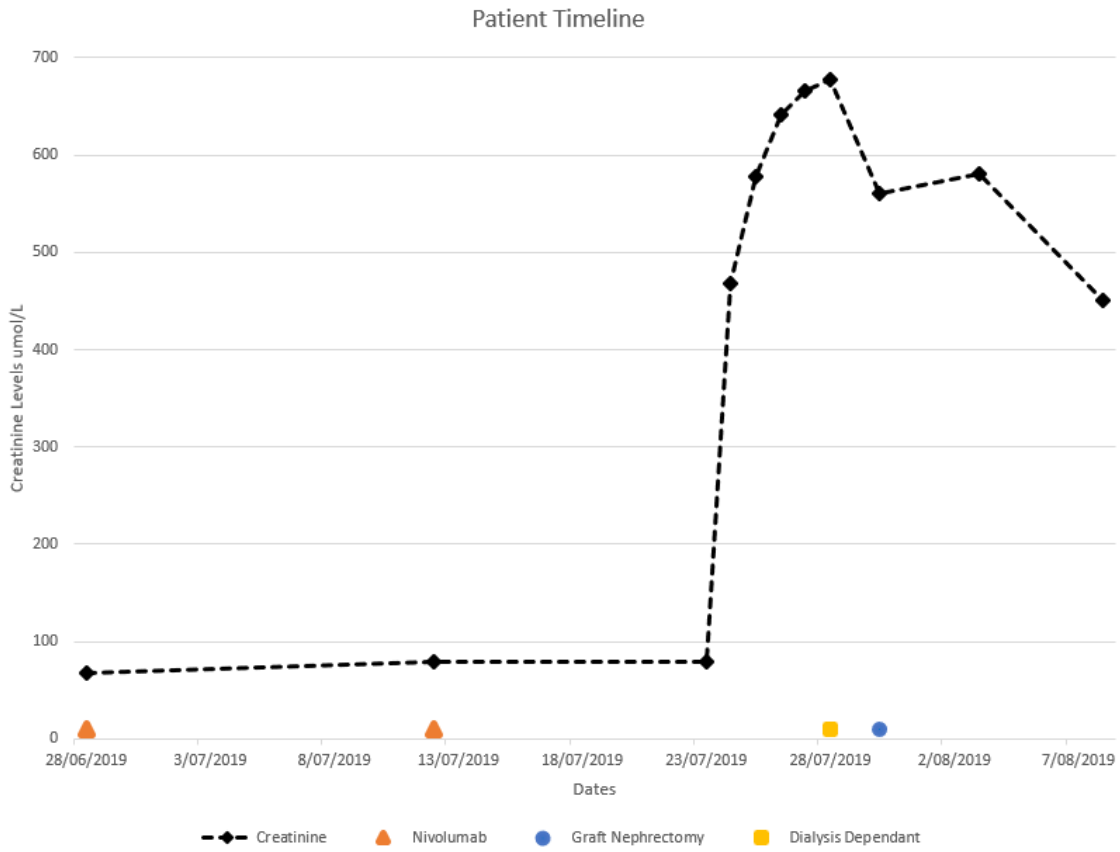
Introduction. HNSCC is a common post-transplant malignancy amongst Australians and carries a poor prognosis. Trials of checkpoint immunotherapy have shown improved survival in patients with recurrent HNSCC compared to platinum-based therapies. Its use in organ transplant recipients, dependent on maintenance immunosuppression, is likely to be problematic but there are few reports. We describe a case of "hyperacute rejection" in a stable living donor renal transplant recipient after PD-1 inhibition with Nivolumab.

Case Report. A 64 year old male received a living unrelated kidney transplant 9 years ago for ADPKD (6/6 HLA mismatch, no DSAb's,ABOi (anti-B,1:32). TCMR (Banff 1b) at 3 months treated with pulse Methylprednisolone/Thymoglobulin with biopsy proven resolution. Subsequently the eGFR maintained at ~80 ml/min for the next nine years. In 2016 he developed right tonsil SCC treated with apparently curative chemo-radiation. Mycophenolate was ceased. In 2019 his SCC reoccurred with unresectable invasive disease which required tracheostomy. He failed chemotherapy and, with consent, was given Nivolumab. Two weeks after second dose he presented with a swollen tender graft and anuria. Imaging suggested thrombosed graft. He required urgent graft nephrectomy. Histology showed diffuse interstitial haemorrhage with focal infarction and diffuse, heavy, subintimal T-cell infiltration in arteries of all sizes and peri-venously. Thromboses were not seen, C4d was negative and there were no DSAb's. The patient returned to dialysis.

Conclusion: This case demonstrates aggressive T-cell mediated vascular rejection that may follow the use of checkpoint blockade. It gives insight into the likely important role of expression of PDL1 in allograft immuno-tolerance.



Abstract No. 104

RENAL ALLOGRAFT COMPARTMENT SYNDROME: INCIDENCE AND TECHNIQUE FOR AVOIDANCE

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Renal Allograft Compartment Syndrome (RACS) is the result of extrinsic compression resulting in graft dysfunction and loss due to ischaemia. Risk factors include size mismatch between graft and recipient. Intraoperative suspicion should be exercised if there is poor tissue turgor, cyanosis and loss of urine output upon fascial closure. Doppler ultrasound is the modality of choice amongst the literature to aid in diagnosis of RACS. From our study, the accepted form of treatment is early detection and appropriate surgical intervention. Nevertheless, it is clear from the paucity of literature that further investigation into this area of transplantation is necessary. We describe an extraperitoneal pocket nephropexy technique utilised by our institution to pre-empt this complication of renal transplantation.

Abstract No. 105

BRIDGING THE CULTURAL GAP: IMPROVING INDIGENOUS AUSTRALIAN KIDNEY TRANSPLANT ACCESS

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Aims: Employment of Aboriginal and Torres Strait Islander Health Practitioners (ATSIHP) to bridge the cultural gap and complement existing and expanding transplant services, where current staffing shortages exist. The program intends to seek 2 ATSIHP focusing on transplant education, support through the work up process and increased liaison with primary health care.

Methods: The objectives are; Increase Indigenous Australian understanding of the pathway to transplant, Provide a cultural link between patients, community and the culturally safe delivery of health care services, Increase the number of Indigenous Australian's accessing kidney transplant, improve the journey through to transplant and improve Indigenous Australian outcomes. The Key outcomes are; Increase in number of patients being assessed and on the SA/NT active transplant waiting list, CKD patients to have commenced primary health care checks before commencing RRT, Provision and continuation of culturally appropriate education from CKD through to RRT and transplant leading to improved attendance to appointments and patients feeling culturally safe, Patient and community feedback evaluation on the transplant pathway, Identify areas requiring improvement .

Results: The recruitment process has identified a significant shortage of ATSIHP with only 1 ATSIHP recruited, commencing on 14 December 2020.

Conclusions: The employment of an ATSIHP is seen as an essential role which needs to be included within the transplant team to further promote cultural safety and bridge the cultural Gap in order to improve Indigenous Australians access to and outcomes of kidney transplantation. We anticipate that we will achieve the intended outcomes with the next 12 months.

Abstract No. 107

MALAKOPLAKIA CAUSING DIARRHOEA AND WEIGHT LOSS IN A RENAL TRANSPLANT RECIPIENT

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Malakoplakia is a rare chronic granulomatous disease thought to be due to an acquired deficiency of bacteriacidal activity of macrophages. More commonly found in genitourinary tract, there are few reported cases of malakoplakia in gastrointestinal system and other organ systems. The following case is that of malakoplakia in a renal transplant recipient with chronic diarrhoea and weight loss. A 62 year old Indigenous male from remote Northern Territory was admitted with severe electrolyte derangement and acute kidney injury. This is in context of a recent presentation to outpatient department with 20kg unintentional weight loss with positive faecal occult blood test and diarrhoea. Background history was significant for ESRF due to presumed diabetic nephropathy and deceased donor renal transplant in 2013. Immunosuppression regime included tacrolimus, prednisolone and mycophenolate mofetil. Testing found low level cytomegalovirus viraemia and he underwent gastroscopy and colonoscopy post appropriate bowel preparation. Colonoscopy revealed varying polypoid lesions throughout the colon some concerning for malignancy. Specimens from all lesions were sent for histology. Histologically there was no evidence of malignancy however there were Michaelis-Guttman bodies. Further staining with Von Kossa stain confirmed calcium deposition and the diagnosis of malakoplakia was made.

Abstract No. 108

FIRST REPORTED CASE OF SUCCESSFUL DECEASED DONOR KIDNEY TRANSPLANTATION IN THE PRESENCE OF COLD AGGLUTININS AND TRIPLE POSITIVE ANTI-PHOSPHOLIPID ANTIBODIES

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Background: Cold agglutinins are antibodies that cause red cell agglutination and may cause haemolysis when exposed to temperatures below their thermal amplitude. Reperfusion of an organ removed from cold storage below this temperature may cause haemolytic anaemia and graft thrombosis.

Case Report: Non-specific cold agglutinins (without haemolysis or cold-induced symptoms) were identified in a 69-year-old on peritoneal dialysis during transplant workup. Thermal amplitude was 22°C. Triple positive anti-phospholipid antibodies were also detected (anti-β2 glycoprotein-1 IgG (β2GP1), anti-cardiolipin IgG (ACA), lupus anticoagulant (LA)), with no history of thromboses or miscarriages. She underwent donation after brain death kidney transplantation (KDPI 69%, terminal creatinine 69μmmol/L) without peri-operative plasma exchange. The kidney was intra-arterially warmed and perfused with 550mL of 40°C 0.9% saline in the body cavity prior to clamp release. Laser thermometer surface temperature reached 30.5°C in 3 minutes, and reperfusion was established at 8 minutes. Cold and warm ischaemia times were 5 hours, and 41 minutes, respectively. Immediate graft function was achieved. Despite low-dose aspirin and prophylactic unfractionated heparin, symptomatic left segmental pulmonary embolus was diagnosed on day 4. At 5 weeks post-transplant, ACA remained weakly positive while LA and β2GP1 were no longer detected. Serum creatinine was 115 μmmol/L at 8 weeks.

Conclusion: Successful deceased donor kidney transplantation was achieved in the presence of cold agglutinins and triple anti-phospholipid antibodies by warming the kidney above the thermal amplitude prior to reperfusion, without plasma exchange. Selecting a kidney at low risk for delayed graft function facilitated monitoring for early graft thrombosis.

PRESIDENT'S MESSAGE

Opening Statement
The Transplantation Society of Australia & New Zealand continues to go from strength to strength despite the adversity of the times. We are coming up to our first virtual Annual Scientific Meeting (ASM) which will be held between March the 14th and March the 16th. The extended registration deadline was March 5 and it promises to be a fantastic meeting which is being convened by A/Prof Phil Clayton and Dr Eu Ling Neo. This will be the 39th Annual Scientific Meeting and promises to be one of the most interesting ones to be held. This will also be held in conjunction with the postgraduate course (PC) and the Masterclass. I am very grateful to A/Prof Chien-Li Holmes-Liew and Dr Andrea Viecelli for convening the postgraduate course being held on March 13 and the exciting masterclass of March 14 which is being conveyed by Dr Sanda Stankovic and Dr Tracey Ying.

39th Annual TSANZ Meeting
Some highlights of the fantastic program that has been put forward includes Car T regs to induce transplant tolerance from Dr Megan Levings from British Columbia in our first plenary session sponsored by Astellas. The President's Prize Symposium which presents the best young clinical and basic science investigators in transplantation. We have outstanding sessions featuring liver transplant immunology with Dr Timucin Taner who is Director of Liver Transplantation at the Mayo Clinic in Rochester as well as A/Prof Kiran Khush from Stanford talking on donor derived cell free DNA. We have sessions on indigenous kidney transplantation, infections in transplantation including a plenary presentation state of the art from A/Prof Marina Berenguer–Haym from the University of Valencia. Our international program includes organ perfusion with Dr Chris Watson from Cambridge, Prof Ina Jochmans and Prof David McGiffin all talking about the exciting area of ex vivo perfusion. The Meeting includes the wonderful great debate on stem cell technology which will make transplant surgeons and physicians redundant in ten years to finish the program.

Overall it is a most exciting program and the Society is extremely grateful to its platinum sponsor Astellas Pharmaceutical, it's Silver sponsors - the Organ and Tissue Authority (OTA), CareDx, Roche, Xvivo Perfusion, Novartis and CSL.

Hopefully all of you who registered for the opening event will enjoy your TSANZ non-alcoholic cocktails! which we hope will be memorable.

The post graduate course and the masterclass cover the breadth of current transplantation and will provide outstanding training for all involved in transplantation.

Organ Match
We continue to benefit in clinical transplantation from our new organ match system. This has been an outstanding new initiative from the Federal Government with huge potential for extra features that will benefit transplantation for many years to come. The organ match is overseen by the Organ Match Strategic Governance Committee but relies particularly on Narelle Watson and Rhonda Holdsworth from the laboratory side as well as all of the State laboratory directors who contribute to the ability for transplantation to happen in Australia and New Zealand. The Paired Exchange with New Zealand is one of the very positive outcomes over the last two years which can only go to benefit patients in our two Countries.

Virtual Cross Matching and Flow Cross Matching
The greatest challenge of course in clinical transplantation at cold face remains the introduction of virtual cross matching and flow cross matching as the CDC reagents and complement become unavailable for conventional cross matching. A close alliance between organ match and the laboratory is necessary for this to be successfully transitioned into clinical transplantation later in the year in a phased manner. A huge amount of work has gone in to this and in particular I would like to acknowledge Dr Ross Francis and the virtual crossmatch working group as well as Prof Greg Snell

and Prof Kate Wyburn who have been instrumental in organising the non-renal working group and the renal working group to get allocation sorted. There is still much work that needs to be done in this space but things are moving along nicely and ultimately, we will have a world class tissue typing and allocation system using organ match and state of the art virtual cross matching and selected flow cross matching for highly sensitised individuals. I would like to thank everybody who has been involved in all of the working groups to make this a clinical reality.

The National Indigenous Kidney Transplantation Taskforce (NIKTT)

It is important to recognise the huge achievement of the NIKTT through Prof Stephen McDonald and A/Prof Jackie Hughes, Chair and Deputy Chair of the NIKTT. The commencement of the NIKTT data project, collecting data on pre-transplant waiting periods should improve the understanding of the inequities that affect indigenous transplant patients through their journey to waiting listing and transplantation. In particular I would also like to highlight the work that has been looking at cultural bias which has been driven through the Lowitja Institute to provide insight into cultural bias as it exists in the Australian context. These are important initiatives that will be fed back to the Commonwealth Government. Ultimately we anticipate that the NIKTT will significantly contribute to increased transplantation in our First Nations People and alter the landscape for transplantation for these people going forward.

Ernst and Young Review

The Ernst and Young Review goes slowly forward. We are hopeful that many of the initiatives that were highlighted in the Ernst and Young Review will be then successfully funded through the Federal Government as many of the fifty seven recommendations have been on hold during the COVID-19 times. We remain actively watching this space in the hope that the positive initiatives will be implemented. Early on in the course of the pandemic the National Transplantation and Donation and Rapid Response Task Force was formed. This has met on a weekly to fortnightly basis and issues regular communiques with the most recent being the 31st Communique from the meeting held on the 2nd of March. This includes on a regular basis, transplantation update, updates in research and vaccination and detailed data breakdown all of which are available on our Website for people to track the response of the TSANZ and the Transplant Sector to the pandemic. I would like to thank Prof Steven Chadban as co-chair of the Task Force and A/Prof Helen Opdam for their outstanding work and leadership in this difficult time which has successfully navigated the transplant grand rounds. Another positive initiative in the past twelve months in the absence of significant transplant meetings worldwide has been the TSANZ Grand Rounds which have occurred now on three separate occasions. Grand Round format has provided educational updates around a variety of relevant transplant topics and has been extremely well attended by the zoom format. We anticipate that this will continue going forward for the next year and potentially beyond COVID-19 times as interest in this format for delivering information has been so marked.

Finally it serves me to thank all of the people that make the TSANZ work so well in particular our scientific program and education community chaired by Dr Lucy Sullivan and A/Prof Wai Lim. It is an outstanding group of individuals including Dr Darren Lee, Prof Henry Pleass, A/Prof William Mulley, Dr Jeanette Villanueva, A/Prof Phil Clayton, Dr Eu Ling Neo, Dr Andrea Viecelli, A/Prof Chien-Li Holmes–Liew, Dr Sanda Stankovic and Tracey Ying. Their outstanding work in putting together our scientific program is much appreciated by all of us. The numerous advisory committees that serve the TSANZ in particular the Cardiac Committee chaired by Dr Robert Larbalestier, the Donor Surgeons Donor Coordinators Committee chaired by Prof Henry Pleass and Ms Shona Haigh, the Liver and Intestinal Committee chaired by Prof Robert Jones, the Lung Committee chaired by Prof Greg Snell, the Paediatric Transplant Committee chaired by Dr Josh Kausman, Pancreatic and Islet Committee chaired by Dr David Goodman, the Renal Transplant Advisory Committee chaired by Prof Kate Wyburn and the Vascular Composite Allograft Group chaired by Dr Sharon Ford of which all play their role in representing transplantation within Australia.

I would also like to thank all of the Councillors who have served with me for the last two years including our President-elect Helen Pilmore, A/Prof Natasha Rogers, A/Prof Bronwyn Levvey, Dr Nick Cross, Dr Christine Russell, A/Prof Kelly McDonald, Prof Kate Wyburn, A/Prof Andrew

Jabbour, A/Prof Fiona Mackie and our wonderful administration staff Mrs Nieves Piaggio, Mrs Kim Rawson and Mrs Roslyn Davies all of whom have served the Council extremely well.

I would like to wish the incoming Council all the best and congratulate everybody for their membership of the TSANZ. It was particularly pleasing to see the strong interest in the Society going forward as held in the election in October last year. The new Council after the Annual Scientific Meeting will be President A/Prof Helen Pilmore from New Zealand, President-elect Prof Kate Wyburn, Dr Tanya McWilliams, the ATCA representative Mr Paul Robertson, councillor A/Prof Philip Clayton, councillor A/Prof Fiona Mackie, councillor Dr Nikki Isbel, councillor Dr Jerome Laurence, councillor Dr Kavitha Muthiah, councillor Dr Lucy Sullivan and councillor Prof Angela Webster.

The Society's future is extremely bright with these talented individuals who will ensure the best transplantation science and transplantation medicine is practiced in Australia and New Zealand well into the future.

Yours sincerely

TOBY COATES, MBBS FRACP PhD
President
The Transplantation Society of Australia & New Zealand