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The Transplantation Society of Australia and New Zealand

Fortieth Annual Scientific Meeting

PROGRAM AT A GLANCE

Friday, 17 June 2022		
12:30–17:00	Machine Perfusion Workshop	City Room 1
Saturday, 18 June 2022		
08:15–17:00	TSANZ Post Graduate Course	City Room 2
Sunday, 19 June 2022		
08:00–12:35	Masterclass in Transplantation	City Rooms 1&2
09:00–10:00	Cardiac Transplant Advisory Committee (CTAC)	City Suite 3&4
12:40–13:40	Donor Surgeons Donor Coordinators Advisory Committee (DSDC)	City Suite 3&4
13:45–14:45	Renal Transplant Advisory Committee (RTAC)	City Suite 3&4
14:00–14:50	Registration	Exhibition Hall N; Foyer
14:50–15:00	**Welcome and Smoking Ceremony**	Exhibition Hall N
15:00–15:10	**Official Opening:** *TSANZ President*	Exhibition Hall N
15:10–15:40	**PLENARY 1: Astellas Symposium** Lessons Learned From a Large Pancreas Transplant Program	Exhibition Hall N
15:40–16:00	**Ian McKenzie Award Lecture** The Quest for Transplantation Tolerance	Exhibition Hall N
16:00–16:40	**TTS - Women in Transplantation Session**	Exhibition Hall N
16:45–17:00	**Afternoon tea**	Exhibition Hall M
16:45–17:45	Lung Transplant Advisory Committee (LTAC)	City Suite 3&4
17:00–18:00	***CONCURRENT FREE COMMUNICATIONS SESSIONS*** **Free Communications 1:** Organ Donation and Allocation **Free Communications 2:** Surgery, Pancreas and Islets **Free Communications 3:** Basic Science: T Cell Biology **Mini-oral Session 1**	 Exhibition Hall N City Room 1 City Room 2 City Room 3
18:00–21:00	**Welcome Reception: "Burden of Genius" Screening**	Mercury Cinema; 13 Morphett Street, Adelaide

Monday, 20 June 2022		
06:15–07:15	**Fun Run/Walk (5km)**	
07:30–08:00	**Coffee** with sponsors	Exhibition Hall M
08:00–09:40	**PLENARY 2: Joint TSANZ /OTA/ATCA Session**	Exhibition Hall N
09:40–10:40	***CONCURRENT FREE COMMUNICATIONS SESSIONS***	
	Free Communications 4: Outcomes and Complications#1	Exhibition Hall N
	Free Communications 5: Infections	City Room 1
	Free Communications 6: Basic Science: Improving Allograft Survival	City Room 2
	Mini-oral Session 2	City Room 3
10:40–11:10	**Morning tea and Poster viewing**	Exhibition Hall N
11:10–12:40	**PLENARY 3: Astellas Symposium**	Exhibition Hall N
	Cellular Therapy and Transplantation Tolerance	
12:40–13:35	**Lunch and Poster Viewing**	Exhibition Hall M
	Women in Transplantation Networking	City Room 2
	Vascular Composite Allograft Advisory Committee (VCAAC)	TBC
12:45–13:30	**Pancreas & Islet Transplant Advisory Committee (PITAC)**	City Suite 3&4
13:35–15:35	**President's Prize Symposium**	Exhibition Hall N
15:35–16:00	**Afternoon tea**	Exhibition Hall M
15:45–17:00	Liver and Intestinal Transplant Advisory Committee (LITAC)	City Suite 3&4
16:00–17:00	***CONCURRENT FREE COMMUNICATIONS SESSIONS***	
	Free Communications 7: Clinical Science: Other	Exhibition Hall M
	Free Communications 8: Outcomes and Complications#2	City Room 1
	Free Communications 9: Basic Science: Emerging Biomarkers and Techniques	City Room 2
17:00–18:00	**TSANZ Annual General Meeting**	Exhibition Hall M
19:00–22:30	**TSANZ Annual Dinner**	Adelaide Town Hall

Tuesday, 21 June 2022		
07:30–08:00	**Coffee** with sponsors	Exhibition Hall M
08:00–09:30	**PLENARY 4: Joint Pharmacor/TSANZ Symposium** Improving Post-Transplant Outcomes	Exhibition Hall N
09:30–10:30	***CONCURRENT STATE OF THE ART SESSIONS*** **STATE OF THE ART 1: Joint AstraZeneca/TSANZ Symposium** Local Regulation of Allograft Health **STATE OF THE ART 2: TSANZ Symposium** Living Donation	 City Room 1 City Room 2
10:30–11:00	**Morning tea**	Exhibition Hall M
10:30–11:30	**Paediatric Transplant Advisory Committee (PTAC)**	City Suite 3&4
11:00–12:30	**CONCURRENT STATE OF THE ART SESSIONS** **STATE OF THE ART 3: Joint Xvivo/TSANZ Symposium** Challenging Problems Prior to Transplant **STATE OF THE ART 4: Joint Novartis/TSANZ Symposium** Mitigating Transplant Risk of Infection and Cancer	 City Room 1 City Room 2
12:30–13:30	**Lunch** Virtual Crossmatch Workshop	Exhibition Hall M City Room 1
13:30–15:00	**Plenary 5: Joint Immulab & Immucor/TSANZ Symposium** Equity in Transplantation	Exhibition Hall N
15:00–15:25	Afternoon tea	Exhibition Hall M
15:25–16:00	**The Great Debate: You are Only as Young as Your Organ…we Should Attempt to Match Donor and Recipient**	Exhibition Hall N
16:00	**ASM Concludes**	

OFFICE BEARERS OF THE TRANSPLANTATION SOCIETY OF AUSTRALIA AND NEW ZEALAND

President
Professor Helen Pilmore

President Elect & Chair, Advisory Committees/Working Groups
Professor Kate Wyburn

Honorary Secretary
A/Professor Fiona Mackie

Treasurer
A/Professor Nikky Isbel

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Dr Jerome Laurence - Surgical Representative

A/Professor Philip Clayton - RACP

A/Professor Kavitha Muthiah

Dr Lucy Sullivan

Professor Angela Webster

Paul Robertson - ATCA Representative

Scientific Program & Education Committee (SPEC)

Dr Wai Lim (Co-Chair)
Professor Henry Pleass
Dr Darren Lee
Dr Michael Collins (ASM)
Professor Chien-Li Holmes-Liew (PGC)
Dr Chanel Prestidge (Masterclass)
Dr Lucy Sullivan (Co-Chair)
A/Professor William Mulley
Dr Jeanette Villanueva
Dr Sanda Stankovic (ASM)
Dr Eric T. Son (PGC)
A/Professor Chris Drogemuller (Masterclass)

TSANZ Administrative Staff

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Ms Marina Katerelos
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PARTNERS

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)

TSANZ Early Career Researcher Awards

Kidney Health Australia Awards

Lafferty Award
(supported by TSANZ)

Ian McKenzie Award
(supported by TSANZ)

Mark Cocks Award
(supported by Transplant Australia)

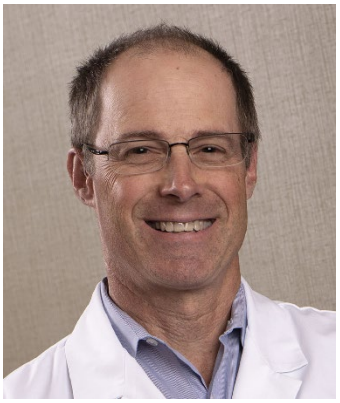
Aviva Rosenfeld Award for Excellence in Patient Care in Transplantation
(supported by TSANZ)

FINANCIAL STATEMENTS

The Transplantation Society of Australia and New Zealand (TSANZ) Financials for the Year Ended December 2021 are available on the easily accessible member password protected section of the TSANZ website www.tsanz.com.au.

INVITED INTERNATIONAL SPEAKERS

Sponsored by RACS Visitor Grant Program



Dr Jon S. Odorico, MD, FACS, FAST

Dr. Odorico is Director of the Pancreas and Islet Cell Transplantation Programs and Professor in the Department of Surgery, Division of Organ Transplantation at the University of Wisconsin-Madison School of Medicine and Public Health and UW Health Transplant Center. He received a BS in Chemistry from Duke University, and MD from New York University. He completed General Surgery training as well as a post-doctoral research fellowship, at the University of Pennsylvania and Abdominal Organ Transplant Fellowship at University of Wisconsin. Dr. Odorico has an active, extramurally funded research laboratory that focuses on beta cell differentiation from pluripotent stem cells. He has previously served as President of IPITA and Chair of the UNOS Pancreas Committee. He is also the scientific co-founder of Regenerative Medical Solutions, Inc.

Sponsored by the Royal Australasian College of Surgeons

INVITED INTERNATIONAL SPEAKERS

Professor Yves Beguin

MD (1982), specialist in Internal Medicine/Hematology (1987), PhD (1991) from U. of Liège with highest possible grade. Post-doc at Div. of Hematology and Fred Hutchinson Cancer Research Center, U. of Washington in Seattle with C. Finch, J. Adamson and D. Thomas. Research Director at National Fund for Scientific Research until 2009, Head (CHU of Liège) and Professor (U. of Liège) of Hematology since 2009. Director of Laboratory of Cell & Gene Therapy (LTCG) and Hematology lab of GIGA-Research at U. of Liège. Chair of Cancer Institute at CHU of Liège. Past President of Belgian Hematology Society (BHS) and chair of its Transplant Committee. Vice-President of Francophone Society of Bone Marrow Transplantation and Cell Therapy (SFGM-TC). Research interests focused on erythropoiesis, hematopoietic cell transplantation and cell therapy. Published > 450 articles with cumulative IF > 1300 and recipient of over 10 prizes.

INVITED INTERNATIONAL SPEAKERS

A/Professor Kieran Halloran

Kieran Halloran is an associate professor in the Division of Pulmonary Medicine at the University of Alberta in Edmonton, Canada. He completed his pulmonary training at the UofA in 2012 followed by a fellowship in lung transplantation at the University of Toronto with the Toronto lung transplant program in 2013. He went on to obtain a Master of Science in Epidemiology at the Harvard TH Chan School of Public Health in Boston in the US. His primary research interests are in physiologic and molecular phenotyping of post-transplant lung dysfunction.

INVITED INTERNATIONAL SPEAKERS

Professor Jayme Locke

Dr. Locke is an abdominal transplant surgeon specializing in innovative strategies for the transplantation of incompatible organs, disparities in access to and outcomes after solid organ transplantation, and transplantation of HIV-infected end-stage patients. Dr. Locke completed an undergraduate degree in biology and chemistry at Duke University and her medical degree at East Carolina University prior to matriculating to Johns Hopkins Hospital where she received training in general surgery and multivisceral abdominal transplantation. Dr. Locke completed her Master of Public Health degree with an emphasis in biostatistics and epidemiology at the Johns Hopkins Bloomberg School of Public Health.

Her research interests include complex statistical analysis and modeling of transplant outcomes and behavioral research focused on health disparities. She has authored more than 140 articles in peer reviewed journals and 20 book chapters, and is an NIH R01-funded investigator. In addition, Dr. Locke is a Deputy Editor for the *American Journal of Transplantation* and is an editorial board member for *Annals of Surgery*. She is also a member of the American Society of Transplantation (AST), American Society of Transplant Surgeons (ASTS; Councilor-at-Large), and American Society of Nephrology (ASN), as well as, a Fellow of the American College of Surgeons (ACS), Society of University Surgeons (SUS; Councilor-at-Large), the Southern Surgical Association (SSA), Society of Clinical Surgery (SCS), and the American Surgical Association (ASA). Dr. Locke is the recipient of numerous honors including the UAB Dean's Excellence Award in Research 2016, and was named the 2016 James IV Association of Surgeons Traveling Fellow, Top 40 Under 40 by the Birmingham Business Journal, AL.com's 2015 Women Who Shape the State, B-Metro Top Women in Medicine 2017, American College of Surgeons Traveling Fellow 2018, Association for Clinical & Translational Science (ACTS) Distinguished Investigator Award: Translation into Public Benefit and Policy (2018), and the AST Clinical Science Faculty Award 2020.

Dr. Locke is currently Professor of Surgery and the Arnold G. Diethelm MD Endowed Chair in Transplantation Surgery at the University of Alabama at Birmingham and serves as the Director of the Comprehensive Transplant Institute and Chief of the Division of Abdominal Transplant Surgery.

INVITED INTERNATIONAL SPEAKERS

Professor Anette Melk

Anette Melk is a Professor of Pediatrics and Transplantation Medicine at Hannover Medical School. In addition, she chairs one of the largest clinician scientist programs in Germany. She received her PhD from University of Alberta (Canada) and trained as a Pediatric Nephrologist at the University of Heidelberg Children's Hospital. Dr. Melk's work on pathways leading to impaired regeneration in the pathogenesis of renal and cardiovascular diseases includes basic findings and concepts from cell and animal models to clinical applications. She has pioneered the idea that cellular senescence is crucial for the insufficient regenerative capacity of donor organs and an important target in therapeutic approaches. Her clinical research projects aim to further decipher factors leading to cardiovascular and renal comorbidity in transplant recipients. She initiated the largest longitudinal clinical study assessing cardiovascular health in children and adults after solid organ and stem cell transplantation. Dr. Melk's holistic view on optimization of patient and graft survival lead her build the first German research consortium that deals with sex- and gender-related differences in renal transplantation with the idea to significantly influence health policy development. She currently organizes an international workshop on biomedical and socio-cultural aspects in transplantation.

Sponsored by Women in Transplantation an Initiative of The Transplantation Society

INVITED SPEAKERS

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

Associate Professor Patrick Bertolino
Head of Liver Immunology Program
Centenary Institute, NSW

Professor Steve Chadban
Clinical Stream Director, Renal Medicine and Urology
Royal Prince Alfred Hospital and Sydney LHD, NSW

Professor Toby Coates
Director of Kidney and Islet Transplantation
CNARTS, Royal Adelaide Hospital, SA

Dr Nick Cross
Clinical Director of Nephrology, Christchurch Hospital
Clinical Director of National Renal Transplant Service
New Zealand

Professor Chien-Li Holmes-Liew
Lung Transplant Physician
South Australian Lung Transplant Unit, SA

Associate Professor Jaquelyne Hughes
Nephrologist and Clinician Researcher
Royal Darwin Hospital, NT

Professor Francesco Ierino
Director of Nephrology
St Vincent's Hospital (Melbourne), VIC

Associate Professor Nikky Isbel
Nephrologist
Princess Alexandra Hospital, QLD

Associate Professor Shilpa Jesudason
Staff Specialist Nephrologist
CNARTS Royal Adelaide Hospital, SA

INVITED SPEAKERS

Professor Michaela Lucas
Clinical Immunologist/Immunopathologist,
University of Western Australia, WA

Dr Kelli MacDonald
Principal Research Fellow, Group Leader
QIMR Berghofer MRI, QLD

Professor Jodie McVernon
Professor and Director of Doherty Epidemiology
The Peter Doherty Institute for Infection and Immunity, VIC

Dr Brian Nankivell
Nephrologist and Transplant Clinician
National Pancreas Transplant Unit Sydney, NSW

Professor Helen Pilmore
TSANZ President, Senior Transplant Nephrologist
Auckland City Hospital, New Zealand

Dr Kathy Paizis
Department of Nephrology Austin Health,
Mercy Hospital for Women, Joan Kerner Western Health, VIC

Associate Professor Carlo Pulitano
Consultant Surgeon
Royal Prince Alfred Hospital, NSW

Jo Ritchie
Clinical Lead Organ Donation New Zealand
New Zealand Blood Service

Paul Robertson
Australasian Transplant Coordinators Association (ATCA)

Dr Hasib Sidiqi
Consultant Hematologist
Fiona Stanley Hospital, WA

Professor Greg Snell
Medical Head, Lung Transplant Service
Alfred Hospital, VIC

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INVITED SPEAKERS

Dr Curtis Walker
Nephrologist
Midcentral District Health Board, NZ

Professor Angela Webster
Professor of Clinical Epidemiology, Director of Evidence Integration, Nephrologist
University of Sydney and Westmead Hospital, NSW

Professor Germaine Wong
Director of Renal and Transplantation and Renal Medicine
Westmead Hospital, NSW

ABSTRACT REVIEW PROCESS AND PRESENTATION FORMATS

A total of 153 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.

Three presentation formats will be used at the 2022 ASM. Free Communications session will have 4 oral presentations (12 min presentation, 3 min questions). 25 abstracts will be presented as mini-orals (4 min presentation, 1 min question) on Sunday evening and Monday morning. Abstracts will also be displayed as posters and the poster viewing sessions will be held during morning tea and lunch on Monday June 20. Presenters should be at their posters during the poster sessions to answer any questions from delegates.

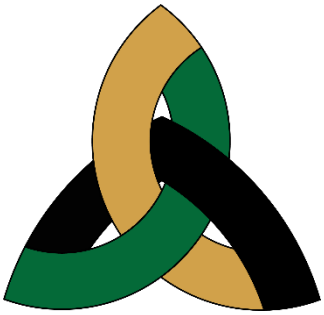
The President's Prize (PP) will be awarded in two categories: Basic Science and Clinical. The highest-ranked abstracts from eligible applicants in both categories will be presented in a single PP session. The award in each category will be based on the quality of the abstract and the presentation on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

The reviewers of the abstracts for the TSANZ 2022 meeting were:

Sam Adhikary
Jafar Ahmed
Stephen Alexander
Richard Allen
Leyla Aouad
Eric Au
Michael Burke
Scott Campbell
Robert Carroll
Steve Chadban
Titi Chen
Suet-Wan Choy
Carolyn Clark
Philip Clayton
Toby Coates
Michael Collins
Peter Cowan
Nick Cross
David Darley
Ian Dittmer
Karen Dwyer
Helen Evans
Randall Faull
Jonathan Fawcett
Michael Fink
Ross Francis
Nicholas Geraghty
Allan Glanville
Hilton Gock
David Goodman
David Gracey
Bruce Hall
Ahmer Hameed
Wayne Hancock
Wayne Hawthorne
Bulang He
Munish Heer
Geoff Hill
Peter Hopkins
Min Hu
Peter Hughes
Frank Ierino
Ashley Irish
Georgina Irish
Nikky Isbel
Andrew Jabbour
Shilpanjali Jesudason
Robert Jones
John Kanellis
Sean Kennedy
Jair Kwan
Paul Lawton
Darren Lee
Bronwyn Levvey
Jennifer Li
Wai Lim
Tom Loudovaris
Grant Luxton
Peter Macdonald
Fiona Mackie
Rosemary Masterson
Geoff McCaughan
Stephen McDonald
Tanya Mcwilliams
Paul Manley
Solomon Menahem
Bill Mulley
Brian Nankivell
Eu Ling Neo
Kathy Nicholls
Philip O'Connell
Kathy Paizis
Helen Pilmore
Henry Pleass
Chanel Prestige
Janske Reiling
Veena Roberts
Amanda Robertson
Paul Robertson
Natasha Rogers
Brenda Rosales
Christine Russell
Jessica Ryan
Sarah Scheuer
Nick Shackel
Alex Sharland
Julian Singer
Sanda Stankovic
Sebastian Stead
Kamal Sud
Lucy Sullivan
Suda Swaminathan
Allison Tong
Paul Trevillian
Karen Waller
Stacey Walters
Debbie Watson
Angela Webster
Glen Westall
Germaine Wong
Elke Woodhouse
Kate Wyburn
Melanie Wyld
Tracey Ying
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
Fortieth Annual Scientific Meeting

PROGRAM

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12:30–17:00	Machine Perfusion Workshop	City Room 1

Saturday, 18 June 2022

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Sunday, 19 June 2022

08:00–12:35	Masterclass in Transplantation	City Rooms 1&2
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12:40–13:40	Donor Surgeons Donor Coordinators Advisory Committee (DSDC)	City Suite 3&4
13:45–14:45	Renal Transplant Advisory Committee (RTAC)	City Suite 3&4

Sunday, June 19, 2022

14:00–14:50	**Registration**	Exhibition Hall N; Foyer
14:50–15:00	**Welcome and Smoking Ceremony**	Exhibition Hall N
15:00–15:10	**Official Opening:** *TSANZ President* Prof Helen Pilmore	Exhibition Hall N
15:10–15:40	**PLENARY 1: Astellas Symposium** *Chairs: Prof Toby Coates, Prof Angela Webster* **Lessons Learned From a Large Pancreas Transplant Program** Prof Jon Odorico (Sponsored by RACS)	Exhibition Hall N
15:40–16:00	**Ian McKenzie Award Lecture** *Chairs: A/Prof Phil Clayton, Dr Samantha Bateman* **The Quest for Transplantation Tolerance** Prof Francesco Ierino	Exhibition Hall N
16:00–16:40	**TTS - Women in Transplantation Session** **16:00 Introduction** Prof Germaine Wong **16:10 Sex, Age and Hormone Interactions in Transplantation Outcomes in Children** Prof Anette Melk **16:25 Pandemic Modelling** Prof Jodie McVernon	Exhibition Hall N
16:45–17:00	**Afternoon tea**	Exhibition Hall M
16:45–17:45	**Lung Transplant Advisory Committee (LTAC)**	City Suites 3&4
17:00–18:00	***CONCURRENT FREE COMMUNICATIONS SESSIONS*** **Free Communications 1: Organ Donation and Allocation** *Chairs: A/Prof William Mulley and Dr Chanel Prestidge*	Exhibition Hall N
Abstract	***— Oral presentations —***	

Sunday, June 19, 2022

1	17:00	**POTENTIAL BENEFIT OF ABOi DECEASED DONOR RENAL TRANSPLANTATION TO IMPROVE ACCESS FOR THE HIGHLY SENSITISED** ASHLEY IRISH	
2	17:15	**SHOULD I HAVE A TRANSPLANT? USING FLEXIBLE PARAMETRIC MODELS TO PREDICT SURVIVAL AFTER KIDNEY TRANSPLANT WAITLISTING** GEORGINA L IRISH	
3	17:30	**LIVING DONOR FACTORS DO NOT DISCRIMINATE OUTCOMES AND SHOULD NOT BE USED TO PROMOTE COMPATIBLE PAIRS FOR PAIRED KIDNEY EXCHANGE** GEORGINA L IRISH	
4	17:45	**COST-EFFECTIVENESS OF INCREASING UTILISATION OF KIDNEYS FROM DECEASED DONORS WITH PRIMARY BRAIN MALIGNANCY** JAMES HEDLEY	
17:00–18:00	**Free Communications 2: Surgery, Pancreas and Islets** *Chairs: Prof Henry Pleass and A/Prof Chris Drogemuller*		City Room 1
Abstract	***— Oral presentations —***		
5	17:00	**TOTAL PANCREATECTOMY AND ISLET-CELL AUTOTRANSPLANTATION: THE WESTMEAD EXPERIENCE** ANIMESH SINGLA	
6	17:15	**THE GENETIC EPIDEMIOLOGY OF HEREDITARY PANCREATITIS IN AUSTRALIA AND ITS EFFECT ON PATIENTS OF TOTAL PANCREATECTOMY AND ISLET AUTO TRANSLATION (TP-IAT)** DENGHAO WU	
7	17:30	**EARLY OUTCOMES OF RENAL TRANSPLANTS WITH INTRA-OPERATIVE DUPLEX ULTRASOUND** CHARLES FISHER	
8	17:45	**PRIMARY 'PARTIAL FASCIAL CLOSURE' AND INTRA-OPERATIVE KIDNEY ULTRASOUND IN KIDNEY TRANSPLANTATION: A SINGLE CENTRE EXPERIENCE** ANIMESH SINGLA	
17:00–18:00	**Free Communications 3: Basic Science: T Cell Biology** *Chairs: Ms Giulia Iacono and Prof Wayne Hawthorne*		City Room 2
Abstract	***— Oral presentations —***		

Sunday, June 19, 2022

9	17:00	**SHARED TRANSCRIPTIONAL TRAJECTORY OF TISSUE TREGS BETWEEN TOLERANT-GRAFTS AND LYMPHOID ORGANS IN TRANSPLANT TOLERANCE** HAINA (HANNAH) WANG	
10	17:15	**POTENT SUPPRESSIVE FUNCTION OF XENO-ANTIGEN-REACTIVE HUMAN HLADR+CD27+TREGS VIA ENHANCED CD95 AND CTLA-4 EXPRESSIONS** MARTINA RANERI	
11	17:30	**ELEVATED IL-6 LEVELS ARE ASSOCIATED WITH INCREASED MORTALITY UPON RESPIRATORY INFECTION AFTER BONE MARROW TRANSPLANTATION** ANTIOPE VARELIAS	
12	17:45	**INCREASED SODIUM IN T CELLS USING MUTANT KCNJ5 INDUCES A TH17 PHENOTYPE THAT PROTECTS AGAINST IN VIVO FUNGAL SEPTICAEMIA** KARLI SHAW	
17:00–18:00	**Mini-Oral Session 1** *Chairs: Dr Michael Collins and A/Prof Nicole Isbel*		City Room 3
Abstract	***— Mini-oral presentations —***		
13	17:00	**NATURAL HISTORY OF CXCR5+ T FOLLICULAR-LIKE HELPER (TFH) CELLS IN KIDNEY TRANSPLANT RECIPIENTS WITH REJECTION** BRENDA M ROSALES	
14	17:05	**PULMONARY CANDIDA COLONIZATION AND ECMO ARE ASSOCIATED WITH EARLY INVASIVE CANDIDIASIS POST-LUNG TRANSPLANTATION IN ADULTS** TINA MARINELLI	
15	17:10	**AN ANTI-HUMAN P2X7 MONOCLONAL ANTIBODY ATTENUATES GRAFT-VERSUS-HOST DISEASE IN HUMANISED MICE** AMAL ELHAGE	
16	17:15	**LONG-TERM METABOLIC OUTCOMES FOLLOWING SIMULTANEOUS PANCREAS-KIDNEY TRANSPLANTATION IN TYPE I DIABETES PATIENTS** HARSHAM CHOKSI	
17	17:20	**TRAJECTORY OF BKPYV-DNAEMIA AND LONG-TERM ALLOGRAFT OUTCOMES IN KIDNEY TRANSPLANT RECIPIENTS** RYAN GATELY	

Sunday, June 19, 2022

18	17:25	**ANTIBODIES TO NON-HLA TARGETS CAN INFLUENCE FLOW CYTOMETRY CROSSMATCHING** STEVEN J HIHO	
19	17:30	**PREBIOTIC SUPPLEMENTATION IN KIDNEY TRANSPLANT RECIPIENTS FOR PREVENTING INFECTIONS AND GASTROINTESTINAL UPSET** SAMUEL CHAN	
20	17:35	**IMMUNE SUBSET DIFFERENCES BY FACS BETWEEN PAEDIATRIC KIDNEY TRANSPLANT RECIPIENTS, HEALTHY PAEDIATRIC AND ADULT CONTROLS** ELVIRA JIMENEZ-VERA	
21	17:40	**DECEASED DONOR AVAILABILITY FOR UTERUS TRANSPLANTATION IN AUSTRALIA** JANA-EMILY PITTMAN	
22	17:45	**A COMPARISON OF MYCOPHENOLIC ACID PHARMACOKINETICS BETWEEN ELDERLY AND YOUNGER ADULT KIDNEY TRANSPLANT RECIPIENTS** AMELIA COSSART	
23	17:50	**THE MANAGEMENT OF BORDERLINE T CELL MEDIATED REJECTION IN KIDNEY TRANSPLANTATION** MELANIE WYLD	
24	17:55	**POST-TRANSPLANT CYCLOPHOSPHAMIDE LIMITS GRAFT-VERSUS-HOST DISEASE AND RETAINS GRAFT-VERSUS-LEUKAEMIA RESPONSES IN HUMANISED MICE** CHLOE SLIGAR	
18:00–21:00		**Welcome Reception: “Burden of Genius” Screening**	Mercury Cinema; 13 Morphett Street, Adelaide

Monday, June 20, 2022

06:15–07:15	**TSANZ Fun Run/Walk** (5 km)	
07:30–08:00	**Coffee** with sponsors	Exhibition Hall M
08:00–09:40	**PLENARY 2: Joint TSANZ /OTA/ATCA Session** **Organ Donation** *Chairs: Dr Michael Collins and Ms Sarah Dart* 08:00 **Improving Access to Solid Organ Transplantation: Current Challenges and Controversies** Prof Jayme Locke 08:40 **Update on Deceased Donation From the Organ Transplant Authority** Ms Lucinda Barry 09:00 **Update on Deceased Donation From Organ Donation New Zealand** Ms Jo Ritchie 09:20 **ATCA Update** Mr Paul Robertson	Exhibition Hall N
09:40–10:40	***CONCURRENT FREE COMMUNICATIONS SESSIONS*** **Free Communications 4: Outcomes and Complications#1** *Chairs: Prof Matthew Jose and Dr Carolyn Clark*	Exhibition Hall N

Abstract		***— Oral presentations —***
25	09:40	**COVID-19 VACCINATION IN PATIENTS WITH CKD IN NEW ZEALAND (C-VAK NZ): LOW RATE OF SEROCONVERSION IN TRANSPLANT VERSUS DIALYSIS PATIENTS** HELEN PILMORE
26	09:55	**DEFINING CAUSES OF ALLOGRAFT LOSS ATTRIBUTED TO CHRONIC ALLOGRAFT NEPHROPATHY. A 5-YEAR MULTICENTRE AUDIT** WILLIAM MULLEY
27	10:10	**ASSOCIATION BETWEEN KIDNEY DONOR PROFILE INDEX AND THREE-YEAR ALLOGRAFT LOSS IN KIDNEY TRANSPLANT RECIPIENTS** JANELLE PRUNSTER

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28	10:25	**PREVENTION OF KERATINOCYTE CANCERS IN TRANSPLANT RECIPIENTS USING TOPICAL SIROLIMUS: A RANDOMISED, PLACEBO-CONTROLLED PILOT TRIAL** NICOLE ISBEL	
09:40–10:40		**Free Communications 5: Infections** *Chairs: A/Prof Fiona Mackie and A/Prof Matthew Roberts*	City Room 1
Abstract		***— Oral presentations —***	
29	09:40	**TRANSPLANTATION OF HCV RNA+VE (HCV+) DONOR KIDNEYS TO HCV RNA-VE (HCV-) RECIPIENTS. PRELIMINARY RESULTS FROM REPLACE STUDY** DICKSON LAM	
30	09:55	**ECONOMIC EVALUATION OF SCREENING FOR POLYOMAVIRUS INFECTION IN KIDNEY TRANSPLANT RECIPIENTS – A COST-UTILITY ANALYSIS** GERMAINE WONG	
31	10:10	**ISOLATION OF SCEDOSPORIUM AND LOMENTOSPORA SPP. FOLLOWING LUNG TRANSPLANTATION: PREVALENCE AND ASSOCIATIONS AT A SINGLE CENTRE** ALISTAIR ABBOTT	
32	10:25	**INCIDENCE, RISK FACTORS AND OUTCOMES OF KIDNEY TRANSPLANT RECIPIENTS WITH BK POLYOMAVIRUS-ASSOCIATED NEPHROPATHY** RYAN GATELY	
09:40–10:40		**Free Communications 6: Basic Science: Improving Allograft Survival** *Chairs: A/Prof Antiopi Varelias and Prof Peter Cowan*	City Room 2
Abstract		***— Oral presentations —***	
33	09:40	**TARGETING CD47 IMPROVES ISLET FUNCTION AND ISLET TRANSPLANT OUTCOMES** ATHARVA KALE	
34	09:55	**MULTIOMICS PROFILING OF LUNG TRANSPLANT RECIPIENTS IDENTIFIES EARLY SIGNATURES LINKED TO CHRONIC LUNG ALLOGRAFT DYSFUNCTION** GUILIA IACONO	

35	10:10	**MOVING XENOTRANSPLANTATION TO THE CLINIC: REVIEW OF IMMUNOSUPPRESSION IN PIG-TO-NONHUMAN PRIMATE ISLET XENOTRANSPLANTATION** WAYNE HAWTHORNE	
36	10:25	**TACROLIMUS TREATMENT ALONE DOES NOT PROTECT DONOR LEUCOCYTES FROM DEPLETION POST MHC-MISMATCHED KIDNEY TRANSPLANTATION IN MICE** SARAH DART	
09:40–10:45	**Mini-Oral Session 2** *Chairs: A/Prof Natasha Rogers and Prof Ashley Irish*		City Room 3
Abstract	***— Mini-oral presentations —***		
37	09:40	**DECEASED DONOR ABO INCOMPATIBLE RENAL TRANSPLANTATION** ASHLEY IRISH	
38	09:45	**INCIDENCE AND RISK FACTORS ASSOCIATED WITH INCISIONAL HERNIAS AFTER ADULT LIVER TRANSPLANTATION AT A SINGLE HIGH-VOLUME CENTRE** SIENA PERUCH	
39	09:50	**DONOR AND RECIPIENT SEX DISPARITIES IN LIVING KIDNEY DONATION IN AUSTRALIA: AN EXPLORATORY ANALYSIS OF THE SOCIO-DEMOGRAPHIC DRIVERS** SIAH KIM	
40	09:55	**EXTERNAL VALIDATION OF THE UK TRANSPLANT BENEFIT SCORE IN THE AUSTRALIA AND NEW ZEALAND CHRONIC LIVER DISEASE POPULATION** EUNICE LEE	
41	10:00	**THE ASSOCIATION BETWEEN HISTOPATHOLOGICAL FEATURES ON IMPLANTATION RENAL TRANSPLANT BIOPSY AND GRAFT OUTCOME AND KDPI** CANDICE KHOR	
42	10:05	**OUT-OF-HOSPITAL-CARDIAC-ARREST DONATION AFTER CIRCULATORY DETERMINANT OF DEATH DONOR AND RISK OF DELAYED GRAFT FUNCTION** ADAM PHILIPOFF	
43	10:10	**ASSOCIATION BETWEEN DIABETES STATUS, ALL-CAUSE AND CAUSE-SPECIFIC MORTALITY FOLLOWING FIRST KIDNEY ALLOGRAFT FAILURE** AMALI SAMARASINGHE	

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44	10:15	**TEMPORAL VALIDATION OF THE AUSTRALIAN ESTIMATED POST TRANSPLANTATION SURVIVAL SCORE** GEORGINA L IRISH	
45	10:20	**YOUNG PEOPLE WITH A LUNG TRANSPLANT: A QUALITATIVE STUDY OF DAILY LIFE DURING A PANDEMIC** SIMONE WEST	
46	10:25	**ASPIRIN PROPHYLAXIS AND THE INCIDENCE OF THROMBOEMBOLIC COMPLICATIONS FOLLOWING KIDNEY TRANSPLANTATION** ANGUS PEGLER	
47	10:30	**WHAT IS THE IDEAL SURGICAL INCISION IN KIDNEY TRANSPLANTATION? – A RETROSPECTIVE ANALYSIS OF GIBSON VS MIDLINE INCISION** MARK YANG	
48	10:35	**IDENTIFYING CARDIOVASCULAR OUTCOMES OF IMPORTANCE IN KIDNEY TRANSPLANT CLINICAL TRIALS: AN INTERNATIONAL SURVEY** GREGORY WILSON	
49	10:40	**TRAJECTORIES OF SYSTOLIC BLOOD PRESSURE DECLINE IN KIDNEY TRANSPLANT DONORS PRIOR TO CIRCULATORY DEATH AND DELAYED GRAFT FUNCTION** GERMAINE WONG	
10:40–11:10		**Morning tea and Poster Viewing**	Exhibition Hall M
11:10–12:40		**PLENARY 3: Astellas Symposium** **Cellular Therapy and Transplantation Tolerance** *Chairs: Dr Sanda Stankovic Mr Eric Son* 11:10 **Regulation of GVHD After Transplantation** Dr Kelli MacDonald 11:40 **Mesenchymal Stem Cells in Transplantation** Prof Yves Beguin 12:10 **Tolerance Induction in Liver** A/Prof Patrick Bertolino	Exhibition Hall N
12:40–13:35		**Lunch and Poster Viewing**	Exhibition Hall M
		Women in Transplantation Networking	City Room 2
		Vascular Composite Allograft Advisory Committee (VCAAC)	TBC

Monday, June 20, 2022

12:45–13:30	Pancreas & Islet Transplant Advisory Committee (PITAC)		City Suite 3&4
13:35–15:35	**President's Prize Symposium** *Chair: TSANZ President, Prof Helen Pilmore*		Exhibition Hall N
	— Oral presentations —		
50	13:35	**SPLITTING AND LONG-TERM PRESERVATION OF HUMAN LIVERS USING EX-VIVO NORMOTHERMIC MACHINE PERFUSION** NGEE-SOON LAU	
51	13:50	**SIMKAP—A SIMULATION FRAMEWORK FOR DECEASED DONOR KIDNEY ALLOCATION** YUNWEI ZHANG	
52	14:05	**IFNγ-DEPENDENT MHCII EXPRESSION BY DONOR BONE MARROW-DERIVED MACROPHAGES UNDERPINS CNS MANIFESTATIONS DURING CHRONIC GVHD** RACHAEL ADAMS	
53	14:20	**mTOR INHIBITION IS ASSOCIATED WITH AN IMPROVED IMMUNE RESPONSE TO COVID-19 VACCINATION IN KIDNEY TRANSPLANT RECIPIENTS** GRIFFIN B PERKINS	
54	14:35	**THE MOLECULAR NATURE OF THE BANFF iIFTA LESION** HARRY ROBERTSON	
55	14:50	**THE CLINICAL UTILITY AND THRESHOLDS OF VIRTUAL AND HALIFASTER FLOW CROSSMATCHES** STEVEN J HIHO	
56	15:05	**ADOPTIVE TOLEROGENIC DENDRITIC CELL THERAPY PROTECTS AGAINST RENAL ISCHEMIA REPERFUSION INJURY** JENNIFER LI	
57	15:20	**OUTCOME OF KIDNEY TRANSPLANTATION IN THE ELDERLY COMPARED WITH DIALYSIS** BREE SHI	
15:35–16:00	**Afternoon tea**		Exhibition Hall M
15:45–17:00	Liver and Intestinal Transplant Advisory Committee (LITAC)		City Suite 3&4

Monday, June 20, 2022

16:00–17:00	***CONCURRENT FREE COMMUNICATIONS SESSIONS***		
	Free Communications 7: Clinical Science: Other *Chairs: Prof Kate Wyburn and A/Prof Ross Francis*		Exhibition Hall N
Abstract	***— Oral presentations —***		
58	16:00	**CLOSING THE GAP: ADDRESSING INEQUITIES IN ACCESS TO KIDNEY TRANSPLANTATION FOR ABORIGINAL AUSTRALIANS FROM THE KIMBERLEY** DORIS CHAN	
59	16:15	**OUTCOMES FOR LIVE KIDNEY DONORS FOLLOWING NEPHRECTOMY IN AOTEAROA NEW ZEALAND: THE LIVE DONATE NZ STUDY** LAI WAN CHAN	
60	16:30	**IMPACT OF NEW VICTORIAN KEY PERFORMANCE INDICATOR (KPI) ON RENAL TRANSPLANT WAITLISTS FOR INDIGENOUS & NON-INDIGENOUS PATIENTS** REBECCA LING	
61	16:45	**CREATININE AND TACROLIMUS CONCENTRATIONS OBTAINED FROM DRIED BLOOD SPOTS** FRANK REIMANN	
16:00–17:00	**Free Communications 8: Outcomes and Complications#2** *Chairs: Dr Nick Larkins and Dr Namrata Khanal*		City Room 1
Abstract	***— Oral presentations —***		
62	16:00	**COMBINING DONOR DERIVED CELL-FREE DNA FRACTION AND QUANTITY TO DETECT KIDNEY TRANSPLANT REJECTION USING MOLECULAR DIAGNOSES** CESAR ESCRIG	
63	16:15	**BELATACEPT AND SIROLIMUS IMMUNOSUPPRESSION INCREASES CD4+FOXP3+T-REG AND CENTRAL MEMORY RESPONSE IN ISLET-TRANSPLANTATION** HUGH C GABOR	
64	16:30	**IMPACT OF DONOR RISK INDEX ON THE OUTCOME OF LIVER TRANSPLANTATION OF URGENTLY LISTED PATIENTS IN AUSTRALIA AND NEW ZEALAND** EUNICE LEE	

Monday, June 20, 2022

65	16:45	**THE IMPACT OF OBESITY ON DELAYED GRAFT FUNCTION AND SURVIVAL** BREE SHI	
16:00–17:00		**Free Communications 9: Basic Science: Emerging Biomarkers and Techniques** *Chairs: Miss Karli Shaw and Dr John Whitlam*	City Room 2
Abstract		***— Oral presentations —***	
66	16:00	**BILIARY REGENERATION DURING LONG-TERM EX-VIVO NORMOTHERMIC MACHINE PERFUSION** MARK LY	
67	16:15	**RIPK1 AND RIK3 PLAY A ROLE IN RENAL FIBROSIS FOLLOWING ISCHEMIA REPERFUSION INJURY** ASPASIA PEFANIS	
68	16:30	**FAECAL MICROBIOTA TRANSFER REDUCES ACUTE GRAFT-VERSUS-HOST DISEASE VIA IGA AND MUCIN SECRETION IN THE GASTROINTESTINAL TRACT** ANTIOPE VARELIAS	
69	16:45	**TRANSCRIPTOMIC ANALYSIS IDENTIFIES A TOLEROGENIC DENDRITIC CELL SIGNATURE** HARRY ROBERTSON	
17:00–18:00		**TSANZ Annual General Meeting**	Exhibition Hall N
19:00–22:30		**TSANZ Annual Awards Dinner**	Adelaide Town Hall

Tuesday, June 21, 2022

07:30–08:00	**Coffee** with sponsors	Exhibition Hall M
08:00–09:30	**PLENARY 4: Joint Pharmacor/TSANZ Symposium** **Improving Post-Transplant Outcomes** *Chairs: Prof Germaine Wong and Dr Eric Au* 08:00 **Molecular Phenotyping of Lung Dysfunction and Rejection** Prof Kieran Halloran 08:30 **Antibody-Mediated Rejection: Update and State of the Art** Dr Brian Nankivell 09:00 **Cardiovascular Disease Before and After Kidney Transplantation** Prof Helen Pilmore	Exhibition Hall N
09:30–10:30	***CONCURRENT STATE OF THE ART SESSIONS*** **STATE OF THE ART 1: Joint AstraZeneca/TSANZ Symposium** **Local Regulation of Allograft Health** *Chairs: A/Prof Alexandra Sharland and Dr Brenda Rosales* 09:30 **Cellular Senescence and Graft Outcomes** Prof Anette Melk 09:50 **Tissue-Resident Cells in Transplantation** Prof Michaela Lucas 10:10 **Crosstalk Between Microbiota and Allograft** Prof Steve Chadban	City Room 1

Tuesday, June 21, 2022

09:30–10:30	**STATE OF THE ART 2: TSANZ Symposium** **Living Donation** *Chairs: Dr Christine Russell and Dr Adam Philipoff* 09:30 **Living Donors: Selection, Risks and Outcomes** Prof Jayme Lock 09:50 **Improving Access to Living Kidney Donation** Dr Nick Cross 10:10 **Pregnancy in Live Organ Donors** A/Prof Shilpa Jesudason	City Room 2
10:30–11:00	**Morning tea**	Exhibition Hall M
10:30–11:30	Paediatric Transplant Advisory Committee (PTAC)	City Suite 3&4
11:00–12:30	***CONCURRENT STATE OF THE ART SESSIONS*** **STATE OF THE ART 3: Joint Xvivo/TSANZ Symposium** **Challenging Problems Prior to Transplant** *Chairs: A/Prof Wai Lim and Dr Jennifer Li* 11:00 **Predicting Risk in Lung Transplant Candidates** Prof Kieran Halloran 11:30 **Transplantation in the Management of Amyloidosis and Myeloma** Dr Hasib Sidiqi 12:00 **Optimising Donor Organ Assessment and Repair** A/Prof Carlo Pulitano	City Room 1

Tuesday, June 21, 2022

11:00–12:30	**STATE OF THE ART 4: Joint Novartis/TSANZ Symposium** **Mitigating Transplant Risk of Infection and Cancer** *Chairs: Dr Lucy Sullivan and Dr Sarah Scheuer* 11:00 **CMV in Transplantation** Prof Chien-Li Holmes-Liew 11:30 **COVID-19 Vaccination in Transplant Recipients** Prof Toby Coates 12:00 **Donor-Derived Infections and Malignancies** Prof Angela Webster	City Room 2
12:30–13:30	**Lunch**	Exhibition Hall M
	Virtual Crossmatch Workshop	City Room 1
13:30–15:00	**PLENARY 5: Joint Immulab & Immucor/TSANZ Symposium** **Equity in Transplantation** *Chairs: Prof Karen Dwyer and Ms Kelli Owen* 13:30 **Update on NIKTT: Indigenous Access to Transplantation in Australia** A/Prof Jaquelyne Hughes 14:00 **Equity and Access to Transplantation in Aotearoa New Zealand** Dr Curtis Walker 14:30 **Improving Transplant Outcomes for Adolescents and Young Adults** Dr Rachael Harry	Exhibition Hall N
15:00–15:25	**Afternoon tea**	Exhibition Hall M

Tuesday, June 21, 2022

15:25–16:00	**The Great Debate: You are Only as Young as Your Organ…we Should Attempt to Match Donor and Recipient** *Moderator: Prof Toby Coates* Pro team: Prof Kieran Halloran and Dr Kathy Paizis Con team: Prof Greg Snell and A/Prof Nicole Isbel 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)	Exhibition Hall N
16:00	**ASM Concludes**	

Abstract	— *Poster* —	Exhibition Hall M
70	**RECIPIENT AT1R ANTIBODY STATUS AND RISK OF KIDNEY REJECTION IN SIMULTANEOUS PANCREAS AND KIDNEY TRANSPLANTATION** SADIA JAHAN	
71	**CAN EARLY SF36 ASSESSMENT OF QOL IN SPK TRANSPLANTS IDENTIFY PATIENTS WHO MAY BENEFIT WITH INTENSIVE PSYCHOLOGY SUPPORT?** SADIA JAHAN	
72	**TWO-YEAR REJECTION RISK IN KIDNEY TRANSPLANT RECIPIENTS FOLLOWING MYCOPHENOLATE DOSE REDUCTION IN AUSTRALIA AND NEW ZEALAND** DARREN LEE	
73	**USE OF DD-CFDNA TO GUIDE TAPERING OF IMMUNOSUPPRESSION THERAPY IN KIDNEY TRANSPLANT RECIPIENTS** CESAR ESCRIG	
74	**MYCOPHENOLIC ACID AREA UNDER THE CURVE ASSESSMENT AFTER MYCOPHENOLATE MOFETIL DOSE REDUCTION IN KIDNEY TRANSPLANT RECIPIENTS** ARUNI MALAWEERA	
75	**BELATACEPT FOR ACUTE T-CELL MEDIATED REJECTION AND MAINTENANCE IMMUNOSUPPRESSION IN A PEDIATRIC KIDNEY TRANSPLANT RECIPIENT** JACQUELINE SORARU	
76	**INTERIM SAFETY ANALYSIS OF SWITCHING MYCOPHENOLATE TO SIROLIMUS ENHANCING COVID VACCINE RESPONSE IN KIDNEY TRANSPLANT RECIPIENTS** MATTHEW TUNBRIDGE	
77	**A RANDOMIZED, CONTROLLED, BLINDED TRIAL OF INULIN VS PLACEBO TO BOOST COVID-19 VACCINE RESPONSE IN KIDNEY TRANSPLANT RECIPIENTS** JULIAN SINGER	
78	**GUT DYSBIOSIS MAY CONTRIBUTE TO THE SUBOPTIMAL IMMUNE RESPONSE TO COVID-19 VACCINATION IN KIDNEY TRANSPLANT RECIPIENTS** JULIAN SINGER	

Abstract	— *Poster* —	Exhibition Hall M
79	**UTILITY OF SERIAL ANTI-A/B BLOOD GROUP ANTIBODY TESTING TO ALLOW ABO INCOMPATIBLE DECEASED DONOR RENAL TRANSPLANTATION** ASHLEY IRISH	
80	**THE FIRST REPORTED CASE OF SUCCESSFUL KIDNEY TRANSPLANT OUTCOMES FROM A RECENTLY COVID-19 POSITIVE DONOR IN AUSTRALIA** KENNETH YONG	
81	**SURVEY OF CLINICIANS' APPROACH TO THE REPORTING OF KIDNEY DONOR PROFILE INDEX IN DECEASED DONOR KIDNEY ALLOCATION** JANELLE PRUNSTER	
82	**NON-UTILIZATION OF KIDNEYS FROM DONORS AFTER CIRCULATORY DETERMINANT OF DEATH** GERMAINE WONG	
83	**ISLET CELL TRANSPLANTATION LOWERS RESTING HEART RATE IN TYPE 1 DIABETES SUGGESTING IMPROVED CARDIOVASCULAR AUTONOMIC NEUROPATHY** JACOB PALMER	
84	**COST-EFFECTIVENESS OF ACCEPTING KIDNEYS FROM DECEASED DONORS WITH INCREASED RISK OF BLOOD BORNE VIRUS TRANSMISSION** KARAN K SHAH	
85	**OUTCOMES OF LIVE RENAL DONORS WITH A HISTORY OF NEPHROLITHIASIS** MOHAMED EFTAL BIN MOHAMED EBRAHIM	
86	**AUSTRALIA'S FIRST HIV-POSITIVE DECEASED DONOR KIDNEY TRANSPLANT TO AN HIV-POSITIVE RECIPIENT** LAURA SMITH	
87	**TRENDS IN LABOUR AND DELIVERY OUTCOMES AMONG TRANSPLANTED MOTHERS** NISHANTA TANGIRALA	
88	**PREFERENCES OF KIDNEY TRANSPLANT RECIPIENTS FOR EHEALTH: DISCRETE CHOICE EXPERIMENT** JAMES TANG	
89	**LIVER TRANSPLANTATION FOR INCIDENTAL CHOLANGIOCARCINOMA: ANALYSIS OF THE ANLTU EXPERIENCE** KAVINA SIDHU	

Abstract	— *Poster* —	Exhibition Hall M
90	**IMPACT OF THE COVID PANDEMIC ON PANCREAS TRANSPLANTATION IN AUSTRALIA AND NEW ZEALAND; AN ANZIPTR ANALYSIS** JULIET BYRNES	
91	**WHAT DRIVES MEDICATION TAKING BEHAVIOUR IN ELDERLY KIDNEY TRANSPLANT RECIPIENTS?** AMELIA COSSART	
92	**SYNBIOTICS, PREBIOTICS, PROBIOTICS FOR SOLID ORGAN TRANSPLANT RECIPIENTS: SYSTEMATIC REVIEW AND META-ANALYSIS** TESS COOPER	
93	**DISCRETE CHOICE EXPERIMENT OF PATIENT PREFERENCES FOR MANAGEMENT OF GASTROINTESTINAL SYMPTOMS IN KIDNEY TRANSPLANT RECIPIENTS** TESS COOPER	
94	**COVID-19 IN LUNG TRANSPLANT RECIPIENTS: AN AUSTRALIAN CENTRES' EXPERIENCE** SAMANTHA ENNIS	
95	**CROSSING THE RUBICON: ECMO AS BRIDGE TO LUNG TRANSPLANTATION** SAMANTHA ENNIS	
96	**SUCCESSFUL KIDNEY TRANSPLANTS FROM A HEPATITIS C VIREMIC DONOR INTO HEPATITIS C NEGATIVE RECIPIENTS WITH THE USE OF DIRECT ACTING ANTIVIRAL AGENTS** JAGADISH JAMBOTI	
97	**SELF EMPOWERMENT OF INGINDIGENOUS AUSTRALIANS WITH RENAL FAILURE TO ASK THEIR DOCTORS "AM I ON THE KIDNEY TRANSPLANT WAITING LIST?"** DAVID GOODMAN	
98	**THE ROLE OF EPLET SHARING IN THE DEVELOPMENT OF HYPERACUTE REJECTION IN A HIGHLY SENSITISED RECIPIENT** ELAINE PHUA	
99	**PARENTHOOD POST TRANSPLANTATION: EVOLUTION AND EVALUATION OF THE PARENTHOOD DATA COLLECTION OF THE ANZDATA REGISTRY** RHEA DANNER	
100	**RENAL TRANSPLANTATION IN PRISONERS: LEGAL AND ETHICAL ISSUES** DANIELLE PANACCIO	

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101	**DO DECISION AIDS HELP PEOPLE WHO ARE FACING DECISIONS ABOUT SOLID ORGAN TRANSPLANTATION? A SYSTEMATIC REVIEW** GEORGINA L IRISH	
102	**UNCONCIOUS BIAS OR COMPLICATING FACTORS? FEEDING PRACTICES DIFFER FOR OBESE AND NON-OBESE PATIENTS AFTER LIVER TRANSPLANT SURGERY** TAHNIE TAKEFALA	
103	**CLINICIAN'S PERSPECTIVES OF DECISION MAKING AND PRACTICES RELATED TO FEEDING AFTER LIVER TRANSPLANT SURGERY** TAHNIE TAKEFALA	
104	**CAPILLARY DRIED BLOOD SPOT SAMPLING IN THE CARE OF RURAL KIDNEY TRANSPLANT RECIPIENTS** FRANK REIMANN	
105	**THE USE OF NOVEL NON-INVASIVE BLOOD PRESSURE MONITORING IN RENAL TRANSPLANT PATIENTS** KANDICE KEOGH	
106	**VASOPLEGIA IN PATIENTS UNDERGOING RENAL TRANSPLANTATION** KANDICE KEOGH	
107	**PERI-OPERATIVE USE OF VASOPRESSIVE AGENTS DURING CADAVERIC RENAL TRANSPLANTATION** KANDICE KEOGH	
108	**SUCCESSFUL RENAL TRANSPLANTATION IN A PATIENT WITH DGKE-NEPHROPATHY** GEORGE CHIN	
109	**PSYCHOSOCIAL STRENGTHS AND VULNERABILITIES AS PROGNOSTICATORS OF POST-LIVER TRANSPLANT PATIENTS' OUTCOMES: A QUALITATIVE APPROACH IN THE EVALUATION OF LIVER TRANSPLANT RECIPIENTS** BRIAN NG HUNG SHIN	
110	**CEREBRAL TOXOPLASMOSIS MIMICKING GLIOBLASTOMA MULTIFORME IN A RENAL TRANSPLANT RECIPIENT** ADRIENNE WS COHEN	
111	**THE PROMOTION FOR THE TRANSPLANTATION AND ORGAN DONATION BY THE GLOBAL VIRTUAL SPORTS COMPETITION UNDER THE PANDEMIC OF COVID-19** YUHJI MARUI	

Abstract — *Poster* — Exhibition Hall M

113 **PREDICTIVE FACTORS FOR RECURRENT MEMBRANOUS NEPHROPATHY AFTER KIDNEY TRANSPLANATION**
EDMUND CHUNG

114 **TESTICULAR GRANULOMATOUS VASCULITIS IN A PRE-TRANSPLANT PATIENT**
SIMON O'CONNOR

115 **PLASMA CELL-FREE DNA AND SURVIVAL IN KIDNEY TRANSPLANT RECIPIENTS**
ALI GRAVER

116 **CRITICALLY IMPORTANT OUTCOMES FOR INFECTION IN TRIALS IN KIDNEY TRANSPLANTATION: AN INTERNATIONAL SURVEY**
SAMUEL CHAN

117 **DOES A LONG COURSE OF INTRAVENOUS IMMUNOGLOBULIN IMPROVE GRAFT SURVIVAL IN ANTIBODY-MEDIATED REJECTION OF THE KIDNEY TRANSPLANT?**
RACHEL BRENNAN

118 **DONOR IN SITU ISCHEMIA TIME (DISIT) IN KIDNEY TRANSPLANTATION**
HARRY ROBERTSON

119 **THE IMPACT OF BANFF BORDERLINE ACUTE T-CELL MEDIATED REJECTION ON TRANSPLANT OUTCOMES: AN ANZDATA ANALYSIS**
MELANIE WYLD

120 **BK NEPHROPATHY AND CYSTITIS IN A PAEDIATRIC HEART TRANSPLANT RECIPIENT**
RACHAEL KERMOND

121 **RECENT TROUBLE WITH VENOUS THROMBO-EMBOLISM POST TRANSPLANTATION**
NIKHIL THYAGARAJAN

122 **EFFICACY AND SAFETY OF SGLT2 INHIBITORS (SGLT2I) IN DIABETIC RENAL TRANSPLANT RECIPIENTS: A SINGLE CENTRE EXPERIENCE**
ANNA KRELLE

123 **INTRA-OPERATIVE CORTICAL RESISTIVE INDICES IN THE PREDICTION OF DELAYED GRAFT FUNCTION IN DECEASED DONOR RENAL TRANSPLANTS**
CHARLES FISHER

124 **VALIDATION OF PREDICTION OF DELAYED GRAFT FUNCTION USING INTRA-OPERATIVE CORTICAL RIS IN DECEASED DONOR RENAL TRANSPLANTS**
CHARLES FISHER

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125	**RETROSPECTIVE, SINGLE-CENTRE COHORT STUDY OF FLUID THERAPY AND HYPOTENSION POST KIDNEY TRANSPLANTATION** KARTHIK VENKATARAMAN	
126	**MARKERS OF GRAFT INJURY AMYLASE AND LIPASE INCREASED IN SPK PATIENTS WITH EXTENDED DISIT** HUGH GABOR	
128	**BACK TO THE MACHINE: TRANSITION FROM TRANSPLANT TO DIALYSIS** JARRAD HOPKINS	
129	**POTASSIUM CLEARANCE POST KIDNEY TRANSPLANTATION: A SINGLE CENTRE AUDIT** SARAH TAN	
130	**TRANSPLANT RENAL ARTERY STENOSIS – AN IMAGING CHALLENGE** SARAH TAN	
131	**TACROLIMUS ASSOCIATED NON-INFECTIOUS GI ULCERS WITH HAEMORRHAGE IN A KIDNEY TRANSPLANT RECIPIENT – A CASE REPORT** DANA FORCEY	
133	**EFFECTS OF KIDNEY DISEASE HERITABILITY AND DONOR-RECIPIENT RELATIONSHIP ON GRAFT FAILURE AFTER LIVE DONOR KIDNEY TRANSPLANTATION** DONG YU	
134	**PANCREATIC-PERITONEAL FISTULA POST RENAL TRANSPLANT** RORY WALLACE	
135	**SIMULTANEOUS PANCREAS AND KIDNEY TRANSPLANTATION: USING A LIMITED RESOURCE** JONATHAN LING	
136	**LIVER TRANSPLANT FOR ADULT HEPATIC MESENCHYMAL HAMARTOMA- A LITERATURE REVIEW** MARWAN IDREES	
137	**LIVER TRANSPLANT FOR RECURRENT ADULT MESENCHYMAL HAMARTOMA(HMH)-A SURPRISING TURN OF EVENTS!** MARWAN IDREES	

Abstract	— *Poster* —	Exhibition Hall M
138	**GETTING THE BEST FROM THE INTRA-OPERATIVE DUPLEX ULTRASOUND IN RENAL TRANSPLANTATION** LINDA THEBRIDGE	
139	**BRIDGING THE CULTURAL GAP: IMPROVING INDIGENOUS AUSTRALIAN KIDNEY TRANSPLANT ACCESS** SANDAWANA W MAJONI	
140	**IMPROVING ACCESS TO RENAL TRANSPLANTATION IN REGIONAL WESTERN AUSTRALIA** RAMYASUDA SWAMINATHAN	
141	**TRACKS TO TRANSPLANT: UTILISING PEER TO PEER YARNING TO ENCOURAGE PROGRESS TOWARDS KIDNEY TRANSPLANTATION** BRONWYN HAYES	
142	**MICROBIAL CONTAMINATION OF PERFUSATE DURING LONG-TERM EX-VIVO NORMOTHERMIC MACHINE PERFUSION OF HUMAN LIVERS** NGEE-SOON LAU	
143	**EXTENDING NORMOTHERMIC EX-VIVO LIVER SURVIVAL TIMES WITH AN INTEGRATED DIALYSIS CIRCUIT** JOANNA HUANG	
144	**FEASIBILITY OF QUANTIFYING TACROLIMUS CONCENTRATION IN SKIN AND PLASMA OF MICE AND ADULT KIDNEY TRANSPLANT RECIPIENTS** FELICITY SARTAIN	
145	**POST-TRANSPLANT CYCLOPHOSPHAMIDE COMBINED WITH TOCILIZUMAB INCREASES REGULATORY T CELLS AND LIMITS EARLY GVHD DEVELOPMENT** CHLOE SLIGAR	
146	**SINGLE CELL ALLOREACTIVE TCR REPERTOIRE PROFILING** MOUMITA PAUL-HENG	
147	**THE IMMUNE RESPONSE TO SOLID ORGAN TRANSPLANTATION IS NOT CONFINED TO THE GRAFT** MICHAELA LUCAS	
148	**THE DEVELOPMENT OF GAD65-CAR T-REGS AS A METHOD OF IMMUNOSUPPRESSION FOR ISLET TRANSPLANT RECIPIENTS** JACQUELINE SCAFFIDI	

2022 ASM ACCEPTED ABSTRACTS

Organ Donation and Allocation

Abstract No. 1

POTENTIAL BENEFIT OF ABOI DECEASED DONOR RENAL TRANSPLANTATION TO IMPROVE ACCESS FOR THE HIGHLY SENSITISED

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Aims: Deceased Donor (DD) renal transplantation uses ABO compatibility (ABOc). ABO and HLA are inherited independently and restricting HLA matching to ABOc limits available HLA matching pool. We have shown that ABOi DD transplantation is feasible when the anti-A/B titre is ≤1:32.

Methods: We assessed the potential of ABO blood groups to receive an ABOi grafts by HLA sensitisation status (mPRA) in the existing state OrganMatch wait list using entry IgG anti-A/B titre determined by tube haemagglutination technique.

Results: In the 109 patients (ABO O=74 (69%), A =24 (22%) B= 10 (9%) and AB =1) the distribution of HLA mPRA was 57/109 (52%) 0-19.9% (unsensitised), 21/109 (19%) 20-79.9% (low-moderate sensitisation) and 31/109 (28%) 80-100% (highly sensitized). 85/109 had 1 or more anti-A/B titres (median 2 range 1-10). The distribution of sensitisation category did not differ between each ABO group (p=0.19). The proportion of sensitized patients who could potentially accept an ABOi donor using the cut-off of ≤1:32 is shown (Table). 1/3 of blood group O, and 2/3 of blood groups A&B who are highly sensitised could potentially accept an ABOi deceased donor. Serial testing showed the proportion of HS patients with titres ≤1:32 remained stable (O 8/18, A 3/5 and B 3/5). Unlike HLA antibody, ABO antibody testing is not standardised nationally and cannot be easily compared between centres.

Conclusions: Developing strategies to allow patients with low Anti A/B titre to receive ABOi kidneys could potentially increase the pool of available donors for the highly sensitised.

Recipient ABO	Anti-A ≤1:32	Anti-B ≤1:32	A or B ≤1:32
O =20/74 (27%)	3/18 (17%)	6/18 (33%)	7/18 (39%)
A= 6/24 (25%)	-	3/5 (60%)	
B =5/10 (50%)	3/5 (60%)	-	-

Abstract No. 2

SHOULD I HAVE A TRANSPLANT? USING FLEXIBLE PARAMETRIC MODELS TO PREDICT SURVIVAL AFTER KIDNEY TRANSPLANT WAITLISTING

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Background: The Cox Proportional Hazard model is commonly used to create prediction scores for survival post-waiting list, comparing dialysis to transplant for potential recipients. The cox model, however, assumes that the "hazard" of death is the same throughout follow-up, not accounting for the riskier post-transplant period which is biologically implausible. Flexible parametric models (FPM) solve this problem by changing the baseline hazard, generating an absolute survival prediction for individuals with different characteristics to improve shared decision making.

Aims: To develop a FPM for waiting-list survival and compare this to a Cox model.

Methods: Using the Australia and New Zealand Dialysis and Transplant (ANZDATA) Registry, we included Australian adults waitlisted for first kidney-only deceased donor transplants over 2007-2020. We developed 2 models for comparison: the Cox and FPM, both with transplant as a time varying covariate. The model fit was assessed with Akaike's information criteria (AIC).

Results: 7552 patients were included in this analysis: 5429(72%) received a deceased donor kidney transplant. A FPM model was developed with covariates of: age, gender, primary kidney disease, dialysis duration, comorbidities, and smoking status. The model fit was better with the FPM; AIC 5310, Cox:13,114. The FPM allowed calculations of individual mean survival probability (figure 1).

Conclusions: FPM can predict risk for patients on the kidney transplant waitlist with better fit than the cox model. For the first time, this enables individualised absolute prediction of survival on dialysis compared to transplantation, to help those with greater comorbidities decide if transplantation is truly the best option for them.

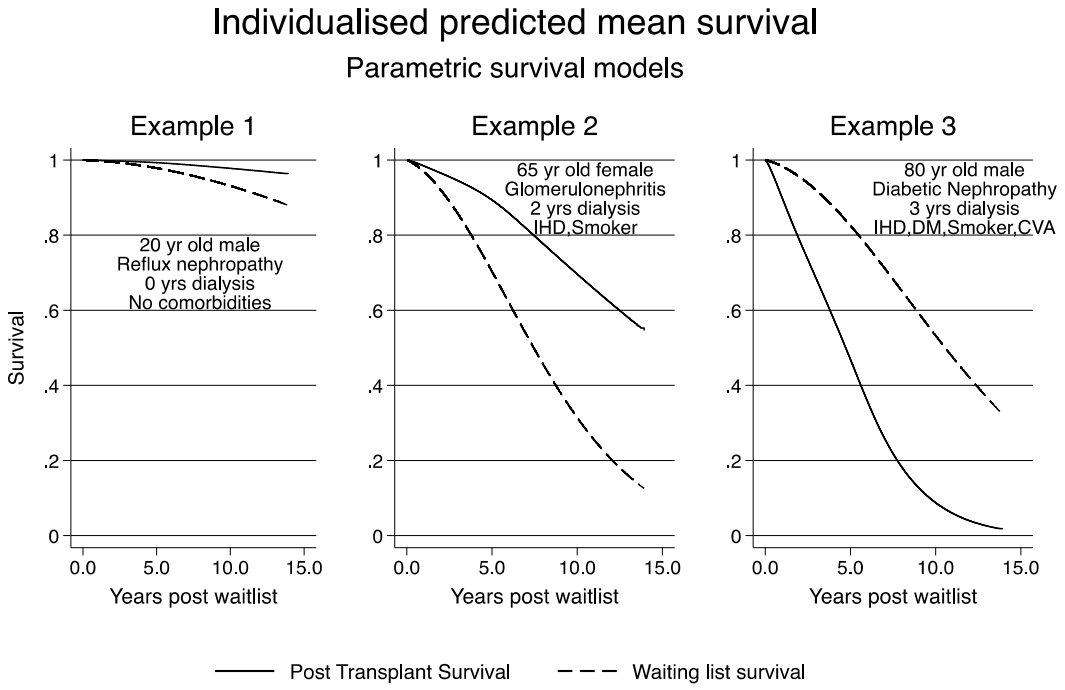

Figure 1: Examples of mean survival times based on different individual patient characteristics. (Ischaemic heart disease IHD, Diabetes Meillitus DM, Cerebrovascular accident).

Abstract No. 3

LIVING DONOR FACTORS DO NOT DISCRIMINATE OUTCOMES AND SHOULD NOT BE USED TO PROMOTE COMPATIBLE PAIRS FOR PAIRED KIDNEY EXCHANGE

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Background: Enrolment of ABO blood group and HLA incompatible pairs in kidney paired exchange improves matching potential. The benefit for compatible pairs, however, is uncertain. A proposed advantage is better outcomes due to transplantation from a donor with a lower Living Donor Kidney Profile Index (LDKPI) than directed donation.
Aim: We assessed this strategy through discrimination of donor factors for Death censored graft survival (DCGS).
Methods: We performed parallel analyses with the Scientific Registry of Transplant Recipient (SRTR) and the Australia and New Zealand Dialysis and Transplant Registry (ANZDATA) from 2004-2020. We assessed discrimination in 3 ways: 1)Sequential addition of donor factors to DCGS recipient models with assessment of the C-statistic.2) We created prognosis-matched LKD recipient pairs matched on recipient factors, with stratified Cox model of DCGS with LKDPI as the predictor. 3)To visualise the LKDPI changes, we calculated the LKDPI difference among prognosis-matched pairs.
Results: There were 64,448 SRTR and 4524 ANZDATA LKD transplants. Survival analyses with recipient factors had C-statistics of 0.64(95%CI 0.63-0.64) and 0.66(0.63-0.68). Adding donor factors didn't improve discrimination (C-statistic increase 0.01). There were 22,329 SRTR and 1854 ANZDATA prognosis-matched pairs with the respective LKDPI C-statistics of 0.54(0.52-0.57) and 0.51(0.50-0.51). The differences in 10-year DCGS were 0.8,2,2,5% for LDKPI differences of andlt;10,10-19,20-34,≥35 (Figure 1).
Conclusions: The LKDPI score will correctly identify a donor with better graft survival 51-54% of the time. Even large differences in LKDPI score translate to clinically modest differences in transplant survival. Strategies to expand compatible pairs in paired kidney donation based on LDKPI differences should be reconsidered.

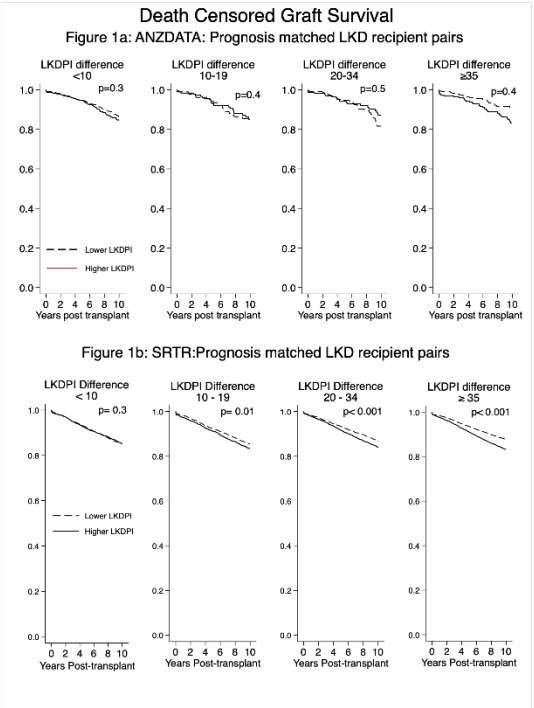

Figure 1: Death Censored Graft Survival based on matched pairs grouped by difference in LDKPI scores for ANZDATA (1a) and SRTR (1b) from 2004-2020.

Abstract No. 4

COST-EFFECTIVENESS OF INCREASING UTILISATION OF KIDNEYS FROM DECEASED DONORS WITH PRIMARY BRAIN MALIGNANCY

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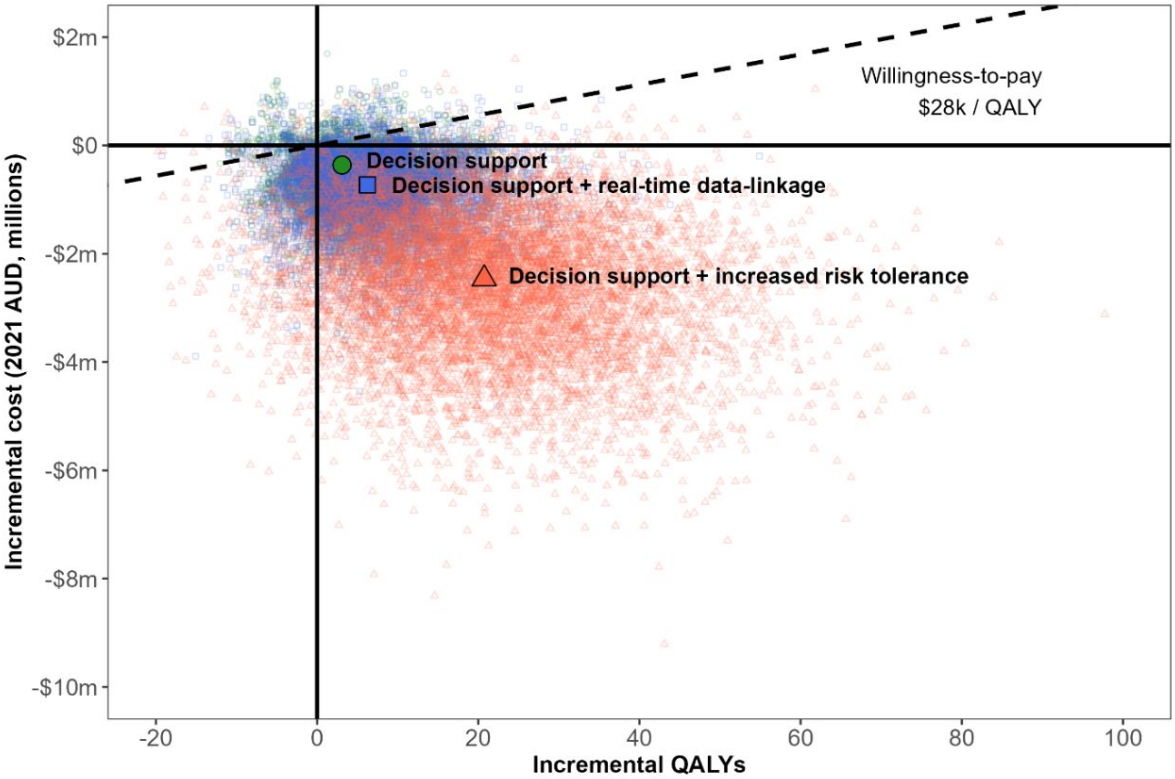
Background: Kidneys from deceased donors with brain cancer are often discarded due to concerns about transmission risk to recipients. However, transmissions are rare, and these donors may be underutilised. We assessed the cost-effectiveness of increasing utilisation of these kidneys.

Methods: Individual patient simulation based on a Markov model to estimate costs and consequences from a payer perspective using linked data from ANZDATA. We simulated 1500 Australians waiting for a kidney transplant over 25 years and 10,000 simulations. We estimated the cost per quality-adjusted life-year (QALY) gained from three interventions: decision support for clinicians in assessing donor risk, improved data accuracy with real-time data-linkage to hospital records and cancer registries, and increased risk-tolerance to allow intermediate-risk donors.

Results: Proposed interventions translated to 0.3%, 0.6%, and 2.1% more donors, with an average transmission risk of 2%, 1.8%, and 3.3%, respectively. Interventions were dominant (improved QALYs and cost-saving) in 71%, 76%, and 93% of simulations, and cost-effective (<$28k/QALY) in 75%, 79%, and 94%, respectively. On average, decision support resulted in 3.1 QALYs (95%CI -4.0 to 16.4) and $361k cost-savings (95%CI -$213k to $1.6m). Real-time data-linkage resulted in 6.3 QALYs (95%CI -4.7 to 23.4) and $729k cost-savings (95%CI -$233k to $2.4m). Increased risk tolerance was most likely to be cost-effective, with 20.7 QALYs (95%CI -4.0 to 50.7) and $2.5m cost-savings (95%CI $235k to $5.2m).

Conclusions: Accepting intermediate-risk donors with brain cancer is likely to generate both increased QALYs and moderate cost-savings.

Figure 1: Incremental costs and quality-adjusted life-years (QALYs) from 10,000 simulations of each intervention



Surgery, Pancreas and Islets

Abstract No. 5

TOTAL PANCREATECTOMY AND ISLET-CELL AUTOTRANSPLANTATION: THE WESTMEAD EXPERIENCE

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Aim: Total pancreatectomy with islet-cell auto-transplantation (TP-IAT) is becoming an accepted therapy to improve quality of life in patients with chronic hereditary pancreatitis. This study aims to describe the Westmead experience of technique and laboratory outcomes in paediatric and adult TP-IAT.

Method: Prospectively collected study data from 2010 to 2021. All recipients were assessed in MDT to assess suitability. Procedure involved surgical resection, immediate back-table preparation and islet isolation. All patients received 5,000units intravenous heparin bolus. The islets were then transplanted into the liver via portal vein, by direct injection into inferior mesenteric vein (IMV), and subsequent IMV ligation. We have evaluated all the demographic, surgical and laboratory data.

Result: A total of twelve patients have undergone this procedure, 6 paediatric (<18 years old) and 6 adults, median age of 18 years. Follow-up range from 1-60 months (median 5 months). Average LOS 13.9 days. SPINK1 mutation was the most common aetiology (n=7). Most underwent TP with distal gastrectomy, and splenic (with vessels) preservation (n=10). The mean cold ischemia time (CIT) was 53.5 mins. The median islet equivalents (IEQ)/kg of whole pancreas and digested pancreas was 5038.5 and 6088.5 respectively. The mean total islet number 9,887 IEQ/kg of recipient body weight. There were two early returns to theatres (n=2). There were no mortalities. On discharge, all patients had improvement in pain scores and recordable c-peptide levels (median 0.18nmol/L). Three patients were insulin-free, with median time to achieving insulin independence of 8 months (n=3).

Conclusion: TP-IAT with concurrent intra-operative islet auto transplantation is safe and viable technique. It has led to significant improvement in pain and return to normal activities. Additionally, minimal cold ischaemic time to the islets allows for maximal utilisation of islet cells.

Abstract No. 6

THE GENETIC EPIDEMIOLOGY OF HEREDITARY PANCREATITIS IN AUSTRALIA AND ITS EFFECT ON PATIENTS OF TOTAL PANCREATECTOMY AND ISLET AUTO TRANSLATION (TP-IAT)

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Introduction: Hereditary Pancreatitis (HP) is a cause of pancreatitis in childhood leading to lifelong disability and an elevated risk of pancreatic cancer. This project aims to understand the effects of HP-associated variants on disease risk and progression, and their pertinence on past and future patients of TP-IAT.

Methods: HP patients were identified from existing hospital records. Interviews were administered to collect HP-associated data including pain management, medical prescriptions, interventions, smoking and alcohol history, and overall quality of life. Saliva samples were obtained for whole-exome-sequencing (WES). Genetic data were analysed using standard bioinformatics toolkits for variant discovery and correlation with HP phenotype. This was compared to a control sample of 2,504 patients with adult-onset chronic pancreatitis. **Results:** A total of 44 HP patients from 10 independent pedigrees were identified. Eighty-four percent of HP cases presented with clinical onset before the age of 10. Eighty-six percent of HP patients reported ongoing opioid use to control pain and 79% of patients reported ongoing moderate to severe pain. The majority (57%) of the HP cohort self-identified as Indigenous Australians and HP was 67 times more prevalent in Indigenous populations than non-Indigenous. Overall, 14/16 individuals underwent TP-IAT exhibited substantial reduction in analgesic requirement.

Conclusion: Our estimated prevalence of HP is higher than previously described and disproportionately affect Indigenous populations. The percentage of HP patients requiring lifelong analgesics is alarming and genetic factors are an important cause of pancreatitis in Australian children. Finally, TP-IAT has been successful as a new therapy for HP management.

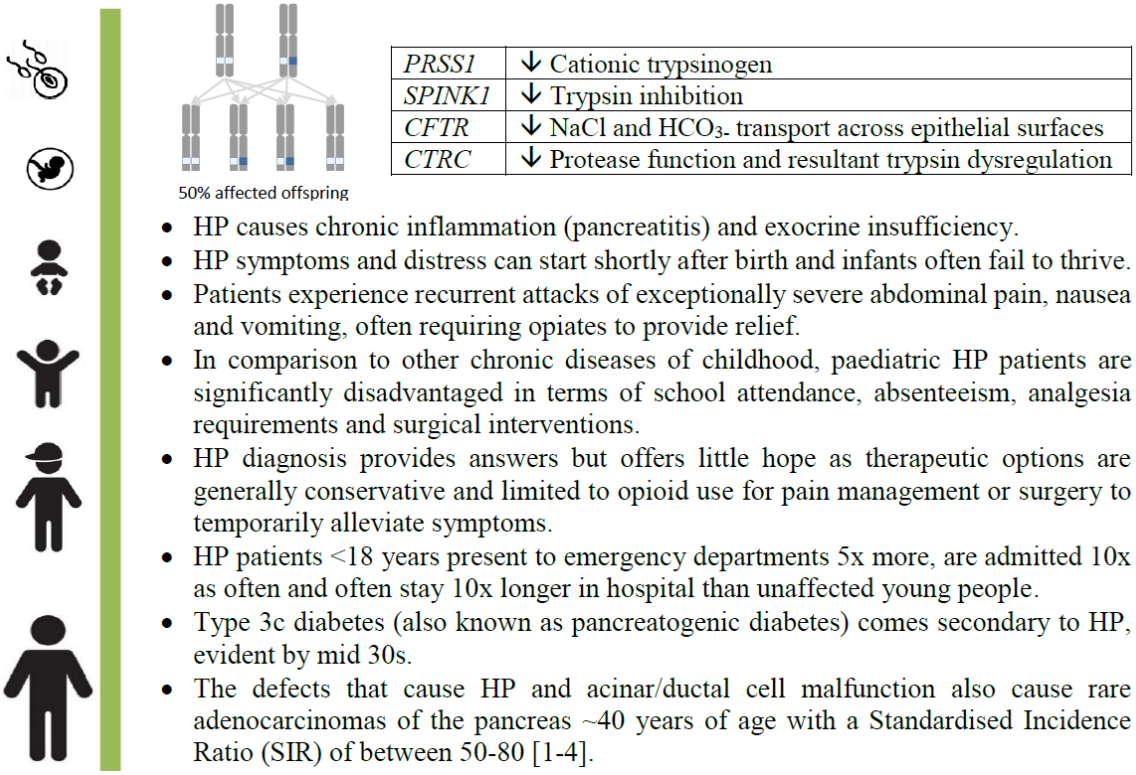

Figure 1. Known HP-associated genetic variants, PRSS1, SPINK1, CFTR, and CTRC and their respective production of pancreatic enzymes.

Abstract No. 7

EARLY OUTCOMES OF RENAL TRANSPLANTS WITH INTRA-OPERATIVE DUPLEX ULTRASOUND

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Aim. To determine the value of the use of routine intra-operative ultrasound in renal transplantation.

Methods. A retrospective analysis of early outcomes in 306 consecutive adult single renal transplants was performed. All patients underwent intra-operative duplex scanning as soon as practicable after clamp release to identify flow abnormalities and assess renal cortical perfusion. Additional surgical interventions undertaken during the initial procedure were reviewed as well as the cause of any early graft losses.

Results. Eight overt inflow abnormalities were immediately repaired before an ultrasound was performed. Ultrasound confirmed a further 4 suspected venous outflow restrictions with revision required in all. In another 11, although perfusion appeared macroscopically satisfactory, vascular revision was performed in 7 because of otherwise unsuspected inflow abnormalities and in 4 to reposition the graft to improve cortical perfusion. In a further 32 procedures, ultrasound-guided graft repositioning without vascular revision improved cortical resistive indices. No false positive ultrasound findings resulted in unnecessary vascular interventions. No graft required subsequent arterial revision. One graft with hyperacute rejection was explanted and two patients died for unrelated reasons within 90 days with functioning grafts. No graft failed within 90 days because of surgical or technical issues.

Conclusions. These results compare favourably to the 76 early graft failures for surgical factors in 7571 other concurrent transplants in the ANZDATA Registry over the same period. We suggest that the identification of otherwise unsuspected flow abnormalities with immediate correction due to the routine use of intra-operative scanning contributes to these favourable outcomes.

Abstract No. 8

PRIMARY 'PARTIAL FASCIAL CLOSURE' AND INTRA-OPERATIVE KIDNEY ULTRASOUND IN KIDNEY TRANSPLANTATION: A SINGLE CENTRE EXPERIENCE

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Aims: Acute post-transplant renal allograft compression is an under-recognised entity. In our institution, intra-operative ultrasound is used routinely to assess renal graft perfusion. Our recent experience of the findings of additional scanning during and after fascial closure is presented.

Methods: A prospective database was reviewed from September 2019 to September 2021 inclusive. All patients had a modified Rutherford-Morrison incision. Full closure consisted of mass 1-0 loop PDS closure from either end of incision. Partial closure occurred following demonstration of malperfusion with initial full closure. All cases of primary partial fascial closures were reviewed with the intra-operative ultrasound findings.

Results: A total of 82 adult renal allograft transplantation were performed during the study period including with incomplete closure in 8 due to ultrasound abnormalities corrected with primary 'partial' fascial closure. These abnormalities were: an increase in cortical RI >0.10 (3), significant loss of cortical flow (3), renal artery B-mode or pulsed wave abnormality (3), cortical tardus parvus (3), renal vein (RV) velocity increase (1), RV phasicity loss (2). Three or more abnormalities were detected in 3, two abnormalities in 1, and one abnormality in 4 grafts.

Conclusion: Intra-operative ultrasonography identified a range of findings indicative of perfusion abnormalities which developed after wound closure commenced and corrected by incomplete closure. It is suggested that immediate correction with partial primary or mesh closure may reduce the risk of subsequent graft re-exploration for renal malperfusion. Long-term clinical impact remains to be determined.

Basic Science: T Cell Biology

Abstract No. 9

SHARED TRANSCRIPTIONAL TRAJECTORY OF TISSUE TREGS BETWEEN TOLERANT-GRAFTS AND LYMPHOID ORGANS IN TRANSPLANT TOLERANCE

WANG H[1], WANG Z[1], ZHAO Y[1], NICHOLSON L[1], HAWTHORNE WJ[1], JIMENEZ-VERA E[1], GLOSS B[2], LAI J[2], THOMAS A[1], ZHANG GY[3], WANG YM[3], ROGERS N[1], ZHENG G[1], YI S[1], ALEXANDER SI[3], O'CONNELL PJ[1], HU M[1]

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Background: We identified memory-like $CD127^{+high}CD4^{+}GFP/Foxp3^{+}$Tregs ($CD127^{+high}$Treg) in spleen of pig-islet-xenograft tolerant mice following CTLA4-Fc/MR-1 induction and demonstrated their potent suppressive capacity in an adaptive-transfer model.

Aims: 1) Further characterise tissue $CD127^{+/high}$ Tregs. 2) Investigate transcriptional-profile of $CD4^{+}Foxp3^{+}$Treg and non-Foxp3 $CD4^{+}$ subsets in transplant tolerance.

Methods: Cell-subsets were selected with FACS/Cell Sorter. mRNA expression of *Il-10/Tgf-β/Blimp-1/Ebi3(reflecting IL-35)* of $CD127^{+/high}$Tregs was assessed using TaqMan®-Gene-Expression-Assay. Bulk RNA-Seq revealed the transcriptional-profiles of $CD127^{+high}$Treg, $CD127^{-/low}$Treg, $CD4^{+}GFP\text{-}Foxp3^{+}$Treg, non-Foxp3$CD4^{+}$, and $CD45^{+}CD4^{-}$ subsets from spleens(sp), draining-lymphocytes (DLN/dln), or grafts in naïve-DEREG-mice or mice with 100-day tolerant-graft induced by CTLA4-Fc/MR-1 blockade.

Results: RT-PCR showed *Ebi3, Il-10, Blimp-1* significantly increased in splenic $CD127^{+high}$Tregs compared to naïve-$CD4^{+}GFP\text{-}Foxp3^{+}$Tregs or non-Foxp3$CD4^{+}$T cells. The proportion of $CD127^{+high}$Tregs was higher in tolerant-grafts (25.6±3.1%) than tolerant-spleens (14.8±0.4%). 15 pairwise-comparisons identified 1740 differentially-expressed-genes (DEGs)(FDR<0.05) that clearly distinguished between $CD45^{+}CD4^{-}$, $Foxp3^{-}CD4^{+}$T, and Treg subsets; with no striking differences seen for $CD45^{+}CD4^{-}$ cells (spleen) and mild differences in $Foxp3^{-}CD4^{+}$T cells (spleen) between naive and tolerant-groups; and diverse differences within Treg subsets. Next, 9 paired cross-comparisons between different Treg subsets identified 427 DEGs and showed large difference between graft-Treg and Treg subsets of spleen or DLN; moderate differences between spTreg and dlnTreg subsets; and minor differences within the three Treg subsets of spleen or DLN. Further, compared to naïve-Treg or $CD127^{-/low}$Treg subsets, graft-Tregs shared many upregulated-DEGs across dln$CD127^{+high}$Treg, and/or sp$CD127^{+high}$Treg including *Il7r/Kctd12/Cxcr6/Ctla2a/Anxa1/H2/Klrk1/CD19/Ccl5/Id2/Ccr2/Adam8/Il18r1/Il1rl* that have been reported in multiple tissue/tumour Treg subsets with memory features and suppressive functions in both mice and humans.

Conclusion: Tissue-Tregs ($CD127^{+high}$Tregs) developed in graft, spleen and DLN of transplant-tolerant mice share a transcriptional trajectory with other tissue/tumour Tregs.

Abstract No. 10

POTENT SUPPRESSIVE FUNCTION OF XENO-ANTIGEN-REACTIVE HUMAN HLADR$^+$CD27$^+$TREGS VIA ENHANCED CD95 AND CTLA-4 EXPRESSIONS

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Background: We previously identified xeno-antigen reactive (Xna) human HLADR$^+$CD27$^+$Treg with enhanced-suppressive function in vitro and in a humanised mouse model.

Aims: 1) Phenotyping HLADR$^+$CD27$^+$Tregs and 2) evaluating possible pathways through which they exert a suppressive activity.

Methods: Human CD4$^+$CD25$^+$hiCD127$^-$Treg isolated from peripheral-blood-mononuclear-cells (PBMCs) were co-cultured with irradiated porcine-PBMC for three subsequent cycles in the presence of IL-2/rapamycin and anti-CD3/CD28 beads. At day-21, phenotyping HLADR$^+$CD27$^+$Tregs of expanded Tregs was performed using flow cytometry for both surface- and intracellular expression (MFI) of the transmembrane proteins CD95, GITR, ICOS, CTLA-4; surface expression of CD39 and CD62L; and intracellular expression of FoxP3 and Helios compared to CD27$^-$, HLADR$^-$, HLADR$^-$CD27$^-$, HLADR$^+$CD27$^-$, HLADR$^-$CD27$^+$, depleted-HLADR$^+$CD27$^+$Treg subsets or all expanded Tregs.

Results: There are no differences of FoxP3 and CD39 expression on HLADR$^+$CD27$^+$Tregs compared to all other subsets. CD62L increases significantly on HLADR$^+$CD27$^+$Tregs when compared to HLADR$^-$CD27$^-$, CD27$^-$ and HLA-DR$^-$Tregs. HLADR$^+$CD27$^+$Tregs have an increasing trend of Helios expression compared to all other subsets, and a significant increase when compared to HLADR-CD27$^-$ and HLADR-Tregs. Furthermore, HLADR$^+$CD27$^+$Tregs show significant enhanced either surface-expression or total-expression of CD95 ($P < 0.01$) and CTLA-4 ($P < 0.05$) compared to all other subsets (except HLA-DR$^+$CD27$^-$Tregs). This suggests the enhanced expressions of CD95 and CTLA-4 are associated with HLA-DR expression. At the same time, both surface-expression and total-expression of GITR is decreased significantly in HLADR$^+$CD27$^+$Tregs compared to all other subsets.

Conclusion: The enhanced suppressive-function of xeno-antigen-reactive HLADR$^+$CD27$^+$Tregs is associated with enhanced expression of CD95 apoptotic antigen and CTLA-4. HLADR and CD27 are the important immune-checkpoints for xeno-antigen-specific Tregs.

Abstract No. 11

ELEVATED IL-6 LEVELS ARE ASSOCIATED WITH INCREASED MORTALITY UPON RESPIRATORY INFECTION AFTER BONE MARROW TRANSPLANTATION

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[1]Transplantation Immunology Laboratory, QIMR Berghofer Medical Research Institute, [2]School of Biomedical Sciences, Queensland University of Technology, [3]Envoi Specialist Pathologists, [4]Infection and Immunity Program and Department of Microbiology, Monash University, [5]Clinical Research Division, Fred Hutchinson Cancer Research Center, [6]Respiratory Immunology Laboratory, QIMR Berghofer Medical Research Institute

Allogeneic bone marrow transplantation (alloBMT) is the curative treatment for patients with haematological malignancies providing alloimmunity to eradicate the disease and prevent relapse. However, this is associated with major complications such as graft-versus-host disease (GVHD) and opportunistic infections. Common respiratory viruses can cause severe and life-threatening infection in BMT recipients. Respiratory syncytial virus (RSV) in particular can result in pneumonitis, respiratory failure and death in up to 50% of infected patients. With no vaccines and a lack of efficacious antivirals, new treatment options are needed. Given the paucity of mechanistic data to guide clinical studies or define the basis of disease, we established a murine model of RSV infection after BMT using pneumonia virus of mice (PVM), the murine homologue of human RSV, to investigate fundamental immunological mechanisms. In contrast to syngeneic BMT, alloBMT recipients displayed high levels of mortality after PVM infection ($P<0.0001$), recapitulating the outcome seen in patients. Early after infection, PVM was detected at similar levels in lung tissue irrespective of transplant type (allogeneic versus syngeneic), however high viral loads persisted in alloBMT recipients, suggesting an impaired antiviral response in the presence of GVHD. Immunohistochemical analysis revealed PVM localized to alveolar epithelium and macrophages. Notably, interleukin-6 (IL-6) levels in lung tissue were significantly elevated in PVM infected alloBMT recipients compared to uninfected alloBMT ($P=0.01$) and syngeneic BMT ($P=0.005$) recipients which correlated with lung pathology. These findings implicate the Th17 differentiation pathway in mediating exacerbated immunopathology. Defining the relevance of this pathway will inform novel approaches to improve the outcome of RSV infection in alloBMT patients.

Abstract No. 12

INCREASED SODIUM IN T CELLS USING MUTANT KCNJ5 INDUCES A TH17 PHENOTYPE THAT PROTECTS AGAINST IN VIVO FUNGAL SEPTICAEMIA

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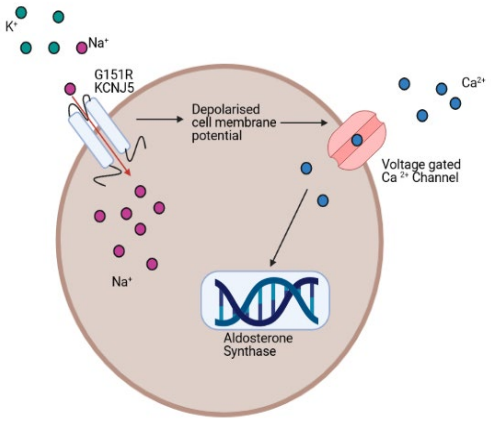
Background: Diets high in salt polarise T-cells into pathogenic Th17 cells, characterised by its signature cytokine, IL-17A, in addition to upregulation of SGK1, and IL-23R. Mutations to the KCNJ5 gene (expressed in adrenal cells) specifically G151R, reverses the selectivity filter of the GIRK4 potassium ion channel, allowing intracellular entry of Na+ ions.

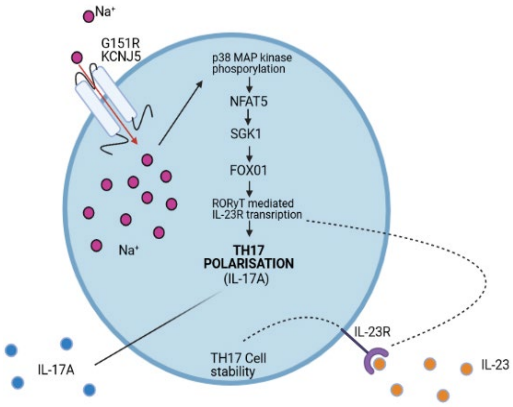
Aim: To transduce this mutation into murine CD4+ T-cells and assess the polarised phenotype in vitro. In addition, as Th17 cells are known to be protective against fungal infections, we aimed to assess these cells in an in vivo septicaemia model in mice.

Methods: The G151R-KCNJ5 mutation or WT-KCNJ5 were transfected into ecopak-2-293 retrovirus then transduced into murine CD4+ T-cells (Donor BALB/ mice). Cells were sorted by flow and were injected IV into NSG mice (1 x 10^6 cells/mouse), after 5 days mice received a sub-lethal dose of the human pathogenic yeast Candida albicans (2 x 10^4 CFU/mouse) IV. Kidney fungal burden was assessed by histology, CFU/g growth in kidneys, serum and urine protein. Serum cytokine levels were assessed by CBA. Splenocytes were stimulated and stained for intracellular cytokines.

Results: Mutant G151R-KCNJ5-expressing CD4+ T Cells upregulate Il-17a, Sgk1 and Il-23r in vitro. They showed increased intracellular sodium. Mutant G151R-KCNJ5 injected mice were protected against a sub-lethal dose of C. albicans, and displayed less kidney burden, and greater survival than WT-KCNJ5 or control mice. **Conclusions:** T-cells expressing the G151R-KCNJ5 mutation polarise towards an effector Th17 profile that is protective against an in vivo model of fungal septicaemia in mice.



Adrenal Cell with MUT KCNJ5 (G151R)



Pathogenic MUT KCNJ5 (G151R) TH17 Cell

Mini-Oral Session 1

Abstract No. 13

NATURAL HISTORY OF CXCR5+ T FOLLICULAR-LIKE HELPER (TFH) CELLS IN KIDNEY TRANSPLANT RECIPIENTS WITH REJECTION

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Aims: T follicular-like helper cells (Tfh) have been associated with donor-specific antibody (DSA) and antibody mediated rejection (ABMR) in kidney transplant recipients. However, changes in Tfh according to rejection type are less clear. We sought to describe the natural history of Tfh by rejection type.

Methods: Pilot study of 4 recipients with ABMR were age-sex matched to recipients with TCMR, and recipients with no rejection. Prospectively collected blood samples were analysed retrospectively by cytometry by time of flight and manually gated to identify CD4+CXCR5+ Tfh (Figure1a). Pre-transplant Tfh percentage of CD3+ T cells was compared between rejection groups using T-test. Change in Tfh percentage post-transplant was tested between rejection groups using linear mixed regression.

Results: Pre-transplant Tfh frequency was highly variable between individuals (median=3.3%,IQR=1.1-5.9) and not significantly different between rejection groups (p=0.7,Figure1b). Early post-transplant Tfh decreased in recipients with subsequent TCMR or stable function but increased in those who developed ABMR (Figure1c). Of the four recipients with AMBR, three had a Tfh increase within 60 days prior to ABMR. Change in Tfh over time was 2.7% (95%CI=0.3-5.2) higher in ABMR than stable recipients, adjusting for pre-transplant DSA and de-novo DSA (p<0.001). There was no difference in the change of Tfh between TCMR and stable recipients.

Conclusion: In the early post-transplant period and immediately before rejection, Tfh frequency increased above pre-transplant levels in patients who subsequently developed ABMR. This was not observed in stable patients or those with TCMR. These results will inform timepoints appropriate for screening in larger cohort studies.

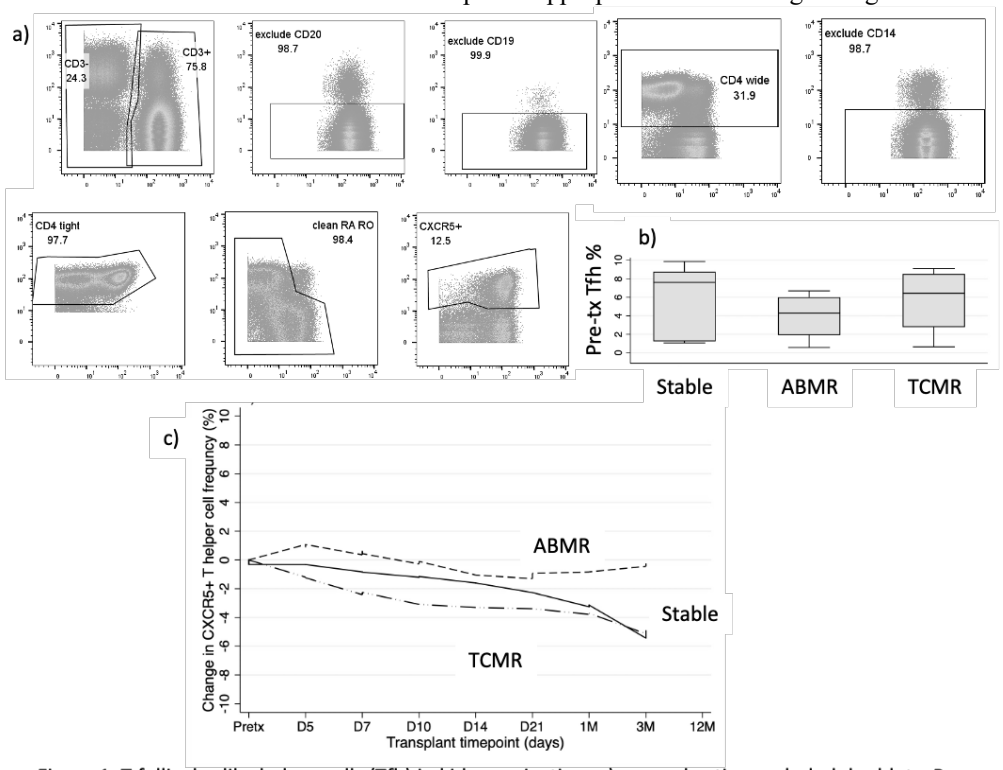

Figure 1. T follicular-like helper cells (Tfh) in kidney rejection; a) manual gating excluded doublets, B cells and granulocytes to then positively identified CD3+CD4+CXCR5+ Tfh cells, b) pre-transplant (pre-tx) average Tfh cell frequencies (%) compared between rejection groups, c) average change in Tfh frequency from pre-transplant across rejection groups (ABMR red; TCMR green; Stable blue).

Abstract No. 14

PULMONARY CANDIDA COLONIZATION AND ECMO ARE ASSOCIATED WITH EARLY INVASIVE CANDIDIASIS POST-LUNG TRANSPLANTATION IN ADULTS

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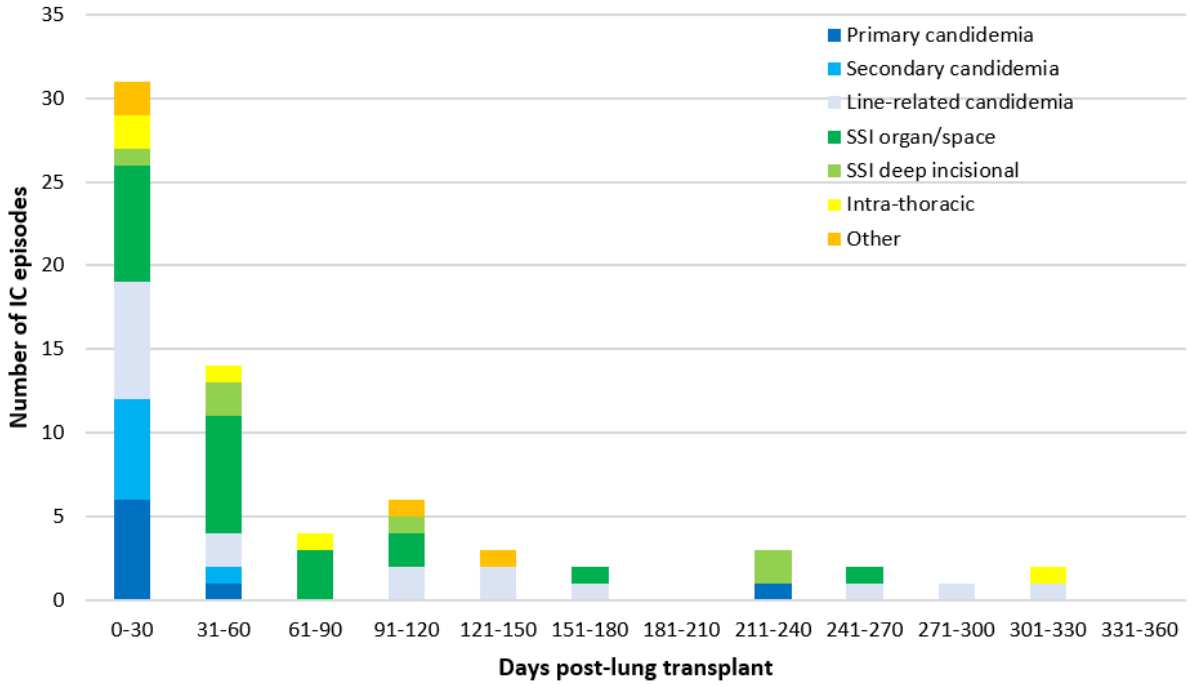
Aims: Candida species (sp.) frequently colonize the lower respiratory tract (LRT) of lung transplant recipients (LTs) but may also cause invasive infection. The risk factors for invasive candidiasis (IC) in LTs are not well defined and the need for antifungal prophylaxis has not been established.

Methods: We retrospectively (2016-19) evaluated the incidence of IC in LTs at our centre where targeted antifungal prophylaxis is used. Multiple logistic regression was used to identify significant correlates of IC during the first 30 days post-transplant.

Results: 92 (12.9%) of the 712 LTs had Candida colonization of the LRT at transplant. Within 30 days post-transplant 4.7% (n=34) received antifungals for LRT Candida colonization and 21.4% (n= 153) for another indication. 6.7% (n=48) LTs developed IC during the first 12 months post-transplant, most frequently within 30 days (figure). Factors associated with IC in LTs with LRT Candida colonization at the time of transplant (n=92, 12.9%) versus those not colonized within 30 days post-transplant (n=422, 59.2%) were; Candida colonization (OR=3.1, 95% CI [1.12, 8.61], P=0.03); ECMO use (OR=17.67, 95% CI [6.2, 50.24], P<0.001); and no antifungal use (OR 28.61, 95% CI [1.42, 575.22], P=0.028).

Conclusion: LRT Candida colonization was associated with increased risk of IC within 30 days post-transplant, however most LTs with LRT Candida colonization did not develop IC, despite no antifungal prophylaxis. However additional risk factors for IC, may be useful in guiding timing and selection of LTs for targeted anti-Candida prophylaxis.



IC: invasive candidiasis, SSI: surgical site infection

Abstract No. 15

AN ANTI-HUMAN P2X7 MONOCLONAL ANTIBODY ATTENUATES GRAFT-VERSUS-HOST DISEASE IN HUMANISED MICE

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Background: Graft-versus-host disease (GVHD) is a T cell-mediated inflammatory disorder that arises following donor blood stem cell transplantation. Donor T cells mediate tissue damage and the release of damage-associated molecular patterns (DAMP) including ATP. P2X7, an extracellular ATP-gated cation channel, functions as a DAMP receptor on immune cells with emerging roles in GVHD.

Aim: This study aimed to examine whether an anti-human P2X7 monoclonal antibody (mAb) impacts immune cell subsets and disease progression in a humanised mouse model of GVHD.

Methods: NSG mice were injected with human peripheral blood mononuclear cells (10 million cells i.p. per mouse, Day 0), and an anti-P2X7 or control mAb (100 μg i.p. per mouse, Days 0, 2, 4, 6, and 8). Humanised mice were examined for weight loss, clinical score and survival for up to 75 days. Human cells in tissues were examined at Day 21 (pre-GVHD onset) and humane endpoint (late GVHD) by flow cytometry.

Results: The anti-P2X7 mAb did not impair human leukocyte or effector T cell engraftment at either time point, but significantly increased proportions of human regulatory T cells (Tregs) in the spleens (Day 21 and endpoint) and livers (endpoint) of mice. Clinical scores in anti-P2X7 mAb-treated mice were significantly reduced over time (endpoint) compared to control mice.

Conclusions: These studies indicate that P2X7 blockade with the anti-P2X7 mAb reduces GVHD progression in humanised mice and this corresponds with an increase in human Tregs. These studies provide the first direct evidence for a role for donor (human) P2X7 in GVHD progression.

Abstract No. 16

LONG-TERM METABOLIC OUTCOMES FOLLOWING SIMULTANEOUS PANCREAS-KIDNEY TRANSPLANTATION IN TYPE I DIABETES PATIENTS

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Aims: Simultaneous pancreas-kidney (SPK) transplantation is an effective treatment for type 1 diabetes patients with end-stage kidney disease. However, long-term outcomes have been poorly characterised to date. This study investigated a range of metabolic end-points in SPK recipients over long-term follow-up at Westmead Hospital.
Methods: The study group consisted of SPK recipients transplanted from 2000-2019 (to allow consistency in immunosuppression prescribing practice) for whom at least 2-years follow-up was available. We retrospectively reviewed patient and graft survival, changes in BMI, glycaemic indices and lipid profiles in SPK recipients up to ten years post-transplant.
Results: Patient survival in 408 SPK recipients was 93% and 88% at five and ten years post-transplant. From a total of 64 deaths, 44% (n=28) were linked to cardiopulmonary causes. The majority of graft failures (n=71), occurred within two years (51%;n=36), and were attributed to rejection (37%;n=26) or thrombosis (31%;n=22). Compared to pre-transplant baseline, BMI showed significant increases at five ($p<0.001$) and ten years ($p=0.04$) post-transplant. Linear regression demonstrated significant associations between pre-transplant and five-year post-transplant BMI ($p<0.001$). Total cholesterol was initially stable, but significantly decreased at five ($p=0.02$) and ten years ($p<0.01$) post-transplant. Compared to pre-transplant levels, significantly lower triglycerides ($p<0.001$) and LDL ($p=0.03$) were seen ten years post-transplant, while HDL significantly increased ($p<0.01$). Insulin sensitivity improved significantly at ten years post-transplant ($p=0.001$).
Conclusions: SPK transplantation demonstrates superior patient and graft survival with most failures attributed to early rejection or surgical complications. Recipients experienced significant long-term weight gain despite improving lipid profiles and insulin sensitivity post-transplant.

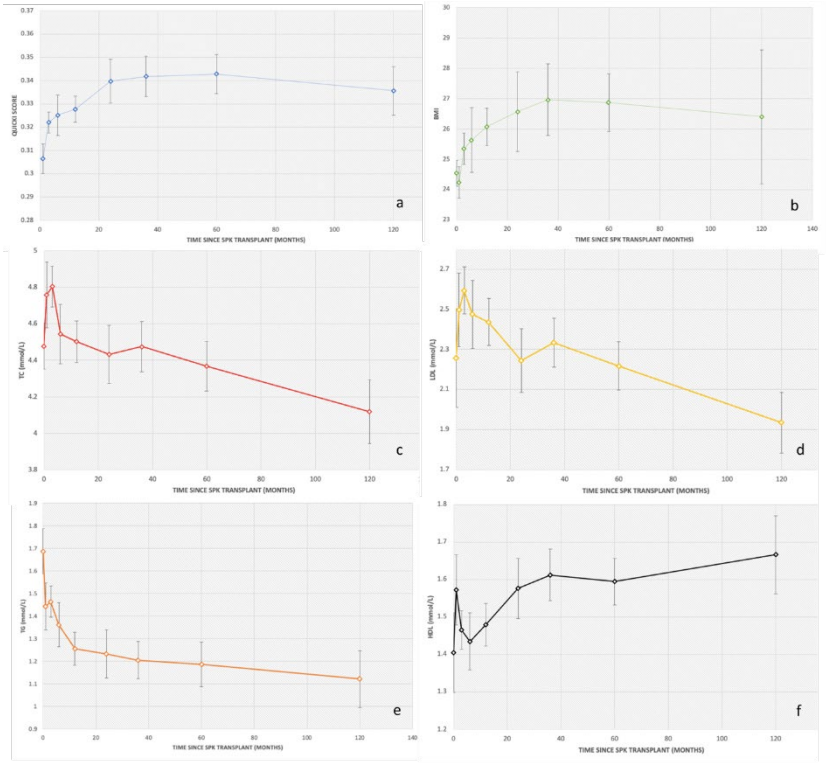

Figure 1. *Mean: a) QUICKI score b) BMI c) total cholesterol (TC), d) LDL levels, e) triglycerides (TG) and f) HDL levels for SPK recipients at Westmead Hospital over ten years follow up post-transplant (2000-2019). The QUICKI (quantitative insulin sensitivity check index) score is a dimensionless index used as a surrogate for insulin sensitivity. A score ≥ 0.45 indicates normal insulin sensitivity, < 0.34 indicates insulin resistance, and ≤ 0.30 is seen in diabetes mellitus.*

Abstract No. 17

TRAJECTORY OF BKPYV-DNAEMIA AND LONG-TERM ALLOGRAFT OUTCOMES IN KIDNEY TRANSPLANT RECIPIENTS

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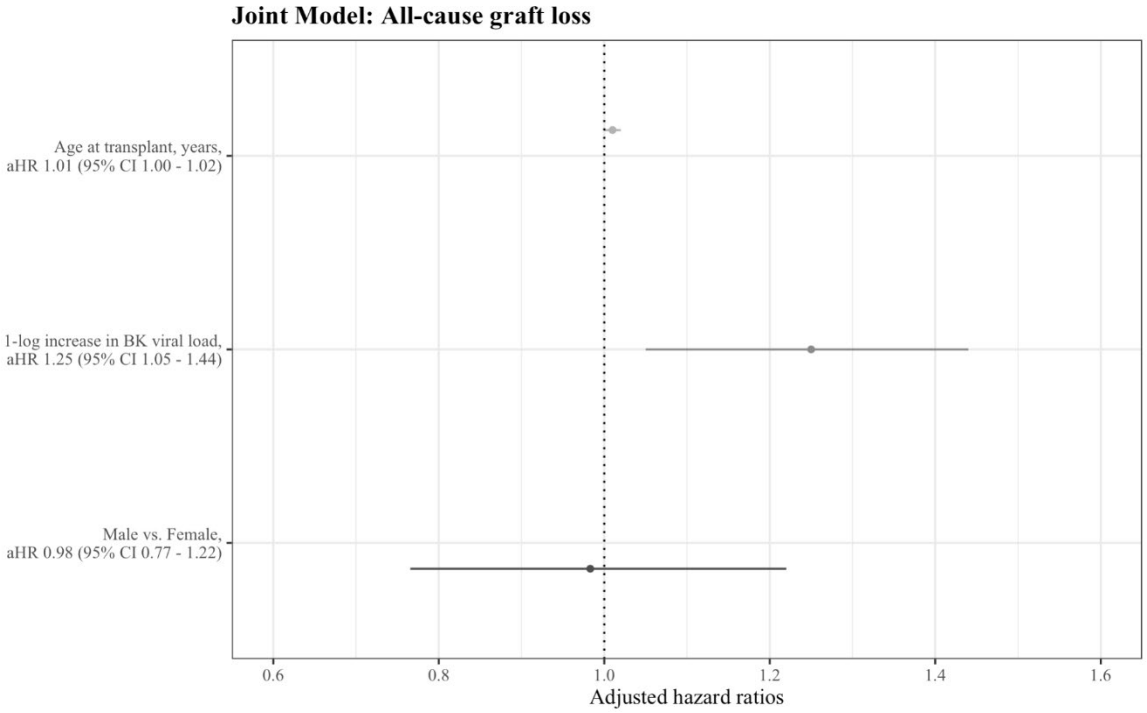
Background: BKPyV-DNAemia occurs in 10-15% of kidney transplant recipients and is most common during the first-year post-transplant. Despite its relative frequency, little is known about the long-term risks of allograft loss in patients with BKPyV-DNAemia.

Methods: Using linked data from a state-based transplant database and the ANZDATA registry (2005-2020), we determined the temporal changes of BKPyV-DNAemia and the risk of all-cause graft loss. We applied a joint model consisting of linear-mixed effects to assess the underlying trajectory of repeated measurements of BKPyV-DNAemia, and multivariable cox regression to determine the association of this trajectory with all-cause graft loss.

Results: 2,158 patients were included in this analysis: 1,357(62.9%) were male, the mean age at transplant was 46.9(±15.7) and median follow-up was 1,887 days (IQR 884 – 3103). 588 patients (27.2%) had BKPyV-DNAemia detected at least once and the median number of tests per patient was 10(IQR 6 - 15). The median duration to first detection of BKPyV-DNAemia was 140 days post-transplant (IQR 76 – 302). The median duration to peak BKPyV-DNAemia was 200 days (IQR 111 – 401). In the joint model, BKPyV-DNAemia predicted all-cause graft loss after adjusting for age and sex (adjusted hazard ratio (95%CI)) 1.25 (1.05 – 1.44, p = 0.01). For every 1-log increase in BKPyV-DNAemia, the risk of all-cause graft loss increased 1.25 times.

Conclusion: BKPyV-DNAemia is a dynamic predictor of all-cause allograft loss in kidney transplant recipients. This study emphasizes the need for intervention studies to investigate immunosuppression reduction and novel strategies for the prevention and treatment of BKPyV-DNAemia.



Abstract No. 18

ANTIBODIES TO NON-HLA TARGETS CAN INFLUENCE FLOW CYTOMETRY CROSSMATCHING

HIHO S[1], RAHMAN S[1], PAPORAKIS A[1], LEVVEY B[2], SNELL G[2], WESTALL G[2], SULLIVAN L[1,3]

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Aim: Many transplant centres rely on a flow cytometry crossmatch (FXM) to evaluate immunological risk for solid organ transplantation. However, the occurrence of a positive FXM in the absence of any identified antibodies to HLA molecules can often complicate FXM interpretation and potentially exclude patients who otherwise are low risk. Here, we investigated FXM positivity, in the absence of any known HLA antibodies, to determine an association with antibodies to non-HLA targets.

Methods: Sera from waitlisted patients with previous T-cell and B-cell FXMs (TFXM and BFXM) were tested on the LABScreen Autoantibody kit (OneLamdba). In total, 25 sera were tested for autoantibodies, whereby 13 recorded a positive T cell FXM (TFXM) with no identified HLA antibodies (experimental group), while 12 had a negative TFXM with no HLA antibodies (control group). Means between the groups were compared using ANOVA in SPSS.

Results: Overall, all 25 samples had reactivity against at least eight non-HLA autoantibodies. Six autoantibody targets demonstrated significant association with TFXM positivity, and of these, AGRIN and MYOSIN also had an association with a positive B-cell FXM (BFXM, Table 1).

Conclusion: This study demonstrated that non-HLA autoantibodies can interfere with the results of FXMs and possibly explain a positive FXM assay in the absence of HLA antibodies. The clinical impact of these non-HLA antibodies, and how to manage them in waitlisted patients warrants further investigation.

	TFXM- (n=12)	TFXM+ (n=13)	p-value	BFXM- (n=17)	BFXM+ (n=8)	p-value
AGRIN	237 (±86)	1532 (±910)	< 0.05	231 (±71)	2355 (±1431)	<0.001
MYOSIN	3626 (±582)	4878 (±345)	< 0.05	4052 (±471)	4756 (±421)	< 0.05
PTPRN	2498 (±644)	4244 (±1298)	< 0.05	3090 (±914)	4077 (±1366)	0.297
CXCL11	197 (±44)	256 (±62)	< 0.05	206 (±44)	274 (±78)	0.266
CoL I	1420 (±311)	2698 (±720)	< 0.05	1873 (±526)	2534 (±686)	0.914
Col IV	102 (±21)	351 (±143)	< 0.05	201 (±110)	296 (±72)	0.594

Table 1: Non-HLA autoantibody target MFIs and association with FXM reactivity.

Abstract No. 19

PREBIOTIC SUPPLEMENTATION IN KIDNEY TRANSPLANT RECIPIENTS FOR PREVENTING INFECTIONS AND GASTROINTESTINAL UPSET

CHAN S[1], HAWLEY C[1], PASCOE E[1], CAO C[1], CAMPBELL S[1], CAMPBELL K[2], FRANCIS R[1], HALE R[1], ISBEL N[1], MORRISON M[3], JOHNSON D[1]

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Background: Modulating the large intestinal microbiome of kidney transplant recipients (KTR) may reduce infectious complications. The aim of this study was to assess the feasibility of a randomized controlled trial of prebiotics in reducing infections and gastrointestinal symptoms in KTR.

Methods: Acute KTR were recruited to a double-blind, placebo-controlled, randomized trial at the Princess Alexandra Hospital. Patients were provided with prebiotics or placebo for 7 weeks. The primary outcome was feasibility, defined as recruitment of ≥80% of eligible people within 6 months. Secondary outcomes included adherence and tolerability, participant retention in trial, proportions of participants providing serum and stool specimens, self-reported quality of life (QOL), gastrointestinal symptoms and infection events.

Results: During the 7-week period, 72 patients met eligibility criteria, of whom 60 (83%) consented to participate (mean±SD age 53±12 years; 62% males). Fifty six (78%) participants were randomized (27 intervention and 29 control). While participants receiving intervention experienced reduced gastrointestinal symptoms (-0.28 [IQR -0.67 to 0.08] vs -0.07 [IQR -0.27 to 0], p=0.03), both control and intervention groups were similar in adherence (67% vs. 72%, p=0.36), tolerability (56% vs. 62%, p=0.64), QOL (-0.2 [IQR -0.6 to 0] vs. –0.2 [IQR -0.8 to 0], p=0.82) and infection events (33% vs. 34%, p=0.83). Blood and stool samples were collected from ≥90% of participants in both groups.

Conclusions: It is feasible to recruit and retain acute KTR in a randomized placebo-controlled trial examining the effect of prebiotics on infections and gastrointestinal symptoms. This study also showed that prebiotics significantly reduced gastrointestinal symptoms.

Abstract No. 20

IMMUNE SUBSET DIFFERENCES BY FACS BETWEEN PAEDIATRIC KIDNEY TRANSPLANT RECIPIENTS, HEALTHY PAEDIATRIC AND ADULT CONTROLS

JIMENEZ VERA E[1], WANG H[1], ANDERSON P[1], LAI C[2], YI S[3], HAWTHORNE W[3], ROGERS N[3], HSU P[2], O'CONNELL P[3], ALEXANDER S[4], HU M[3]

[1]Centre for Transplant and Renal Research, The Westmead Institude for Medical Research, [2]Immunology, The Children's Hospital at Westmead, Sydney, [3]Centre for Transplant and Renal Research, Westmead Millennium Institute, Westmead Hospital, Sydney, [4]Centre for Kidney Research, The Children's Hospital at Westmead, Sydney

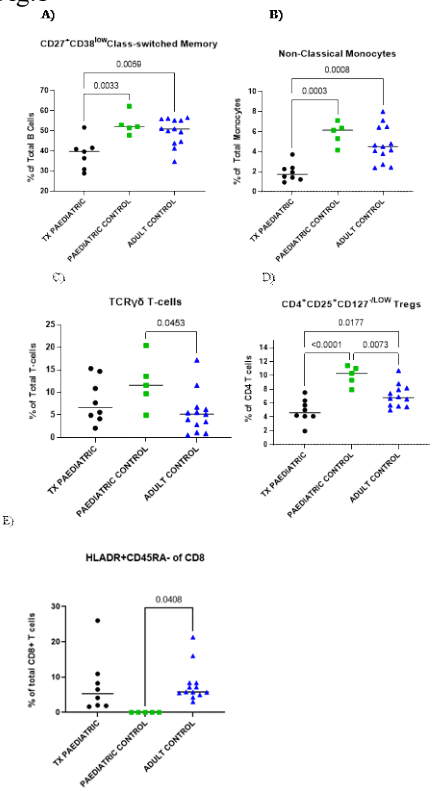
Aim: Determine differences in immunophenotype of paediatric kidney transplant recipients vs. healthy matching-age paediatric and adult controls by minimum blood volume.

Methods: Absolute cell-count and leukocyte-profiling panels (46 fluorochrome-conjugated mouse-anti-human antibodies) for T cell, Treg, B, NK, DCs, and monocyte subsets were used to quantify immune-cell populations for 8 paediatric kidney transplant (PKTx) recipients, 5 healthy matching-age paediatric and 8 adult controls. Whole-blood sample (1050µl) were used for flow-cytometry analysis.

Results: Absolute number of immune-cell subsets were in normal range for all groups. Age has correlation to CD45RO+memory T cells, but not to CD27+IgD-memory B cells. Healthy children had higher proportions of CD4-CD8-T (13.7±5.8% vs 7±4.3%, p=0.03) and γδT-cells (12±5.7vs 5.4±4.6%, p=0.04), CD4+CD25+CD127-Tregs(10±1.4% vs 7±1.6%, p<0.01), lower proportion of HLADR+CD45RA-CD4+ (0.03±%vs 7±%, p<0.01), HLADR+CD45RA-CD8+ (0.0012±0.0018?% vs 8±5.1%, p =0.04) T-cells compared to adults. HLA-DR was upregulated on both CD4+CD45RA-T and CD8+CD45RA-T cells in PKTx, whilst CD183(CXCR3) on CD4+CD45RO+ T-cells was downregulated. Compared to their healthy counterparts, PKTx had lower proportions of $CD27^{+}CD38^{low}$class-switch memory B-cells (38±7.6 vs 53±5.3%, p<0.01), non-classical monocytes (1.9±0.9 vs 5.8±1.1%, p<0.001), Tregs [CD4+CD25+CD127-Tregs (4.8±1.7% vs 10±1.4%, p<0.001) and CD4+FOXP3+Tregs (2.8±0.85% vs 6.3±1.3%, p<0.01)]. A small proportion of CD127+CD45RO+FOXP3 (2-5%) were observed in all groups. There was no difference in proportions of NK and DC between transplant vs control population.

Conclusion: Immune profiling by multi-colour flow cytometry revealed differences by ages and after transplantation and offers valuable insight into unique cell subset changes present in the transplant population that could be targeted clinically or to monitor patient condition.

Fig.1



Abstract No. 21

DECEASED DONOR AVAILABILITY FOR UTERUS TRANSPLANTATION IN AUSTRALIA

PITTMAN J[1], ABBOTT J[1], PLEASS H[2], ROGERS N[3], CAVAZZONI E[4], DEANS R[5]

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Background: Uterus Transplantation (UTx) is a potential treatment for absolute uterine infertility (absent uterus). Internationally, most UTx procedures use a living donor (LD) where there is a greater opportunity for donor screening and transplant scheduling, however the risk to the LD cannot be dismissed, especially in a non-lifesaving transplant. In 2017, the first live birth from a deceased donor (DD) was reported, with a further 16 procedures and 5 live births published since.

Aim: To establish DD organ availability for an Australian UTx program

Methods: A retrospective review of the NSW Organ and Tissue donation service database from 2018-2020 was compared with three registered international UTx trial inclusion/exclusion criteria (Table 1). All donors were divided into subgroups (gender, age, donor registered, brain-death, multi-organ) to establish the potential number of donors who may have also been eligible for uterine donation.

Results: There were 417 organ donors in NSW between 2018-2020. Against international UTx criteria, 41.9% were female, half met the age criteria, 68.6% were donation after brain-death and 96% were multi-organ donors. No donors had a malignancy or major abdominal surgery. Several criteria couldn't be assessed for example parity. In total 16.3% (68/417), could have potentially been eligible for uterine donation, but this reduced to 3% (13/417) if 'registered donor' was an inclusion criterion.

Conclusions: An Australian DD UTx program could be feasible or combined with a LD program. If considering a DD only program, including nulliparous donors would increase organ availability.

1.	Female (all)
2.	Aged under 60 years (Czech Republic); under 55 years (Sweden) Age 16-45yrs (USA)
3.	No previous malignancy of the uterus or other organ or tissue
4.	Brain-dead donors (all)
5.	Multi-Organ Donor (all)
6.	Normal BMI (USA)
7.	No systemic disease ie diabetes) (Sweden, USA)
8.	No previous hysterectomy or major abdominal surgery (including caesarean section) (Sweden and Czech Republic); Caesarean section not an exclusion in the USA
9.	Registered donor (or acceptance of donation of uterus from family) (Sweden)
10.	*Inclusion: Regular menses (USA) Exclusion: uterine disease (fibroids >;1cm; pelvic inflammatory disease, endometriosis or adenomyosis; anatomic uterine anomalies
11.	*At least one normal full-term pregnancy (>;37wks) and childbirth (Sweden; only desirable in USA criteria; not criteria in Czech Republic); No abortions/miscarriages
12.	*Cytomegalovirus (CMV) status: positive serology for CMV are only used for recipients who are also serology positive for CMV (Sweden)

Table 1: Current International UTx inclusion/exclusion criteria for three registered UTx DD trial programs (Czech Republic NCT03277430; Sweden NCT035810192018 and United Stated of America NCT0257341) * data not available from NSW Organ and Tissue Donation Service database.

Abstract No. 22

A COMPARISON OF MYCOPHENOLIC ACID PHARMACOKINETICS BETWEEN ELDERLY AND YOUNGER ADULT KIDNEY TRANSPLANT RECIPIENTS

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Aims: Drug pharmacokinetics may change with advancing age. This study investigated the differences in immunosuppressant pharmacokinetics and exposure between elderly and younger adult kidney transplant recipients.
Methods: Fifteen elderly recipients (≥65 years) and 18 younger adults receiving triple immunosuppressive therapy (tacrolimus (Prograf®), EC sodium mycophenolate (Myfortic) and prednisolone) were studied. Thirteen samples over 12 hours were collected on a single occasion for measurement of total and free plasma mycophenolic acid (MPA) andmycophenolic acid glucuronide (MPAG), concentrations. Non-compartmental analysis was conducted to compare differences in pharmacokinetic and exposure parameters.
Results: Total dose-adjusted MPA parameters were not different between age groups; however for free MPA and MPAG, elderly recipients had significantly greater minimum and maximum concentrations, trough concentrations, and half-life. There was a two-fold increase in free MPA total exposure in the elderly (median dose-adjusted AUC0-12: 1,304 vs 683ug.h/L, $p<0.0001$); MPAG total exposure was similarly increased. Age was significantly associated with free MPA and MPAG exposure, independent of serum albumin and kidney function. The elderly group were more anaemic (haematocrit: 0.33 vs 0.40, $p<0.0001$); free MPA AUC was significantly associated with haematocrit, independent of age, gender, albumin and renal function.
Conclusion: Total exposure was increased in the elderly and associated with anaemia. MPAG accumulation may increase MPA's free fraction through competitive binding with albumin. MPAG levels did not appear to be associated with kidney function, suggesting that biliary rather than kidney excretion is reduced in the elderly. Free MPA measurement to guide dosing, particularly in the elderly, is worthy of further research.

Abstract No. 23

THE MANAGEMENT OF BORDERLINE T CELL MEDIATED REJECTION IN KIDNEY TRANSPLANTATION

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[1]Centre for Transplant and Renal Research, Westmead Hospital, Sydney, [2]Department of Nephrology, Royal Melbourne Hospital, [3]Department of Renal Medicine, Sir Charles Gairdner Hospital, Perth, [4]Department of Renal Medicine, Royal Adelaide Hospital, [5]Department of Renal Medicine, Auckland City Hospital, [6]Department of Renal Medicine, Flinders Medical Centre, Adelaide, [7]Department of Renal Medicine, Monash Medical Centre, Melbourne

Survey of clinician practice Aims: The clinical significance of borderline T-cell mediated rejection(bTCMR) in kidney transplant biopsies remains controversial. We aimed to describe the practice patterns of nephrologists in Australia and New Zealand following a biopsy diagnosis of bTCMR.
Methods: A bi-national, cross-sectional, anonymous web-based survey to elicit nephrologist views on the diagnosis, treatment and monitoring of bTCMR in Australia and New Zealand. A survey link was disseminated to a convenience sample of nephrologists through TSANZ and ANZSN.
Results: 70 physicians from Australia (86%) and New Zealand (14%) responded to the survey. The majority of respondents were nephrologists who managed acute transplants (37(53%)). Of these,27(73%) work in units that perform protocol biopsies and 10(27%) do not. Where performed, protocol biopsies occur at 1 month (21%), 3 months (100%) and 12 months (71%) post-transplant. In interpreting and acting on a biopsy report of bTCMR, 25% of are always confident, 58% are sometimes confident, and 17% are never confident. Just over half (58%) always treat bTCMR, with the remainder are guided by creatinine rise and other clinical features. When treating bTCMR, 100% use methylprednisone, 76% increase maintenance immunosuppression, and 3% use lymphocyte depleting agents. Post-treatment, 22% return to usual monitoring always, 29% return to usual monitoring only if creatinine has returned to baseline, 16% increase monitoring, and 30% perform a repeat biopsy.
Conclusions: There is wide variation in clinician practice patterns in Australia and New Zealand in the diagnosis, treatment and monitoring of bTCMR. These findings can be used to inform future research into this area.

Abstract No. 24

POST-TRANSPLANT CYCLOPHOSPHAMIDE LIMITS GRAFT-VERSUS-HOST DISEASE AND RETAINS GRAFT-VERSUS-LEUKAEMIA RESPONSES IN HUMANISED MICE

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Background: Donor stem cell transplantation is a curative therapy for leukaemia due to generating the graft-versus-leukaemia (GVL) effect. However, this benefit can be mitigated by graft-versus-host disease (GVHD), which can be reduced by post-transplant cyclophosphamide (PTCy) in both humans and humanised mice.
Aims: To determine whether PTCy impacts the GVL effect in a humanised mouse model of GVHD. **Methods:** To establish the GVL model, NSG mice were injected with $10x10^6$ human peripheral blood mononuclear cells (hPBMCs) i.p. on Day 0, then $1x10^6$ THP-1 leukaemia cells i.v. on Day 14. In other experiments, PTCy was injected i.p. at Days 3 and 4, post-injection of $20x10^6$ hPBMCs. Mice were monitored for clinical signs of disease. Engraftment of T cells and $hCD33^+$ THP-1 cells were analysed at endpoint via flow cytometry.
Results: $1x10^6$ THP-1 cells alone caused leukaemia in the livers of NSG mice. NSG mice injected with hPBMCs from different donors (n = 3) and THP-1 cells, showed similar survival, clinical score and weight loss. $hCD33^+$ cells were near-absent in the liver of mice injected with both THP-1 cells and hPBMCs from two donors, but present in mice that received hPBMCs from a third donor, suggesting donor-specific GVL effects. PTCy-treated mice demonstrated prolonged survival (MST>42 days) compared to control mice (MST=34 days). Both groups showed minimal $hCD33^+$ leukaemia cells in the liver, indicating PTCy does not impact GVL responses.
Conclusions: This study establishes a model of GVL which can be used to test therapies that prevent GVHD but retain GVL responses.

Outcomes and Complications#1

Abstract No. 25

COVID-19 VACCINATION IN PATIENTS WITH CKD IN NEW ZEALAND (C-VAK NZ): LOW RATE OF SEROCONVERSION IN TRANSPLANT VERSUS DIALYSIS PATIENTS

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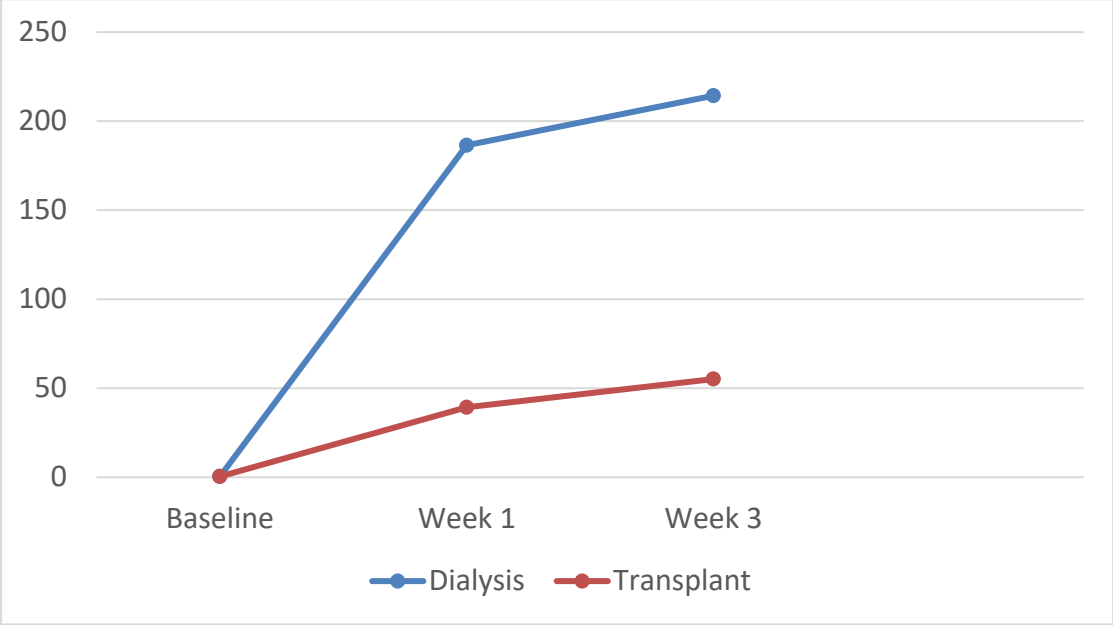
Patients with kidney failure on dialysis and with kidney transplant are at least five times more likely to die than patients without kidney disease. Yet, vaccine efficacy in these patients is unclear.
Aims: We examined the immunogenicity of BNT162b2 COVID-19 vaccination in Covid-naïve dialysis and transplant recipients using Spike antibody levels.
Methods: Kidney transplant and dialysis patients in a single centre underwent spike antibody testing using the Roche elecsys SARS-CoV-2 Nucleocapsid Total Antibody Assay prior to vaccination and at 1 and 3 weeks after the second vaccination dose.
Results: 382 patients underwent vaccination, and all had antibody levels tested (162 Kidney Transplant, 220 Dialysis). None had Covid-19 infection prior to vaccination. Mean Covid spike antibody levels were higher in dialysis patients than transplant recipients at week 1 (186.4U/ml versus 39.6 U.ml) and week 3 (214.3U/ml versus 56.2U/ml) ($p<0.0001$ for both comparisons) (Figure 1). Three weeks after vaccination, 32% of transplant recipients had seroconverted compared to 96% of dialysis patients. Transplant recipients were younger than dialysis patients and less co-morbid. There was no association between patient age, sex or time from transplantation with seroconversion rates. However, transplant recipients on Mycophenolate ≥ 1g/day had lower spike antibody levels (mean 17.1U/ml) than those on < 1g/day (52.0U/ml) or no mycophenolate (139.0U/ml, *$p<0.0001$*).
Conclusions: Seroconversion rates after 2 doses of the Pfizer SARS-CoV-2 vaccination are significantly lower in kidney transplant recipients than dialysis patients. Vaccination prior to transplantation is recommended and additional doses are required for all patients with kidney failure.

Figure 1: **Covid Antibody Levels pre and post vaccination in Transplant and Dialysis Patients**



Abstract No. 26

DEFINING CAUSES OF ALLOGRAFT LOSS ATTRIBUTED TO CHRONIC ALLOGRAFT NEPHROPATHY. A 5-YEAR MULTICENTRE AUDIT

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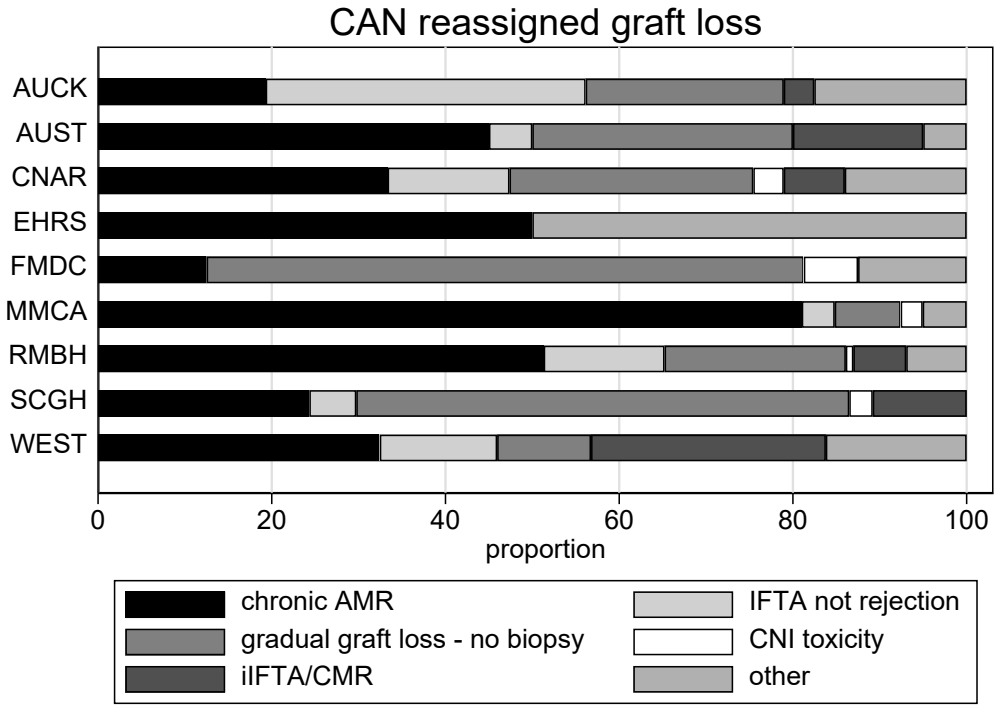
Aims: ANZDATA is replacing the non-specific historic term, chronic allograft nephropathy (CAN), with more specific causes for allograft loss. We sought to determine specific patho-physiological causes for allograft loss previously assigned to CAN.

Methods: A multicentre review (9 centres) of death-censored allograft losses across ANZ between 1/1/2014 – 31/12/2018. Cases were identified from ANZDATA and the causes of allograft loss for each case were re-assigned following re-review of biopsy and clinical data. Descriptive statistics summarise the data.

Results: 660 allograft losses were reported in the study period, 17 were excluded due to insufficient data leaving 643 for analysis. CAN was the reported as the cause of allograft losses in 420 (65.3%). These were reclassified as: chronic antibody mediated rejection (cAMR) n=186 (44.3%), gradual allograft loss without biopsy n=101 (24.1%), interstitial fibrosis/tubular atrophy (IFTA) without rejection n=56 (13.3%), iIFTA/cell-mediated rejection (CMR) n=30 (7.1%), glomerulonephritis n=16 (3.8%), CNI toxicity n=7 (1.7%), acute rejection n=3 (0.7%), BKVAN n=1 (0.2%) and others n=20 (4.8%). Of the 363 losses originally reported as CAN with at least one post-transplant biopsy, cAMR was the predominant reassigned cause (n=185, 51.0%). IFTA without rejection and iIFTA/CMR were common.

Conclusions: In keeping with international reports, cAMR was the overall leading cause of allograft loss in this cohort, underlining the importance of long-term attention to rejection prevention. However, there was considerable variation in causes between centres (Figure). An increased use of allograft biopsies would allow better understanding of the patho-physiological processes of allograft loss which may assist in identifying potential treatment options.



Abstract No. 27

ASSOCIATION BETWEEN KIDNEY DONOR PROFILE INDEX AND THREE-YEAR ALLOGRAFT LOSS IN KIDNEY TRANSPLANT RECIPIENTS

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Aims. The Kidney Donor Profile Index (KDPI) was introduced in Australia from 2016 to estimate the expected functional quality of deceased donor kidneys. We aimed to examine the relationship between KDPI and short-term allograft outcome.

Methods. Using ANZDATA registry, the association between KDPI (in quartiles) and 3-year overall allograft loss were examined using adjusted Cox regression analysis. Two-way interactions between KDPI and estimated post-transplant survival (EPTS)-score and total ischaemic time were examined. The incidence rates for 3-year allograft loss for each KDPI quartile were calculated.

Results. There were 4006 deceased donor kidney transplant recipients in Australia between 2010 and 2015, with the median (IQR) donor and recipient age of 49 (33-60) and 52 (41-60) years, respectively. The incidence rate of 3-year allograft loss for KDPI of 0-25% was 2.7 (2.2-3.4) losses per 100-person-years. This compared with respective rates of 3.5 (2.9-4.3), 3.7 (3.1-4.5) and 5.8 (5.0-6.8) losses per 100-person-years for KDPI of 26-50%, 51-75% and 76-100%. Compared to KDPI of 0-25%, the adjusted hazard ratio (HR) for KDPI of 26-50%, 51-75% and 76-100% were 1.28 (0.94-1.74), 1.33 (0.97-1.81) and 2.06 (1.54-2.76), respectively. There was no interaction between KDPI with EPTS (p-value for interaction 0.88) or total ischaemic time (p-value for interaction 0.14) for 3-year allograft loss.

Conclusion. Recipients of donor kidneys with the highest KDPI quartile have the poorest allograft outcomes. However, the incidence rates and risks of allograft loss were similar among recipients of donor kidneys with KDPI between 25-75%.

Abstract No. 28

PREVENTION OF KERATINOCYTE CANCERS IN TRANSPLANT RECIPIENTS USING TOPICAL SIROLIMUS: A RANDOMISED, PLACEBO-CONTROLLED PILOT TRIAL

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Aims: Transplant recipients have a high burden of keratinocyte cancer (KC). Oral sirolimus reduces the incidence of KC but is poorly tolerated. The aim of this study was to determine the feasibility and safety of topical sirolimus in reducing actinic keratosis and incident KC.

Methods: Randomised, double-blind, placebo-controlled study enrolling recipients with a significant history of KC and greater than 5 keratotic lesions on the forearms or hands. The intervention (1% sirolimus gel) was applied on one randomly chosen forearm and the placebo gel on the other for 12 weeks. Patients underwent dermatological examination and digital photography every 3 months for 24 months. The primary outcome measures were recruitment, compliance, retention, and safety. A punch biopsy was taken from each forearm at 12 weeks.

Results: Of 101 eligible patients 29 were recruited. Eighteen (62%) completed the 12 week treatment period and all 29 were followed for 24 months. One patient developed contact dermatitis. Detectable serum sirolimus levels were found in 4 patients. Biopsies showed that mTOR pathway activation was significantly decreased but no changes in proliferation of basal keratinocytes or epidermal thickness. There was a significant reduction in the number of actinic keratosis on the sirolimus treated arm (reduced by 33% versus 6%, p=0.0006). Compared to placebo, a 3-fold reduction in intraepidermal carcinomas was observed (4 versus 12) at 24 months, but no reduction in invasive KC.

Conclusions: Topical sirolimus appears to be a feasible, safe and potentially effective chemopreventative agent in organ transplant recipients at high risk of KC.

Infections

Abstract No. 29

TRANSPLANTATION OF HCV RNA+VE (HCV+) DONOR KIDNEYS TO HCV RNA-VE (HCV-) RECIPIENTS. PRELIMINARY RESULTS FROM REPLACE STUDY

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Introduction: HCV RNA+ve kidneys have until recently been considered unsuitable for donation in Australia. With the development of direct acting antiviral agents (DAAs) and international transplant practice, this has changed. We undertook a study investigating safety and efficacy of DAAs for HCV+ to HCV- kidney transplants in Australia. Here we report on the first three kidney transplants from two HCV+ donors.

Cases: Two HCV RNA+ve brain-dead female donors aged 27 and 28 years old, with normal kidney function, who died from motor vehicle accident and opioid overdose respectively, donated to three HCV RNA-ve recipients. The three recipients had ESKD due to diabetes, membranous nephropathy and IgA respectively. All were counselled and provided informed consent, they received standard induction and maintenance immunosuppression (basiliximab, prednisone, mycophenolate mofetil and tacrolimus). All completed a 12-week course of Maviret® (Glecaprevir & Pibrentasvir, AbbVie Pty Ltd) commenced once recipients became viremic. HCV viral loads were undetectable in all within two weeks of DAA treatment. They all achieved HCV cure, defined as negative serum HCV RNA 12 weeks post-DAA therapy. Treatment was well-tolerated with no SAEs, no evidence of liver dysfunction and no unexpected drug interactions. There were no episodes of rejection, and all have good graft function at 3 months.

Conclusion: We report the first cases of HCV+ donor kidney transplantation into HCV- recipients in Australia under the REPLACE study. Providing local experience to progress changes in practice for the transplant and donation sectors, expand the potential donor pool and reduce waiting times.Table 1. Characteristics of the three HCV- recipients of HCV+ kidneys

Patient	1*	2*	3
Age	63 Female	60 Male	41 Male
Blood group	A pos	A pos	A pos
PRA	0.0%	0.0%	0.0%
Underlying kidney disease	Membranous Nephropathy	Diabetic Nephropathy	IgA Nephropathy
Waiting time on dialysis	3 years	3 years	10 years
Donor viral load	145 IU/mL	145 IU/mL	4,300,000 IU/mL
HCV genotype	3	3	1A
Time to develop viraemia	22 days	7 days	7 days
Viral load at initiation of DAA	809 IU/mL	713 IU/mL	46,300 IU/mL
Delayed Graft Function	NIL	NIL	NIL
Serum creatinine at 3 months	82	186	140

Abstract No. 30

ECONOMIC EVALUATION OF SCREENING FOR POLYOMAVIRUS INFECTION IN KIDNEY TRANSPLANT RECIPIENTS – A COST-UTILITY ANALYSIS

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Background: Screening for polyomavirus infection after kidney transplantation is recommended by clinical practice guidelines, but cost-effectiveness of this strategy is uncertain. The aim of this study was to estimate the incremental costs and benefits of routine screening for polyomavirus infection compared with no screening in kidney transplant recipients.

Methods: Probabilistic Markov models were constructed to compare the health and economic benefits of routine screening for polyomavirus infection using real-time polymerase chain reaction assay. A series of one-way and probabilistic sensitivity analyses were conducted to define the most influential variables in the model. **Results:** Monthly screening for 6 months followed by three-monthly screenings until 12 months after transplant was dominant (lower costs and improved outcomes). Compared with no screening, the incremental benefits of screening were 0.294 life years saved (LYS) and 0.232 quality adjusted life years saved (QALYs). Total savings from screening were AUD $6,986 ($5,057 US). The cost-effectiveness ratios were most sensitive to the costs of transplantation and dialysis, age of transplantation, the prevalence of viraemia, and probability of death in patients with a prior history of polyomavirus-associated nephropathy. Probabilistic sensitivity analysis indicated that screening (compared with no screening) was the dominant strategy across all plausible ranges of transition probabilities.

Conclusion: Screening for polyomavirus infections one year following transplantation appears to save money, improves survival and quality of life in kidney transplant recipients.

Abstract No. 31

ISOLATION OF SCEDOSPORIUM AND LOMENTOSPORA SPP. FOLLOWING LUNG TRANSPLANTATION: PREVALENCE AND ASSOCIATIONS AT A SINGLE CENTRE

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Introduction: There is little data regarding the prevalence and outcomes of Scedosporium apiospermum, Scedosporium aurantiacum and Lomentospora prolificans (S/L) after lung transplant (LTx).

Aims: To report the prevalence of S/L in bronchoalveolar lavage (BAL) after LTx and to identify clinical associations.

Methods: A retrospective cohort study to identify the prevalence of S/L in BAL cultures after LTx at St Vincent's Sydney. All BAL samples from LTx between 1998-2020 were extracted from a relational database and reviewed for S/L. Baseline recipient and donor characteristics and the presence of chronic lung allograft dysfunction (CLAD) using ISHLT 2019 criteria were recorded. Multivariable logistic regression was performed to identify independent associations with S/L development.

Results: Of 942 LTx recipients, S/L were identified in 65 (6.9%); 30 (3.2%) S. apiospermum, 37 (3.9%) L. prolificans, 2 (0.2%) S. aurantiacum. 4 (0.4%) patients had andgt;1 S/L species concurrently. The median time after transplant to first S/L identification was 2.2 years (Interquartile range (IQR) 5.1). 35 (54%) patients with S/L died with median time to death of 4.4 years (IQR 7.8). Median post-S/L time to death was 2.4 years (IQR 3.3). On multivariable logistic regression analysis CLAD was independently associated with S/L identification (OR 2.50, 95%CI 1.37-1.46-4.29, p=0.001). Of 47 patients who had both S/L and CLAD, 25 (53%) developed CLAD prior to S/L identification.

Conclusions: S/L is detected in a significant minority of LTx recipients and its presence is independently associated with CLAD. There should be a high index of suspicion for S/L in recipients with CLAD.

Table 1: Clinical Factors associated with the identification of S/L

Univariate analysis	Univariable analysis			Multivariable analysis		
	Odds Ratio (OR)	95% CI	P value	Odds Ratio (OR)	95% CI	p value
Recipient Age (1-unit increase)	1.00	0.98-1.01	0.52			
Donor Age (1-unit increase)	1.01	1.00-1.03	0.095	1.02	1.00-1.03	p=0.085
Recipent Gender (male)	1.08	0.65-1.78	0.78			
Donor Gender (male)	1.49	0.89-2.49	0.13			
Ischaemic time (1-unit increase)	1.00	1.00-1.01	0.096	1.00	1.00-1.02	p=0.08
Transplant Type (single)	0.75	0.35-1.61	0.46			
Redo	0.96	0.22-4.13	0.96			
Native Lung Disease						
Cystic Fibrosis	0.91	0.46-1.82	0.79			
Interstitial Lung Disease	0.89	0.46-1.73	0.73			
Other	1.08	0.53-2.20	0.84			
CLAD	2.31	1.37-3.91	0.002	2.50	1.46-4.29	p=0.001

Abstract No. 32

INCIDENCE, RISK FACTORS AND OUTCOMES OF KIDNEY TRANSPLANT RECIPIENTS WITH BK POLYOMAVIRUS-ASSOCIATED NEPHROPATHY

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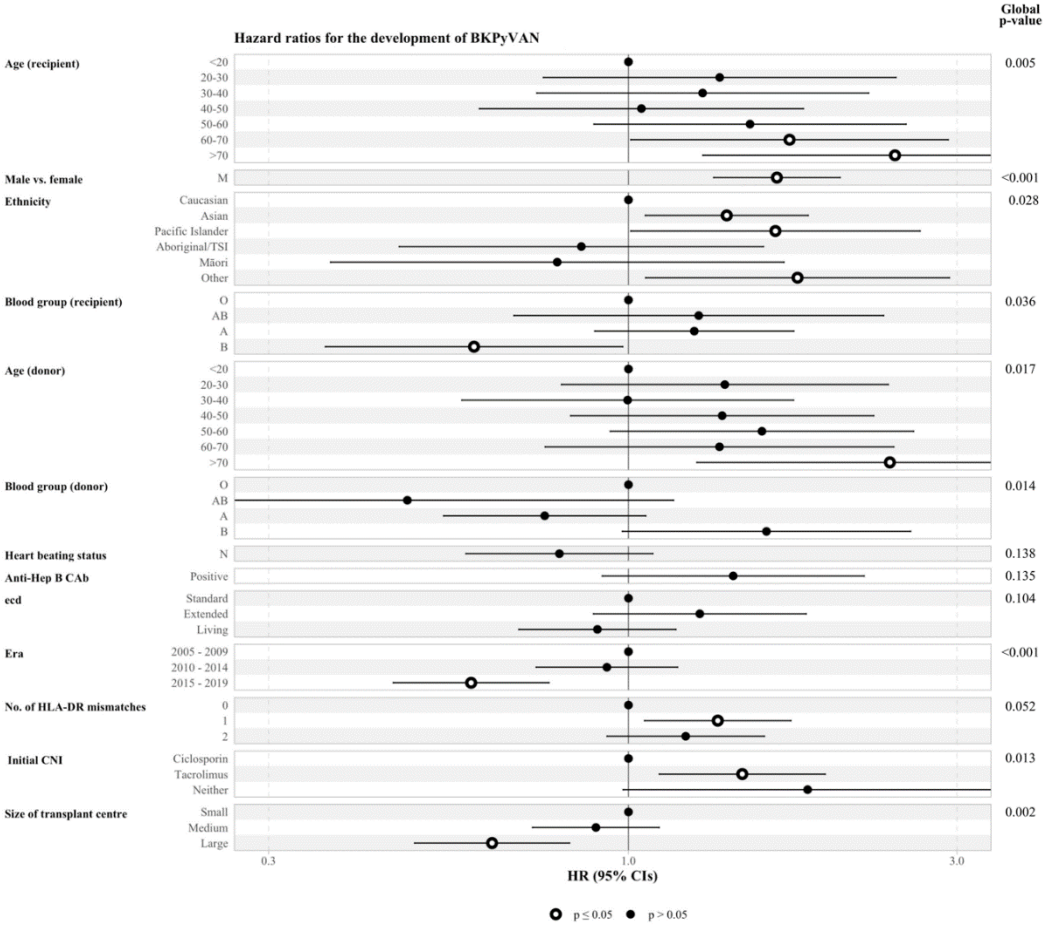
Background: BKPyVAN is associated with significant graft dysfunction, but knowledge of risk factors, therapeutic interventions and longer-term contemporaneous graft and patient outcomes is lacking. **Methods**: Using data from the ANZDATA registry, we aimed to define the incidence, risk factors, immunosuppression changes and longer-term graft and patient outcomes in kidney transplant recipients with BKPyVAN.

Results: 15,176 patients (10,248 (67%) deceased, 4,928 (33%) living) received a kidney transplant between 2005 and 2019 with a median follow-up of 65.1 (± 49.5) months. 460 patients (3%) developed BKPyVAN with a median time to diagnosis of 4.8 months. 160 (35%) patients lost their grafts and 81 (18%) died during follow-up. Risk factors for BKPyVAN (OR (95%CI)) included male gender 1.66 (1.34–2.05), recipient age >70 2.46 (1.30-4.65), donor/recipient ethnic mismatch 1.52 (1.23-1.87), donor age >70 2.99 (1.71,5.22) and tacrolimus use 1.46 (1.11-1.91). Most patients (75%) received prednisolone, tacrolimus, and mycophenolate at the time of diagnosis. The most frequent therapeutic change in immunosuppression was a reduction in tacrolimus of less than 50% (134 patients, 40%) followed by a reduction in mycophenolate of less than 50% (134 patients, 40%). With reference to recipients without BKPyVAN, the adjusted HRs (95%CI) for overall graft loss, death-censored graft loss and mortality were [1.74 (1.46-2.09)], [2.49 (1.99-3.11)], and [1.15 (0.91-1.45)], respectively.

Conclusion: BKPyVAN is associated with at least a 1.7-fold increased risk of graft loss in transplant recipients. Intervention trials are required to evaluate the relative efficacy of immunosuppression reduction and other novel strategies to minimize the morbidity associated with BKPyVAN.



Basic Science: Improving allograft survival

Abstract No. 33

TARGETING CD47 IMPROVES ISLET FUNCTION AND ISLET TRANSPLANT OUTCOMES

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Aims: Insulin replacement offers limited management of blood glucose for patients with diabetes mellitus. Islet transplantation is a promising treatment but efficacy is reduced by early islet cell death. Strategies that reduce islet death and enhance insulin-secretory capacity can improve the outcomes of islet transplantation. CD47 is a cell surface receptor which regulates cell stress responses. We investigated the impact of CD47 on islet survival and function.
Methods: Human islets from the National Islet Transplant Consortium, islets from C57BL/6 or CD47KO mice, and MIN6 cells were subjected to hypoxic and hyperglycaemic stress. Mouse islet transplantation was performed with and without CD47 blockade. Non-obese diabetic (NOD) mice were injected with CD47 blocking antibody.
Results: CD47 was expressed in islets and co-localised with insulin in the pancreas, MIN6 cells and primary murine islets. Hypoxia increased the expression of CD47, and this was associated with enhanced HIF-1alpha expression and reduced insulin expression. Human islets and MIN6 cells exposed to hyperglycaemia demonstrated increased CD47 expression and reduced insulin, which was mitigated by pre-incubation with CD47-blocking antibody. Similarly, CD47KO mice injected with glucose prior to dissection maintained insulin expression in the endocrine pancreas compared to control mice. Murine islets pre-treated with a single dose of CD47-blocking antibody (versus isotype control) showed improved hyperglycaemia. Treatment of NOD mice with CD47-blocking antibody delayed the onset of diabetes.
Conclusions: CD47 expression is increased in isolated islets following stress. Blocking CD47 in islets prior to transplantation may sustain insulin secretion and improve function and survival of transplanted islets.

Abstract No. 34

MULTIOMICS PROFILING OF LUNG TRANSPLANT RECIPIENTS IDENTIFIES EARLY SIGNATURES LINKED TO CHRONIC LUNG ALLOGRAFT DYSFUNCTION

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Aims: Long-term survival of lung transplant recipients remains limited by chronic lung allograft dysfunction (CLAD). Repeated injury to the allograft results in sustained wound repair that culminates in irreversible airway fibrosis and permanent lung function deterioration. This contributes to a significant disease burden. There is an urgent need to discover CLAD biomarkers able to predict changes in the allograft before a decline in lung function and understand underlying CLAD mechanisms.
Methods: Using a multi omics approach, we performed host transcriptomics, metabolomics, lipidomics profiling, and microbial 16S rRNA sequencing, on longitudinal diagnostic broncho-alveolar lavages from 11 CLAD and 20 CLAD-free lung transplant recipients over 36 months post-transplant.
Results: Intriguingly, CLAD patients displayed a unique gene expression signature characterised by the sustained upregulation of genes involved in the response to stress and inflammation. CLAD patients also showed a diverging gene expression profile consisting of a decline in lipid metabolic processes. Both “pre-CLAD signatures” were detectable before any significant decline in lung function. In line with gene expression data, metabolomics showed enhanced oxidative stress responses and a decline of surfactant lipids that correlated with lung function decline in CLAD patients. Likewise, diminished bacterial Shannon diversity significantly correlated with lower lung function values, suggesting a microbial profile skewed towards dysbiosis with approaching CLAD.
Conclusions: Our approach identified important gene expression signatures preceding a decline in lung function in CLAD patients, and metabolic signatures correlating with a decline in lung function. These contribute to better patient stratification and to a better understanding of CLAD mechanisms.

Abstract No. 35

MOVING XENOTRANSPLANTATION TO THE CLINIC: REVIEW OF IMMUNOSUPPRESSION IN PIG-TO-NONHUMAN PRIMATE ISLET XENOTRANSPLANTATION

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Background: With the recent progress of xenotransplantation moving to the clinic there is renewed enthusiasm, but the need for strong immunosuppressive and anti-inflammatory agents remains. The effects of these agents need to be reviewed in detail to allow progress to the clinic.

Aim: To evaluate the short-term (100 days) effects of immunosuppression on haematological and immunological parameters following neonatal porcine islet cell cluster (NICC) xenotransplantation in a diabetic non-human primate model.

Methods: Four baboons received a cocktail of immunosuppression which included anti-CD2, anti-CD154, belatacept and tacrolimus/sirolimus. Blood was collected and full hematological and immunological parameters were assessed by flow cytometry for the first 100 days after transplant.

Results: The immunosuppressive therapy was highly effective in suppressing total white cell counts in all recipients. By day 100, B and T cells were depleted by 50-60% compared to baseline. In the 14-day gap between treatment with anti-CD154+belatacept, the immune cells (particularly B and T cells) recovered but were suppressed at each subsequent time point as compared to previous levels. There was a gradual reversal of the CD4:CD8 ratio, with a reduction of CD4+ cells and an increase in CD8+ cells over the 100 days. Tregs, a key component of achieving tolerance, gradually increased from day 30-60. Other hematological parameters such as mean corpuscular hemoglobin concentration (MCHC) and red cell count (RCC) remained unaffected by immunosuppression.

Conclusion: This novel combination of immunosuppressive agents is effective and safe in baboons receiving neonatal porcine islet cell cluster xenotransplantation.

Abstract No. 36

TACROLIMUS TREATMENT ALONE DOES NOT PROTECT DONOR LEUCOCYTES FROM DEPLETION POST MHC-MISMATCHED KIDNEY TRANSPLANTATION IN MICE

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Background: The retention of donor immune cells within a transplanted organ is likely to be important to graft health and survival post-transplantation. We have previously shown that in the absence of immunosuppression, donor immune cells are depleted following MHC-mismatched transplants, due to infiltrating recipient effector cells. We hypothesised, therefore, that the retention of donor immune cells described following mismatched transplants in humans is a result of immunosuppressive therapy, which targets recipient effector cells.

Aim: Our aim was to investigate the impact of different immunosuppressive agents on the retention of donor immune cells after MHC-mismatched transplantation.

Methods: We developed immunosuppression regimens using clinically-relevant levels of immunosuppressive medications, and treated mice receiving MHC-mismatched kidney transplants. At seven days post-transplant, we compared the donor cell retention and recipient immune cell responses of mice on immunosuppression to those without. Here, we present the data for tacrolimus treatment.

Results: As expected after tacrolimus treatment, the circulating lymphocyte count was decreased. Simultaneously, the absolute number and proliferation of recipient lymphocytes within the graft and peripheral organs were reduced in comparison to immunocompetent controls. Tacrolimus treatment also altered macrophage polarisation within the graft, to a less pro-inflammatory phenotype. Interestingly, our preliminary data shows that despite the decrease in recipient cell infiltration, and a less inflammatory microenvironment within the graft, treatment with tacrolimus alone did not improve donor cell retention post-transplantation.

Conclusions: This highlights the requirement for multiple immunosuppressive agents to sufficiently suppress recipient cell responses, not only for graft tolerance but for donor cell retention.

Mini-Oral Session 2

Abstract No. 37

DECEASED DONOR ABO INCOMPATIBLE RENAL TRANSPLANTATION

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Aims: Although ABO incompatible (ABOi) live donor kidney transplantation is accepted, its use in deceased donors (DD) is limited. We recorded anti-A/B titres on all DD wait list patients at entry and every 6 months and used a titre of ≤ 1:32 to allocate DD kidneys when no national priority or state based ABO compatible allocation was identified.
Methods: Retrospective review of DD ABOi kidney transplantation with a median follow up of 15 (6-44) months.
Results: Over 7 years, 14 recipients received ABOi kidneys (DBD n=7 DCD n=7), mostly A donors redistributed to B and O recipients (Table). Patients were on the TWL for 6 (2-9) months with HLA mismatches 5/6, median total ischaemic time of 10 (7-12) hours and pre-transplant titre on the day 1:32 (range 8-64). Pre-operatively 13/14 received either Therapeutic Plasma Exchange (TPE n=5) or Glycosorb column (n=8) with a post exchange titre of 4 (neat-16). 7/14 received ATG induction and 7 Basiliximab with conventional triple maintenance immunosuppression. 2 patients received a single post transplant TPE. 4/14 had DGF and 6/14 had bleeding/wound haematoma with 6 patients transfused, more commonly in those receiving TPE. 1 graft was lost from medication non-adherence but no deaths or acute rejections were noted. C4d staining on biopsy was frequent but unrelated to ABO titres or graft function (creatinine 120 range 84-152).
Conclusions: DD ABOi transplantation using regular ABO titre to select candidates is feasible. The role of TPE, optimal ABO titre and its broader application in organ allocation algorithims needs further study.

Donor	A1	A2	A2B	B	Total Recipients
Recipient					
A				1	1
B	5		1		6
0	5	1		1	7
Total Donors	10	1	1	2	14

Abstract No. 38

INCIDENCE AND RISK FACTORS ASSOCIATED WITH INCISIONAL HERNIAS AFTER ADULT LIVER TRANSPLANTATION AT A SINGLE HIGH-VOLUME CENTRE

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Aims: Incisional hernia (IH) is a common long-term complication following liver transplantation causing significant morbidity. Literature regarding IH rates after liver transplantation has been limited, with little consensus on potential risk factors. Our study aimed to address these gaps and identify possible areas to improve patient care by evaluating a large adult cohort at a single high-volume liver transplant centre.

Methods: A retrospective analysis of a prospectively maintained database held at the Australian National Liver Transplantation Unit was performed. All adult liver transplantations between January 1986 and March 2021 were included. The incidence of IH was considered alongside donor, recipient, operative and postoperative variables.

Results: From the 1877 transplants, there were 240 cases of IH (12.8%). IH diagnosis was significantly associated with male recipients (194/240 [80.8%] vs. 1081/1637 [66.8%], p<.001), higher recipient BMI (median 28.37 vs. 26.79 kg/m2, p=.002) and, correspondingly, lower donor-recipient weight ratio (0.94 vs. 0.99, p=.004). Operative and post-operative risk factors included non-urgent surgery (196/240 [95.1%] vs. 1274/1637 [88.4%], p=.004) and surgical site infection (16/240 [15.5%] vs. 23/1637 [5.3%], p<.001). Comparing transplants performed pre- and post-2000 revealed differences in IH rates (52/495 [10.5%] vs. 191/1382 [13.8%], p<.05) and choice of immunosuppression.

Conclusions: In this study the incidence of IH following liver transplantation was 12.8%. Potentially modifiable risk factors include higher recipient BMI, surgical site infection and certain immunosuppressants. Identifying these factors may help to inform IH risk assessment and improve patient outcomes.

Abstract No. 39

DONOR AND RECIPIENT SEX DISPARITIES IN LIVING KIDNEY DONATION IN AUSTRALIA: AN EXPLORATORY ANALYSIS OF THE SOCIO-DEMOGRAPHIC DRIVERS

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Aims: Females account for 60% of all living kidney donors worldwide. We aimed to investigate the socio-demographic drivers of living kidney donation from female donors.

Methods: Data from the ANZDATA and ANZOD registries (2002-2019) were used to identify socio-demographic characteristics and their interactions associated with living donation from female donors. We derived predicted probabilities from adjusted logistic models using marginal means.

Results: Of the 3523 living donor-pairs, 2203 (63%) recipients were male, and 2012 (57%) donors were female. Men, Caucasians, smokers, and recipients with coronary artery disease were more likely to receive kidneys from female donors. The association between donor and recipient sex was modified by donor recipient relationship. Compared to men, women were more likely to receive a female donor if their donor was a sibling (0.61 (0.55 to 0.67) vs 0.50 (0.45 to 0.55)), friend (0.64 (0.53 to 0.74) vs 0.40 (0.32 to 0.48)) or child (0.56 (0.42 to 0.69) vs 0.43 (0.31 to 0.54)). Locality did not influence the donor and recipient sex association. However, older recipients (aged > 60 years) residing in regional/remote areas were more likely to receive a kidney from female donors compared to older recipients residing in major cities (0.67 (0.63 to 0.71) vs 0.57 (0.53 to 0.06). This relationship was not observed in younger recipients.

Conclusions: Factors associated with female donation included recipient sex and their relationship to donor. Rurality and recipient age have a differential influence on the likelihood of living kidney donation from a female donor.

Abstract No. 40

EXTERNAL VALIDATION OF THE UK TRANSPLANT BENEFIT SCORE IN THE AUSTRALIA AND NEW ZEALAND CHRONIC LIVER DISEASE POPULATION

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Introduction: Liver offering in the UK is based on the UK transplant benefit score (TBS), which was introduced in 2018. The TBS is a scoring system comprising of complex waitlist and transplant survival prediction models. Recipients are prioritised according to expected transplant benefit. The aim was to validate the UK TBS in an external population, which has not previously been reported.

Methods: This study analysed data on listings and transplants for chronic liver disease between 2008 to 2018, utilising the Australia and New Zealand Liver and Intestinal Transplant Registry. Excluded were variant syndromes, hepatocellular cancer, urgent listings, paediatric, living donor and multi-organ listings and transplants. A UK TBS waitlist and transplant score was calculated for listings and transplants, respectively. Outcomes were time to waitlist death, and time to graft failure (or patient death). Discrimination was assessed with Kaplan-Meier analysis and the c-statistic.

Results: Waitlist scores were calculated for 1,626 patients, and transplant scores were calculated for 1,293 patients. Kaplan Meier survival curves for the waitlist and transplant models are shown in Figure 1. The waitlist model c-statistic at 5 years was 0.70 (internal validation c-statistic=0.73). The transplant model c-statistic was 0.56 (internal validation c-statistic=0.70).

Conclusions: The UK TBS transplant model performed poorly in the ANZ population, suggesting that UK TBS-based allocation would not improve overall outcomes in ANZ. Generalisability of survival prediction models is limited by differences in transplant populations and practices.

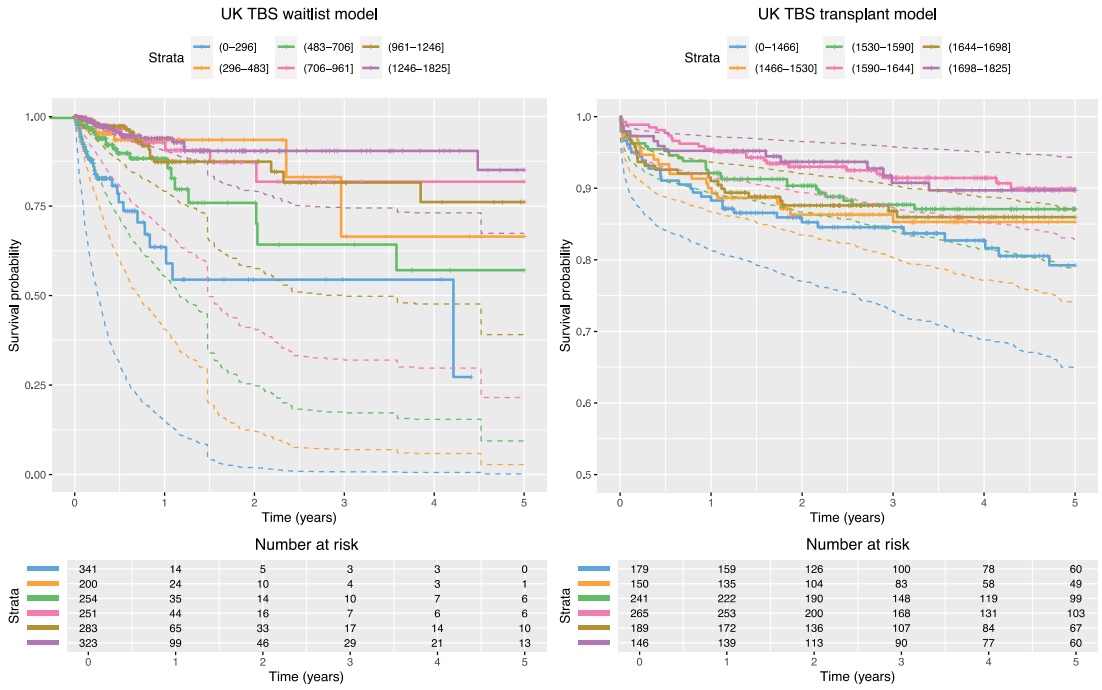

Figure 1: Kaplan Meier survival curves stratified by UK TBS. Actual survival (solid lines) and UK TBS predicted survival (dotted lines) shown.

Abstract No. 41

THE ASSOCIATION BETWEEN HISTOPATHOLOGICAL FEATURES ON IMPLANTATION RENAL TRANSPLANT BIOPSY AND GRAFT OUTCOME AND KDPI

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Aims: The increasing use of marginal kidneys for transplantation necessitates an accurate assessment of deceased donor kidneys. The kidney donor profile index (KDPI) is a moderate scoring system and though pre-implantation renal biopsies can be performed, the histopathological features that best predict graft outcomes are uncertain. This study aims to investigate the association between donor histopathological changes and graft outcome and KDPI.

Method: Deceased donor kidney recipients from 2013 to 2020 with an implantation renal biopsy were included. Patient's demographic data and transplant details including graft function at 1, 3, 6 and 12 months and donor KDPI were collected. Implantation renal biopsies were analysed for the presence and severity of arteriosclerosis, interstitial inflammation, interstitial fibrosis and tubular atrophy (IFTA), glomerulosclerosis and acute tubular necrosis (ATN).

Result: 113 patients were included in the study. The association between renal function and IFTA, interstitial inflammation and ATN were significant at 6 months whereas glomerulosclerosis was strongly associated with renal function at all time points. No association was found between renal function and arteriosclerosis. On multivariate analysis, glomerulosclerosis remained significant at all time points except at 6 months where ATN and minimal interstitial inflammation remained significantly associated with renal function. Glomerulosclerosis and IFTA were significantly associated with KDPI with interstitial inflammation showing a trend towards significance.

Conclusion: Glomerulosclerosis showed the most consistent and robust association with graft function whereas IFTA, interstitial inflammation and ATN were only significantly associated with graft function at 6 months. Glomerulosclerosis and IFTA were both significantly associated with KDPI.

Abstract No. 42

OUT-OF-HOSPITAL-CARDIAC-ARREST DONATION AFTER CIRCULATORY DETERMINANT OF DEATH DONOR AND RISK OF DELAYED GRAFT FUNCTION

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Aims. Globally, donation rates from controlled donation after circulatory determination of death (DCDD) donors have increased from <5% in 2008 to >20% in 2020. However, the association between donor mode of death and delayed graft function (DGF) in recipients of DCDD kidneys is unknown.

Methods. Using data from the ANZDATA and ANZOD registries, the associations between deceased donor mode of death (death from out-of-hospital-cardiac-arrest [OHCA], in-hospital cardiac arrest [IHCA] and other causes) and the risk of DGF were examined using adjusted logistic regression analysis. The association between cardiac arrest downtime and risk of DGF in OHCA transplants was also examined.

Results. Of 646 DCDD donors (1173 corresponding kidney transplant recipients of which 652[56%] developed DGF) in Australia between 2014-2019, 180(28%) and 155(24%) donors died from OHCA and IHCA, respectively. OHCA donors were younger (mean±SD: 42±16 years-OHCA, 48±16-IHCA, 49±16-others), with cerebral hypoxia/ischaemia and hanging the primary causes of death. Compared to recipients of non-cardiac arrest donors, the adjusted OR (95%CI) for DGF were 0.76 (0.56-1.03) and 0.91 (0.66-1.25) for those who received kidneys from OHCA and IHCA donors, respectively. Among the 331 recipients of OHCA donors, there was no association between cardiac arrest downtime (per minute increase: adjusted OR 0.99 [0.97-1.00]) or between witnessed and unwitnessed arrest (1.11 [0.63-1.93]) and risk of DGF.

Conclusion. Kidney transplant recipients who received DCDD kidneys from donors who died from OHCA experienced a similar risk of DGF compared to recipients with non-OHCA kidneys, with no observed relationship between duration of cardiac arrest and DGF.

Abstract No. 43

ASSOCIATION BETWEEN DIABETES STATUS, ALL-CAUSE AND CAUSE-SPECIFIC MORTALITY FOLLOWING FIRST KIDNEY ALLOGRAFT FAILURE

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Aims The prognostic significance of diabetes mellitus (DM) at time of allograft loss for mortality on dialysis is uncertain. We examined the association between diabetes status and mortality on dialysis following first kidney allograft failure.

Methods All recipients with failed first kidney allografts transplanted in Australia and New Zealand between 2000-2019 were included. Using competing risk regression, we determined the association between DM status at first allograft loss (no DM, DM before first kidney transplant or post-transplant DM [PTDM]) and all-cause and cause-specific mortality. Estimates were expressed as adjusted subdistributional hazard ratio (sHR) and 95%CI. There was no violation of proportional hazard assumption.

Results Of 3,782 patients with median (IQR) follow-up duration of 2.7 (1.1-5.4) years, 520 (14%) and 209 (11%) patients had pre-transplant DM or developed PTDM, respectively. During follow-up, 1336 (35%) patients died, with 424 (32%), 264 (20%) and 199 (15%) deaths attributed to cardiovascular disease (CVD), dialysis withdrawal and infection, respectively. Compared to patients without DM, patients with PTDM (sHR 1.30, 1.09-1.55) and pre-transplant DM (sHR 1.27, 1.02-1.58) had greater mortality, but not CVD-related death. Compared to patients without DM, patients with PTDM had greater dialysis withdrawal-related mortality (sHR 1.49, 1.05-2.11). For infection deaths, the adjusted sHR for patients with pretransplant DM and PTDM were 1.77 (1.02-3.06) and 2.32 (1.52-3.53), respectively.

Conclusions Patients with any form of diabetes at the time of kidney allograft loss have poorer survival, predominantly driven by an excess of withdrawal and infection-related deaths.

Abstract No. 44

TEMPORAL VALIDATION OF THE AUSTRALIAN ESTIMATED POST TRANSPLANTATION SURVIVAL SCORE

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Background: The Australian estimated post transplantation survival (EPTS-AU) prediction score was developed by re-fitting the US EPTS, without diabetes, to the Australian/New Zealand kidney transplant population over 2002-2013. Since 2018 this score is reported with all allocations, and as of May 2021, the EPTS-AU prediction score is incorporated into the Australian kidney allocation algorithm.

Aims: We temporally validated the EPTS-AU prediction score

Methods: Using the Australia and New Zealand Dialysis and Transplant (ANZDATA) Registry, we included adult recipients of deceased donor kidney-only transplants over 2014-2020. We constructed Cox Proportional Hazard models for patient survival. We assessed validation using measures of model fit (Akaike information criterion and misspecification), discrimination (Harrell's C statistic and Kaplan Meier curves), and calibration (observed compared to predicted survival).

Results: 5543 recipients were included in the analysis. The model was well fit with the coefficients of the EPTS alone of 0.01(95% CI -0.2-0.2) (perfect is 0), though there was some misspecification of the regraft variable (-1.2 (95%-1.6--0.9). The C statistic was 0.69 (95% CI 0.65-0.70) compared to an original C Statistic of 0.67 and there was clear delineation between Kaplan Meier's survival curves of EPTS alone (figure1) indicating moderate discrimination. The EPTS was well calibrated with the predicted survivals equating with the observed survival outcomes for all prognostic groups.

Conclusions: The EPTS-AU works well in choosing between recipients (discrimination) and to predict a recipient's survival (calibration). Reassuringly, the score is functioning as intended to predict post-transplant survival for recipients as part of the national allocation algorithm.

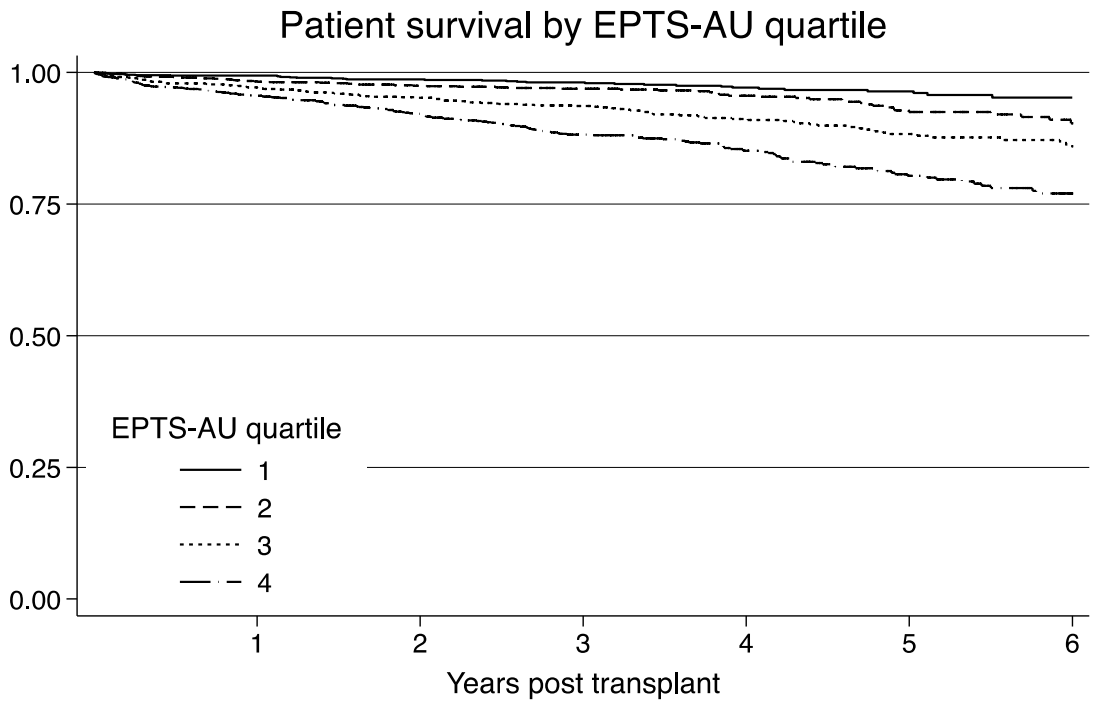

Figure 1: Kaplan Meier Survival curves for the outcome of patient's survival by EPTS-AU score quartiles based on ANZDATA deceased donor kidney transplant recipients from 2014-2020.

Abstract No. 45

YOUNG PEOPLE WITH A LUNG TRANSPLANT: A QUALITATIVE STUDY OF DAILY LIFE DURING A PANDEMIC

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Aims The COVID-19 pandemic poses an increased risk of infection, severe illness, hospitalisation, and mortality for young people who are immunosuppressed. The aim of this study was to explore the intersection of immunosuppression and COVID-19 and the subsequent impact of the pandemic upon the daily lives of young lung transplant recipients residing in Victoria.

Methods An exploratory qualitative research study was undertaken via consumer engagement. A purposive sample of 11 lung transplant recipients was recruited during the first year of the COVID-19 pandemic. Semi-structured interviews were conducted to gain insights into their daily life and healthcare experiences. Data was interpreted using thematic analysis.

Results Four major themes were identified: (1) occupational deprivation due to the intersection of COVID-19 and lung-transplant; (2) resilience and acceptance of restrictions; (3) infection control and vigilance about risk; and (4) care experiences of telehealth.

Conclusions Occupational deprivation emerged as a common theme, specifically in the context of loss of access to meaningful everyday activities of developmental significance. Participants commonly reflected upon their ability to flexibly adjust to changing community and healthcare environments. A high degree of acceptance and compliance with public health orders was self-reported, possibly indicative of this cohort's long-term experience of chronic illness and their understanding of the importance of minimising infection risks. Youth-informed healthcare strategies were identified as keystone to engaging young people in institutional change and healthcare program adaptation during a pandemic.

Abstract No. 46

ASPIRIN PROPHYLAXIS AND THE INCIDENCE OF THROMBOEMBOLIC COMPLICATIONS FOLLOWING KIDNEY TRANSPLANTATION

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Background: Aspirin prophylaxis has been shown to reduce graft-related thrombosis following kidney transplantation. Subsequent aspirin cessation has been linked to a possible rebound hypercoagulability phenomenon, which may increase risk of venous thromboembolic (VTE) complications, including pulmonary thromboembolism and deep venous thrombosis. The aim of this investigation was to document the rate of graft thrombosis and symptomatic VTE post kidney transplant and examine the association of aspirin duration with VTE events.

Methods: This single centre, retrospective, pre-post interventional study compared VTE outcomes in adult kidney transplant recipients receiving post-operative aspirin prophylaxis for 5 days (1/1/2014-29/8/2017) or 3 months (30/8/2017-30/6/2021). Secondary outcomes were rates of cardiovascular events, blood transfusion, graft thrombosis, graft dysfunction, rejection, and mortality.

Results: Among 1208 kidney transplant recipients, 571 and 637 received 5 days and 3 months of aspirin prophylaxis, respectively. Graft thrombosis was rare (n=3, 0.25%). Sixteen (1.3%) patients experienced VTE with no significant difference observed between the 5-day group (n=8, 1.4%) and the 3-month group (n=8, 1.3%) (OR=0.90, 95%CI=0.25-3.29, p=0.9) (Figure 1). VTE was independently associated with older age (OR=1.07, 95%CI=1.02-1.14, p=0.01), smoking (never-smoked OR=0.26, 95%CI=0.06-0.85, p=0.04), and thymoglobulin use (OR=14.9, 95%CI=2.78-70.1, p<0.001). Aspirin duration was not significantly associated with rates of cardiovascular events, blood transfusion, graft thrombosis, graft dysfunction, rejection, or mortality.

Conclusion: Extended duration of aspirin may not be associated with a reduced risk of VTE, although estimates were imprecise due to low event rates. The incidence of graft thrombosis following kidney transplant was low. The association between VTE and thymoglobulin warrants further assessment.

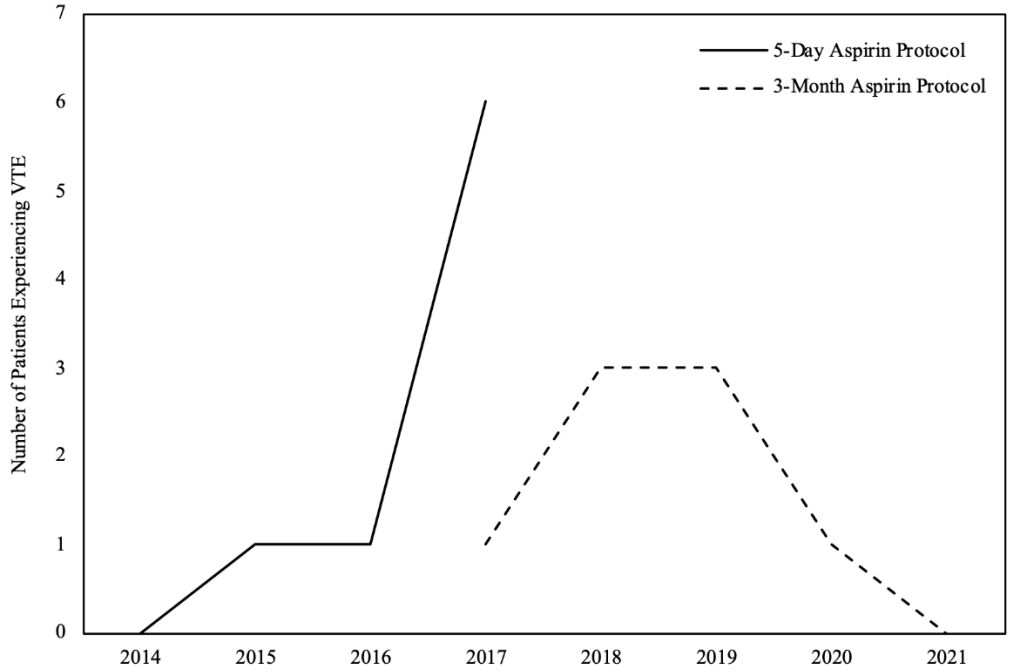

Figure 1. Number of patients experiencing VTE per year from 2014-2021 under 5-day and 3-month aspirin duration protocols.

Abstract No. 47

WHAT IS THE IDEAL SURGICAL INCISION IN KIDNEY TRANSPLANTATION? – A RETROSPECTIVE ANALYSIS OF GIBSON VS MIDLINE INCISION

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Background Kidney transplantation can be performed via a lower midline or modified Gibson incision. Midline incision allows access to bilateral extraperitoneal as well as intrabdominal spaces, thereby providing access for native nephrectomy if required. There are theoretical advantages such as avoiding division of abdominal wall musculature, and reduced bleeding, wound complications and post-operative pain. Both incisions have been performed by our transplant unit since 2018, allowing a retrospective comparison.

Methods Patients were identified from the kidney transplant database (January 2018 to July 2021), excluding combined liver/kidney transplant patients. Clinical and operative details, post-operative complications (minor = Clavien-Dindo 1-2, major = Clavien-Dindo ≥3), and follow up information were collected retrospectively from electronic medical records from time of transplant to discharge from the post-transplant clinic and analysed.

Results Of 351 transplant recipients, 91 had midline and 260 had Gibson incisions, with average follow-up of 75 days (6–123 days). Midline group had significantly greater proportions of high body mass index (BMI) and diabetic patients (46.5% vs 29.6% p<0.000; 46.2% vs 22.3% p<0.004 respectively). Post-operative complications were correlated with high BMI andgt;30, diabetes and low albumin <35. There was no difference in rates of minor (23.1% vs 14.2% p=0.164) or major complications (9.9% vs 12.7 % p=0.478), for midline and Gibson groups, respectively.

Discussion The incidence of wound complications following lower midline and Gibson incisions was similar, despite a higher proportion of diabetic and high BMI patients in the former cohort. These findings justify a large randomised study to determine the optimal incision for kidney transplant recipients.

Abstract No. 48

IDENTIFYING CARDIOVASCULAR OUTCOMES OF IMPORTANCE IN KIDNEY TRANSPLANT CLINICAL TRIALS: AN INTERNATIONAL SURVEY

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Aim: Cardiovascular disease has been identified as a critically important outcome domain for research in kidney transplantation through the Standardising Outcomes in Nephrology (SONG) initiative. We aimed to identify the cardiovascular outcomes of most importance to patients, caregivers and health professionals.

Methods: Ten cardiovascular outcomes derived from a systematic review, multidisciplinary expert panel and patient input were included in a bilingual (English and Spanish) online survey. Participants rated the absolute importance of outcomes using a 9-point Likert scale (7-9 considered critically important). The relative importance of outcomes was determined by a Best-Worst-Scale using multinomial logistic regression.

Results: 512 participants from 52 countries completed the survey (259 [51%] healthcare professionals and 253 [49%] patients/caregivers). Both patients/caregivers and healthcare professionals rated myocardial infarction (mean 8.2 and 8.1, respectively, overall mean 8.1), sudden cardiac death (mean 8.2 and 8.0, overall mean 8.1) and stroke (mean 8.1 and 8.0, overall mean 8.1) as the top 3 most critically important CVD outcomes. Healthcare professionals ranked myocardial infarction as most important outcome on relative importance rating (Best-Worst-Scale), followed by sudden cardiac death, while patients/caregivers considered sudden cardiac death the most important followed by myocardial infarction. Absolute and relative importance scores were consistent between English and Spanish language participants.

Conclusion: Myocardial infarction and sudden cardiac death were considered the most critically important cardiovascular outcomes among patients/caregivers and healthcare professionals. Consistent reporting of these outcomes in all kidney transplant trials will strengthen their value in informing practice and shared decision making to improve outcomes in kidney transplant recipients.

Abstract No. 49

TRAJECTORIES OF SYSTOLIC BLOOD PRESSURE DECLINE IN KIDNEY TRANSPLANT DONORS PRIOR TO CIRCULATORY DEATH AND DELAYED GRAFT FUNCTION

WONG G[1], LIN Y[2], LIM WH[3], TEIXEIRA-PINTO A[1], YANG J[4], CRAIG J[5], MCDONALD S[6], CHAPMAN J[7], DAVIES C[6], ROGERS N[8], OPDAM H[9], PLEASS H[8]

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Background: Kidneys donated after circulatory death (DCD) suffer a period of functional warm ischemia before death. This study aimed to assess the risk of delayed graft function using patterns of trajectories of systolic blood pressure (BP) decline in DCD kidneys.

Methods: We studied all Australian DCD kidneys transplanted between 2014 - 2019, divided in a derivation (n=462, April 2014-January 2018) and validation (n=324, January 2018-December 2019) cohort, using latent class models and linear mixed-effect models.

Results: Eight different trajectories, with distinct patterns of systolic blood pressure decline, were identified. Compared to recipients of donors with the fastest decline in systolic blood pressure after withdrawal of cardio-respiratory support, the adjusted odds ratios (OR) (95% confidence interval (CI)) for delayed graft function in recipients who had received donors with the slowest systolic BP decline were 0.36 (0.16 – 0.80, random forest model) and 0.38 (0.17 – 0.86, least absolute shrinkage and selection operator models, LASSO), respectively. For every 1 mmHg per minute reduction in the rate of decline of systolic BP, the adjusted OR (95%CI) for delayed graft function was 0.95 (0.91-0.99). Similar comparison was conducted in the validation cohort. Recipients who received donors with the slowest systolic blood pressure decline from withdrawal of cardio-respiratory support till death did not experience an increased risk of delayed graft function (Adjusted ORs (95%CI)): random forest: 1.01 (0.42-4.2) and LASSO: 1.17 (0.5-2.74)).

Conclusions: In DCD kidney donors, a slow decline in systolic BP during the agonal phase was not associated with adverse short-term outcomes after kidney transplantation.

President's Prize Symposium

Abstract No. 50

SPLITTING AND LONG-TERM PRESERVATION OF HUMAN LIVERS USING EX-VIVO NORMOTHERMIC MACHINE PERFUSION

LAU N[1], LY M[1], DENNIS C[1], JACQUES A[1], CABANES-CREUS M[1], TOOMATH S[1], HUANG J[1], MESTROVIC N[1], YOUSIF P[1], CHANDA S[1], WANG C[1], LIU K[1], KENCH J[1], MCCAUGHAN G[1], CRAWFORD M[1], PULITANO C[1]

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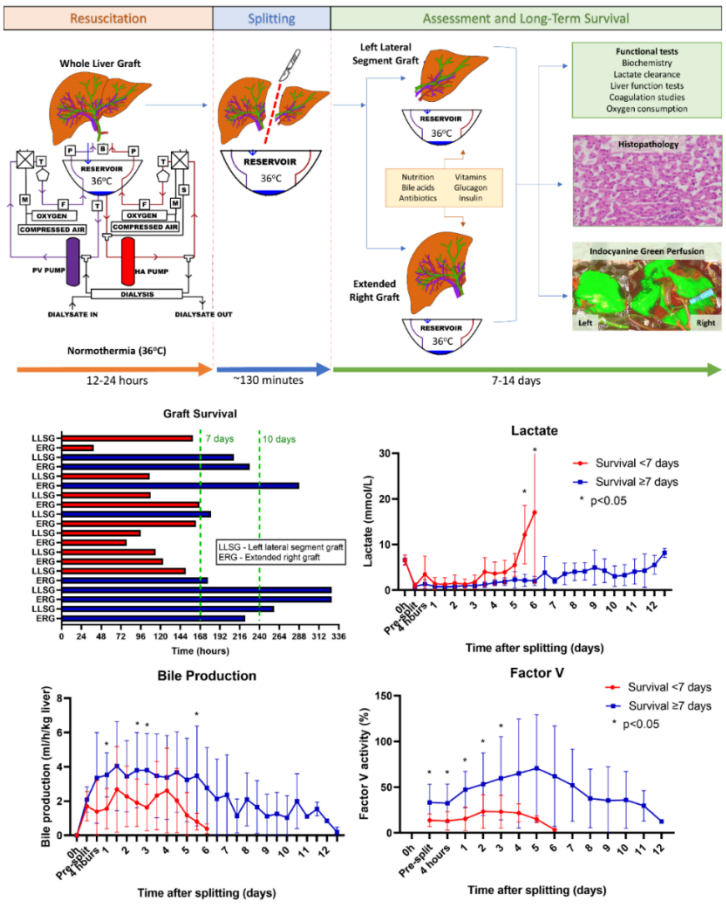
Aims: Current ex-vivo technology allows the perfusion of an organ only for a number of hours. There is a need for perfusion in the range of days-to-weeks to facilitate sophisticated assessment, recovery and modification of these organs. Normothermic perfusion of livers longer than 1 week has never been previously described. In this study, we aimed to develop a model which reliably maintained the physiological function of human livers for more than 1 week.
Methods: We developed a long-term perfusion system that included long-term oxygenators, a gas-mixer and a dialysis filter. Human livers not suitable for transplantation were perfused using a red-cell based perfusate under normothermic conditions (36°C) and then surgically split without interruption to perfusion. The resulting two grafts were then perfused on separate machines for the purpose of long-term survival.
Results: Ten livers underwent a conventional split during normothermic perfusion resulting in 20 partial grafts. The median ex-vivo survival was 165 hours, with the longest graft surviving for 328 hours (13 days). Long-term graft survival was demonstrated by lactate clearance, bile production, Factor-V levels, and ICG-perfusion. The grafts that survived ≥7 days demonstrated significantly higher bile production and Factor-V levels in the first 24-hours after splitting.
Conclusions: We report the longest ever ex-vivo survival of livers under normothermic conditions and demonstrate the possibility to split and perfuse these organs using a reproducible protocol. This provides the opportunity for the testing of therapeutics with a matched control and could increase the number of available organs for both adults and children.



Abstract No. 51

SIMKAP—A SIMULATION FRAMEWORK FOR DECEASED DONOR KIDNEY ALLOCATION

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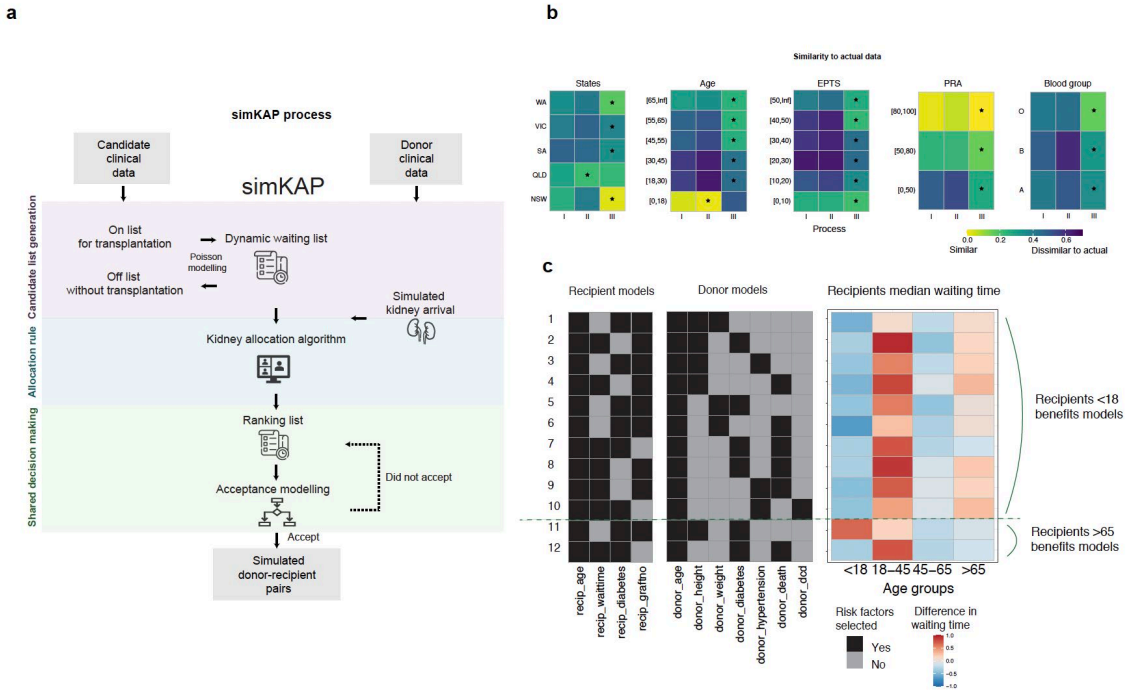
Aims: Organ shortage is a major barrier to transplantation worldwide. Strategies have been proposed to improve the equity and efficiency of organ allocation, but little is known about the impact of clinical decision making on the allocation process.

Methods: Using data from the ANZDATA registry (2006-2017), we developed a simulation framework that incorporated a clinical decision-making procedure to simulate potential recipient-donor pairs under the current allocation algorithm. Candidates and donor characteristics were considered as inputs, with matched recipient-donor pairs as outputs within a new matrix (simKAP) (Figure 1a). We then (1) generated the dynamic recipient waiting list using a Poisson process; (2) deployed the desired allocation algorithms; and (3) modelled the clinical decision-making process.

Results: The model that incorporated simulated pairs with dynamic waiting list modelling and clinical decision-making showed the best agreement with the actual donor-recipient pairs across all recipient characteristics: recipient age, PRA and recipient blood group (with a dissimilarity score 0.15 compared with 0.3 under allocation algorithms only) (Figure 1b). Inclusion of recipient characteristics such as diabetes status, donor characteristics and causes of death, in a risk-based algorithm reduced the median waiting time for transplantation from 15 to 4 months for the paediatric population, and 42 to 36 months for recipients aged andgt; 65 years. On the contrary, an increase in waiting time (47 to 53 months) was observed for those aged 18-45 (Figure 1c).

Conclusions: simKAP is a flexible simulation process that can accurately assess and adapt multiple allocation strategies to inform clinical decision making.



Abstract No. 52

IFNγ-DEPENDENT MHCII EXPRESSION BY DONOR BONE MARROW-DERIVED MACROPHAGES UNDERPINS CNS MANIFESTATIONS DURING CHRONIC GVHD

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Rationale: Chronic graft-versus-host disease (cGVHD) remains the leading cause of non-relapse mortality after allogeneic stem cell transplantation (SCT). Up to 60% of patients with cGVHD exhibit central nervous system (CNS) manifestations which present as neurocognitive dysfunction, however the causative underlying biology has been poorly understood. Our recent studies have demonstrated neuroinflammation and altered behaviour in cGVHD mice, and in ongoing studies, we are dissecting the underlying immune mechanisms.

Aim: Investigate temporal changes in the immune composition of the brain and identify disease mechanisms in CNS cGVHD to inform therapeutic strategies for attenuating neuroinflammation post-transplant.

Results: Our studies of cGVHD in mice revealed a hippocampal-dependent spatial learning and memory deficit associated with inflammation, altered synaptic gene expression, and persistent IFN-γ upregulation. We observed early T cell infiltration into the brain, in parallel with a gradual infiltration of MHC Class II-expressing bone marrow-derived macrophages (BMDM). By day 70 post-transplant, BMDM constituted 50% of the brain macrophage pool and exhibited a transcriptional signature distinct from resident microglia. Recipients of MHC Class II-deficient grafts demonstrated improved behaviour but maintained elevated IFN-γ expression in the brain. Moreover, the transfer of IFN-γ receptor deficient grafts attenuated BMDM MHC Class II expression and improved behaviour, identifying IFN-γ signalling as a critical targetable mediator of pathogenic donor macrophage differentiation during CNS cGVHD.

Conclusions: Our identification of IFN-γ signalling and donor BMDM MHC II expression as chronic disease mediators highlights the necessity to pursue brain permeable therapeutic strategies for targeting these pathways to attenuate late-stage neurological manifestations post-SCT.

Abstract No. 53

mTOR INHIBITION IS ASSOCIATED WITH AN IMPROVED IMMUNE RESPONSE TO COVID-19 VACCINATION IN KIDNEY TRANSPLANT RECIPIENTS

PERKINS G[1], TUNBRIDGE M[2], SALEHI T[2], CHAI CS[3], HOPE C[3], SINGER J[4], HURTADO P[3], HISSARIA P[5], GRUBOR-BAUK B[3], BARRY S[6], CHADBAN S[4], COATES T[2]

[1]School of Biological Sciences, University of Adelaide, [2]Central Northern Adelaide Renal and Transplantation Service, Royal Adelaide Hospital, [3]Adelaide Medical School, University of Adelaide, [4]Kidney Centre, Royal Prince Alfred Hospital, [5]Department of Allergy and Immunology, Royal Adelaide Hospital, [6]Department of Paediatric Medicine, Women's and Children's Hospital

Background: Kidney transplant recipients (KTRs) are highly vulnerable to severe COVID-19, however are poorly protected by vaccination. Additional vaccine doses have achieved limited improvements and a novel strategy to boost vaccine response is needed.

Methods: KTRs (n=80) and healthy cohabitants (HCs; n=80) were recruited from a transplant centre in South Australia to undergo a 2-dose vaccination schedule with BNT162b2 or ChAdOx1. Total vaccine-induced IgG and T cell responses were evaluated by anti-spike IgG ELISA and IFNγ ELISpot, respectively. Protection from disease was assessed by anti-receptor-binding-domain (RBD) IgG and serological neutralisation of live SARS-CoV-2 virus. In an extended cohort comparing standard-of-care (SOC) (n=15) and mTORi-inclusive (n=15) protocols, function and phenotype of antigen-specific T cells were further interrogated by flow cytometry.

Results: The median anti-spike IgG titre was >1,000-fold lower in KTRs on SOC therapy compared with HCs, and only 6.7% and 10.9% of KTRs met protective thresholds of anti-RBD IgG and serological neutralisation, respectively (versus 100% of cohabitants). Remarkably, KTRs on mTORi-inclusive protocols not only showed improved rates of serological neutralisation, but demonstrated a median antiviral T cell response 55-fold greater than SOC therapy, and 5-fold greater than HCs. SARS-CoV-2-specific $CD4^+$ and $CD8^+$ T cells in these patients were highly polyfunctional and formed robust central memory out to 3 months post-second vaccine dose. **Conclusions:** These data underscore priority vaccination of cohabitants as an effective strategy to protect KTRs, and support a randomised controlled trial of immunosuppression modification with mTORi as a strategy to directly improve vaccine responses in KTRs.

Abstract No. 54

THE MOLECULAR NATURE OF THE BANFF IIFTA LESION

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Introduction: Inflammation within areas of interstitial fibrosis and tubular atrophy (iIFTA) have been linked to adverse outcomes in kidney transplantation through an association with T-cell immunity leading to altered renal parenchymal structures. To date there is no literature that describes changes in the transcriptome in transplant recipients with iIFTA lesions.

Methods: We performed RNA sequencing of 113 protocol biopsies with all samples scored by the same histopathologist. Differentially expressed genes were deemed significant if they had a Benjamini-Hochberg adjusted $P < 0.05$. We then performed a gene set enrichment analysis using the gene ontology database to identify biological pathways that were enriched in iIFTA lesions. We also compared the transcriptomic profiles of patients with antibody- and T-cell mediated rejection with the iIFTA lesion.

Results: Of the 113 biopsies with RNA sequencing, 37 demonstrated iIFTA by histopathology. Following transcriptomic analysis, 336 genes were differentially expressed in biopsies with an iIFTA diagnosis. The top tanking genes and pathways were all involved in the formation of immunoglobin and B-cell activation. Further, transcriptomic changes in the iIFTA lesion closely resembled those found in antibody-mediated rejection. Finally, we demonstrate that genomic information, from both peripheral blood and kidney biopsy 3-months post-transplant, provides better prediction power than clinical data in identifying patients with iIFTA lesions.

Conclusion: RNA sequencing enabled us to identify novel transcriptomic changes in patients with iIFTA. This pathology is primarily driven by immune-based changes, closely resembling antibody-mediated rejection, which is at odds with the current concept of iIFTA mediated by T-cell activation.

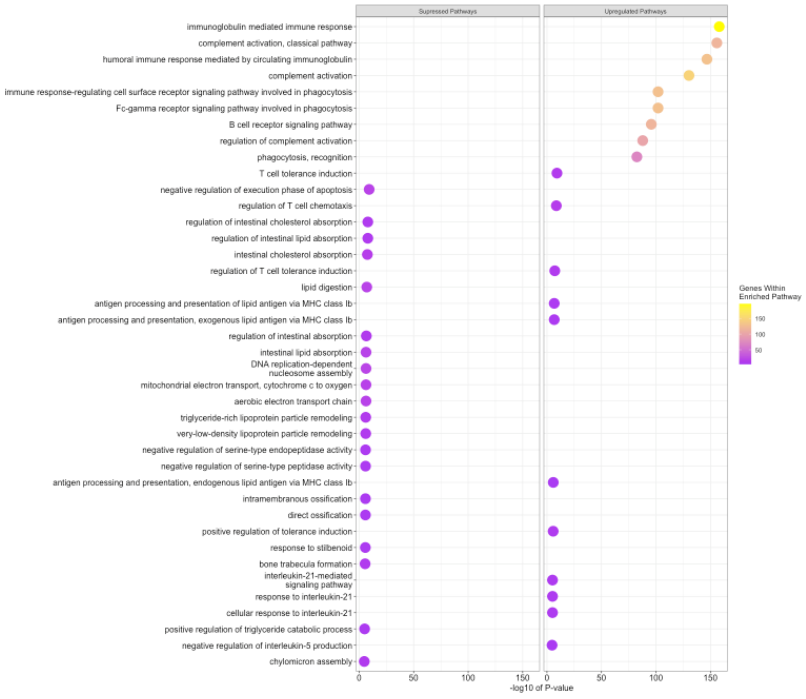

Figure 1: Gene set enrichment analysis of biopsy with inflammation in areas of interstitial fibrosis and tubular atrophy (iIFTA). Gene pathways are ordered by smallest p-value.

Abstract No. 55

THE CLINICAL UTILITY AND THRESHOLDS OF VIRTUAL AND HALIFASTER FLOW CROSSMATCHES

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Aim: Identifying pre-transplant Donor specific antibodies (DSA) is critical in defining immunological risk following lung transplantation. With improved antibody detection using solid phase platforms such as Luminex, a recent move away from a prospective Complement Dependent Cytotoxicity (CDC) crossmatches in favor of a DSA assessment (virtual (VXM)) or flow cytometry (FXM) crossmatch in pre-transplant assessments has occurred. Here, we aimed to define the Luminex single antigen bead (SAB) mean fluorescence intensity (MFI) thresholds, which were associated with a positive Halifaster FXM.

Methods: Sera from waitlisted lung patients were retrospectively assessed by Halifaster FXM against lymphocytes from deceased donors, in total 265 FXMs was performed. Recipient sera was treated with EDTA and Luminex SAB was used to identify DSAs. The association between FXM and Luminex MFI was calculated using receiver operating characteristic (ROC) analysis. These MFI thresholds were confirmed using a validation cohort, whereby a VXM using the defined thresholds, and FXMs were compared.

Results: From the 265 FXM performed, 48 (18%) T-cell and 56 (21%) B-cell were positive. MFI thresholds of 2000 for HLA-A, B, DRB1 and and>4000 for DQB1, were predictive of a positive FXM. The validation cohort of 233 paired FXM and VXM confirmed these MFI thresholds for both T- and B-cells with an accuracy of 91.4% and 89.3% respectively (Table 1). Furthermore, false reactivity accounted for only 5-6% of total FXMs.

Conclusion: A positive VXM, defined with HLA-specific MFI thresholds accurately predicts Halifaster FXM positivity. These findings could potentially expedite organ allocation by minimizing the need for the more time-consuming flow cytometry crossmatch.

	TFXM-	TFXM+	BFXM-	BFXM+	Total
VXM-	145	13	108	12	
VXM+	7	68	13	100	
Concordant	91.4 %		89.3%		90.5%

Table 1 Accuracy of defined VXM MFI thresholds in predicting Halifaster FXM (Validation cohort).

Abstract No. 56

ADOPTIVE TOLEROGENIC DENDRITIC CELL THERAPY PROTECTS AGAINST RENAL ISCHEMIA REPERFUSION INJURY

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Aim: Elucidate the pathways through which tolerogenic dendritic cell (TolDC) therapy provide protection against renal ischemia reperfusion injury (IRI).

Method: Ex-vivo TolDC (+/- lipopolysaccharide (LPS) stimulation) derived from C57BL/6 bone marrow were assessed for flow, functional (mixed lymphocyte reaction and TolDC-renal tubular epithelial cell (RTEC) co-cultures), and transcriptomic phenotypes. Male, C57BL/6 mice underwent bilateral renal IRI (20 minutes/36°c) and treated perioperatively either live/CD11c-enriched TolDC, or LPS-TolDC cells or PBS control. Mice were subjected to bilateral IRI to assess the impact of liposomal clodronate on cell therapy efficacy. Analysis of renal function, histology and biomolecular phenotyping was performed 24-hours post-operatively.

Results: Enrichment analysis revealed upregulated immune pathways in LPS-TolDC vs TolDC, supporting a semi-activated state. Elevated PDL1:CD86 ($p<0.05$), supernatant IL-10 with reduced IL-12p70 ($p<0.001$) was seen in TolDC and LPS-TolDC compared to controls. Co-cultured RTECs had lower TNF-alpha/KIM-1/LCN2 mRNA expression ($p<0.01$) in response to LPS. Compared to controls, mice treated with LPS-TolDC, but not TolDC, were protected against AKI, with lower serum creatinine ($p=0.006$ vs $p=0.28$ respectively), histological injury and cell death scores ($p<0.05$). Recipient myeloid depletion with clodronate did not impair the reno-protective capacity of therapy (creatinine 30.6±19mol vs 155±44.7mol/L, $p<0.001$). LPS-TolDCs were more likely to localise to the kidney compared to TolDCs (7.7 vs 3.5 %CD45+, $p<0.00$) by flow tracking. Kidney mRNA revealed reduced pro-inflammatory and antioxidant expression (IL-6/TNF-alpha/CCL2/SOD/inducible-NOS, $p<0.05$), which was supported and further defined by distinct clusters shown via spatial transcriptomics (Figure1).

Conclusion: TolDCs demonstrate potent protection against renal IRI that is not dependent on recipient myeloid cells.

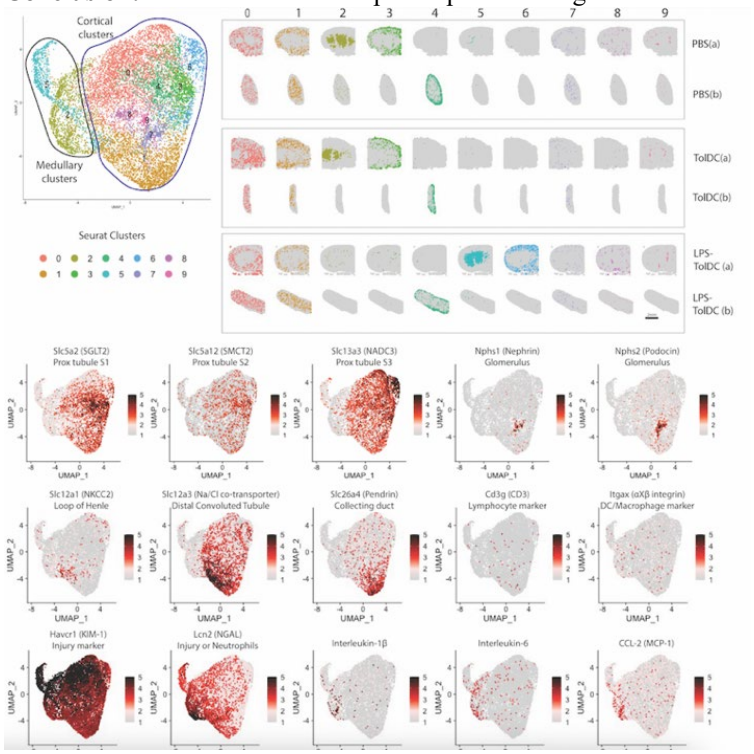

Figure 1: Spatial Transcriptomic of mouse AKI samples. Top left showed UMAP clustering of spatially distributed spots across samples, which are projected back onto anatomical positions on the top right. Bottom 3 rows display relative gene expression data for markers of interest.

Abstract No. 57

OUTCOME OF KIDNEY TRANSPLANTATION IN THE ELDERLY COMPARED WITH DIALYSIS

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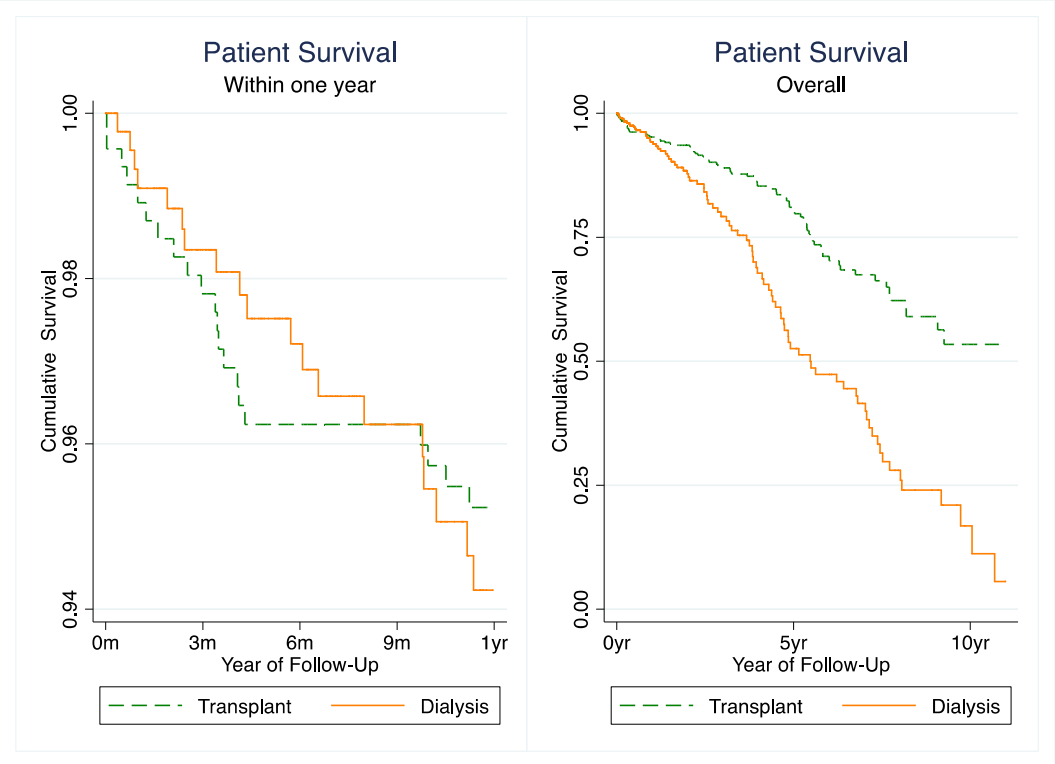
Aims: Although kidney transplantation offers improved survival compared to remaining on dialysis for most recipients, outcomes for elderly patients remain uncertain. As the number of candidates aged over 70 years seeking transplantation is increasing, we aimed to determine whether transplantation has improved outcomes for this age group.

Methods: Using the Australia and New Zealand Dialysis and Transplant Registry (2009-2019), kidney recipients aged 70+ were matched to a maintainence dialysis patient by age, cause of ESKD and dialysis duration. We censored dialysis patients at the time of transplant. Survival was compared using Stratified Cox regression modelling, taking into account the early increased mortality post-transplant.

Results: All 465 recipients aged 70+ at time of transplant were matched to a dialysis pair. Mortality among the transplant cohort exceeded that observed on dialysis until month 10, after which a progressive benefit in favour of transplantation was apparent (Figure 1). The early excess of deaths post-transplant was largely attributable to infection (1.9 versus 0.3 deaths per 100 patient-years). The risk of mortality was 60% higher for dialysis versus transplant recipients (95% CI 1.18-2.12, P=0.002). Survival at 3- and 5-years was significantly higher in the transplant group at 89% and 80% compared to 79% and 53% in the dialysis group.

Conclusions: As compared to remaining on dialysis, elderly candidates incur an increased risk of early post-transplant mortality, predominantly due to infection, but thereafter may anticipate progressively superior rates of survival. Transplantation should be seen as the optimal means of kidney replacement therapy for suitable elderly patients.

Figure 1



Clinical Science: Other

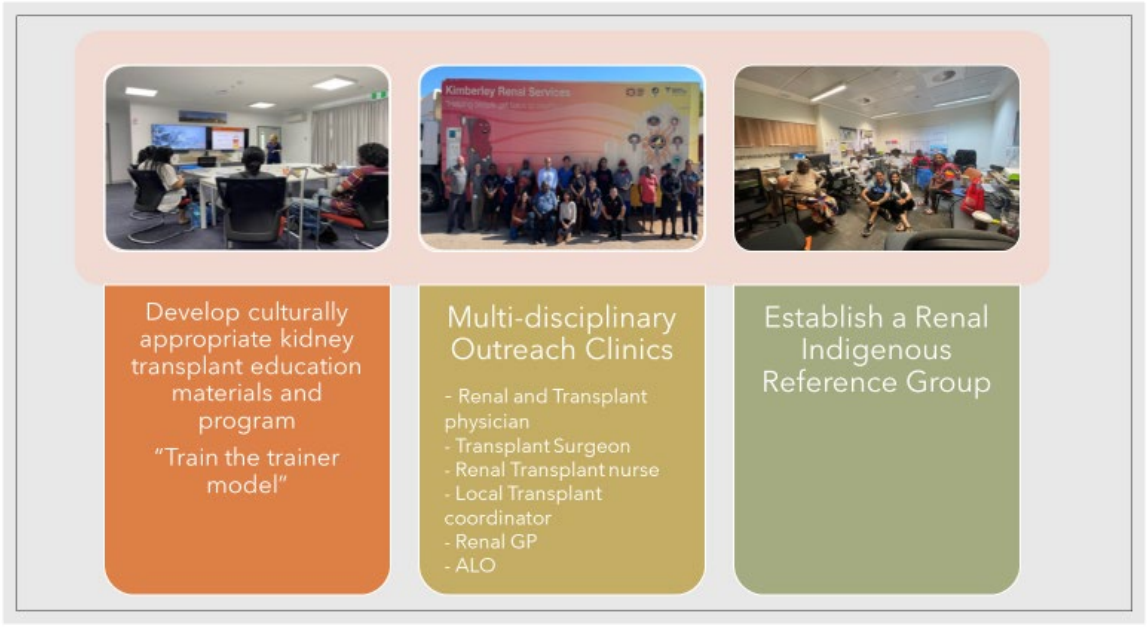
Abstract No. 58

CLOSING THE GAP: ADDRESSING INEQUITIES IN ACCESS TO KIDNEY TRANSPLANTATION FOR ABORIGINAL AUSTRALIANS FROM THE KIMBERLEY

CHAN D[1], KRISHNAN A[2], LIM W[1], TING C[3], OWEN K[4], ISARD T[1], CORSAIR N[5], GRIFFITHS E[6], STACEY J[5], BARTLETT R[2], FALLON D[2], JAQUES B[7], PATANKAR K[2]

[1]Department of Renal Medicine and Transplantation, Sir Charles Gairdner Hospital, Perth, [2]Department of Nephrology, Royal Perth Hospital, [3]Sir Charles Gairdner Hospital, Perth, [4]National Indigenous Kidney Transplantation Taskforce, [5]Kimberley Renal Services, Kimberley Aboriginal Medical Services, [6]Kimberley Renal Services, [7]WA Liver and Kidney Transplant Service, Sir Charles Gairdner Hospital, Perth

Aims and Methods: The National Indigenous Kidney Transplant Taskforce (NIKTT) was established in 2018 in response to the disproportionately low rates of kidney transplantation (KTx) among Aboriginal and Torres Strait Islander people in Australia. We describe the outcomes of a NIKTT-sponsored initiative developed by the teams at Sir Charles Gairdner Hospital, Royal Perth Hospital and Kimberley Aboriginal Medical Service aimed at identifying and addressing modifiable barriers to accessing KTx for Aboriginal Australians with kidney failure in the Kimberley, Western Australia.



Results: Culturally appropriate KTx education modules were developed for patients and health professionals in close consultation with Aboriginal liaison officers, Aboriginal health service and the members of the newly established Indigenous Reference Groups (IRG) from the region. These materials were utilised during the small group formal and informal yarning sessions during the Transplant Outreach Clinics. Work is ongoing to create flip-book, posters and online education materials. The Outreach Clinics expedited assessments and led to increase in the number undergoing assessment from 10 to 71, with 23 commencing testing for transplant suitability and increasing the number of patients active on the transplant waitlist from 4 to 12. To date, 6 patients from the region received a kidney transplant.

Conclusion: Improving access to kidney transplant and transplant outcomes for Aboriginal Australians require a collaborative, holistic and culturally safe approach to the delivery of kidney care. At the core of addressing the inequality in access to kidney transplantation is the need to effectively communicate, engage and empower the Aboriginal patients and their communities.

Abstract No. 59

OUTCOMES FOR LIVE KIDNEY DONORS FOLLOWING NEPHRECTOMY IN AOTEAROA NEW ZEALAND: THE LIVE DONATE NZ STUDY

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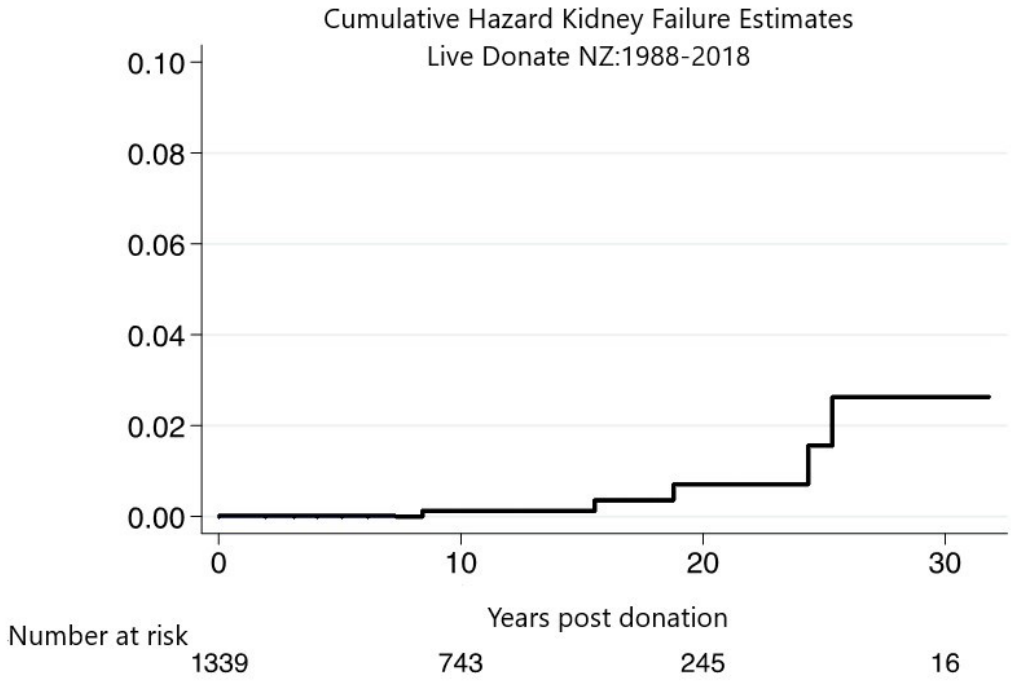
Aims: To investigate the incidence of kidney failure (KF), admission from cardiovascular disease (CVD) and death of living kidney donors in NZ.

Methods: Donors were identified via multiple sources: the NZ Blood Service, the Ministry of Health (MoH), hospital records, and the Australia and New Zealand Dialysis and Transplant (ANZDATA) Registry. Outcomes of KF, CVD and death were determined via probabilistic linkage with ANZDATA and MoH. Cumulative hazard estimates were made for KF. The incidence of CVD was developed through a competing risk model. Causes of death were analysed with descriptive statistics.

Results: There were 1339 living kidney donors from 1988-2018. The mean age at donation was 44 years (SD 11), 42% were male, and 66% were related to the recipient. Nine donors (0.6%) developed KF and commenced kidney replacement therapy (KRT). The median time to KRT was 23 years (IQR 18-30, range 8-36). The incidence rate of KF was 3 per 10,000 patient years (95% CI 1.3-7.4). The incidence rate of CVD after donation was 12 per 10,000 patient years (95% CI 7.4-18.1). 30 donors died during follow-up. Malignancy was the most common cause of death (67%) followed by cardiovascular death (20%). The median time to death after kidney donation was 13 years (IQR 6-18, range 1-28).

Conclusions: There is a low risk of KF, CVD and long-term mortality in NZ living kidney donors. A better understanding of this risk through comparison with a matched population is needed to help potential donors make informed decisions about donation.



Abstract No. 60

IMPACT OF NEW VICTORIAN KEY PERFORMANCE INDICATOR (KPI) ON RENAL TRANSPLANT WAITLISTS FOR INDIGENOUS & NON-INDIGENOUS PATIENTS

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Background: In 2012, Victoria introduced a reportable KPI for patients starting dialysis aged 18-65 targeting 30% and 40% active for transplant by 3 and 6 months respectively following start of dialysis. In 2019, the KPI was modified to include patients aged 18-70 at 6 and 12 months after commencing dialysis and removed targets. **Aims:** To determine if the KPI influenced timeliness of kidney transplant work-up for Victorians and Indigenous Australians.

Methods: Dialysis start date and listing for transplantation for patients aged 18-70 between 2007-2019 was extracted from ANZDATA. Data was divided into three-year periods. Median time to waitlist and percentage of patients waitlisted at 6 and 12 months from starting dialysis was calculated.

Results: Of 22429 (14.9% Indigenous) patients starting dialysis, 6856 (5.2% Indigenous) were listed for transplant by December 2019. A higher proportion of non-indigenous and indigenous Victorian patients were waitlisted compared to non-Victorian patients (table). The proportion of Victorian patients waitlisted at 6 and 12 months improved substantially in the 2017-2019 cohort compared to 2007-2009. The proportion of Victorian Indigenous patients waitlisted by 6m improved significantly (increase in proportion 0.19, 95% CI 0.02-0.36, P=0.04), but there was no statistically significant change in non-Victorian Indigenous patients.

Conclusion: Following introduction of the Victorian KPI, median time to waitlist was reduced and the percentage of dialysis patients on waitlist at 6 and 12 months increased. This change was seen in both indigenous and non-indigenous subgroups in Victoria. We propose a national KPI for indigenous and non-indigenous patients to improve transplant work-up.

Patient Group	Percentage of dialysis patients on wait list before 31/12/2019 by subgroup	Median time to WL (months)		Percentage of new dialysis patients on WL			
				At 6 months		At 12 months	
		2007-2009	2017-2019	2007-2009	2017-2019	2007-2009	2017-2019
Victoria non-Indigenous	37	12.8	4.2	9.6	20	16.6	27.4
Victoria Indigenous	24	11.4	7.1	0	19	7.1	28.6
Australia non-indigenous	33	11.4	6.3	9.5	12.5	17.5	19.9
Australia indigenous	10	28.5	13.7	1.5	0.6	3.9	2.2

Abstract No. 61

CREATININE AND TACROLIMUS CONCENTRATIONS OBTAINED FROM DRIED BLOOD SPOTS

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Aims: Markers of allograft function and immunosuppression need to be monitored in kidney transplant recipients. While this is usually done with venepuncture samples, volumetric dried blood spots (DBS) obtained by fingerprick are less invasive and can be transported at ambient temperature. We previously demonstrated reliable determination of tacrolimus concentrations in DBS and now aimed to develop an assay for creatinine.

Methods: Creatinine was detected by tandem mass spectrometry and samples prepared with protein precipitation and liquid chromatography. Quantification with deuterated internal standard was validated in plasma, blood, and DBS. For the latter, we used hemaPEN® which collects four 2.74 µL blood samples from a fingerprick. Finally, we compared our results of 50 patient samples with the Jaffe reaction used by our hospital laboratory.

Results: Selective quantification of creatinine was achieved with positive electrospray ionization, an aqueous mobile phase and use of a guard column. Validation occurred over the range of 44 to 884 µmol/L with imprecision < 10% and bias < 15%. Linear regression of the analytical methods applied to patient samples resulted in the equation *Creatinine in DBS = 0.64 serum creatinine - 0.4* (Figure) and likely reflects the influence of haematocrit.

Conclusions: Creatinine can be reliably measured in DBS. Together with tacrolimus, markers of both allograft function and immunosuppression can be quantified from hemaPEN® in kidney transplant recipients. DBS microsamples can be collected by fingerprick and do not require cold chain storage prior to analysis. Therefore, these tools lend themselves for use in rural and remote transplant care.

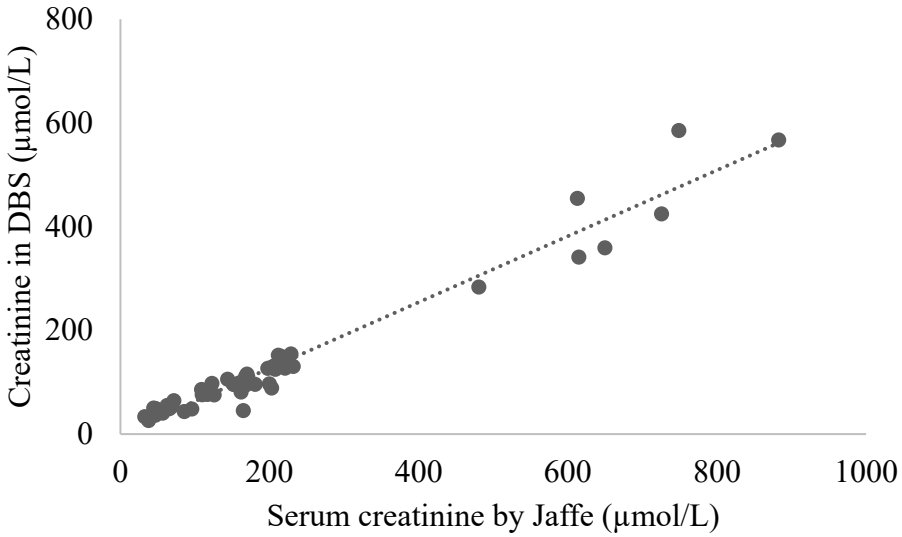

Figure: Linear regression of the analytical methods applied to patient samples.

Outcomes and Complications#2

Abstract No. 62

COMBINING DONOR DERIVED CELL-FREE DNA FRACTION AND QUANTITY TO DETECT KIDNEY TRANSPLANT REJECTION USING MOLECULAR DIAGNOSES

HALLORAN PF[1], REEVE J[1], MADILL-THOMSEN K[1], KAUR N[2], AHMED E[2], AL HAJ BADDAR N[2], DEMKO Z[2], LIANG N[2], SWENERTON R[2], ZIMMERMANN B[2], VAN HUMMELEN P[2], PREWETT A[2], TABRIZIANI H[2], GAUTHIER P[2], ESCRIG C[2], BILLINGS P[2]

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Background: Donor derived cell-free DNA (dd-cfDNA) fraction and quantity are associated with allograft rejection. Here, we validate a novel algorithm incorporating both variables to detect active rejection in renal allograft patients.

Methods: The first 367 eligible biopsy-matched plasma samples from the patients enrolled in the Trifecta study were included. Plasma dd-cfDNA was measured using the Prospera™ test. Matched biopsies were assessed using a gene expression assay (Molecular Microscope Diagnostic™; MMDx) and histology. The first 149 samples were used to select a dd-cfDNA quantity cut-off. We defined a two-threshold algorithm, which considered samples as "at-risk for rejection" if they were either >1% dd-cfDNA or the dd-cfDNA quantity cut-off, in copies/mL. The next 218 samples were used to validate the algorithm using MMDx results as truth. AUC was calculated using two independent methods based on a continuous model**.**

Results: A dd-cfDNA quantity cut-off of 78 cp/mL was selected using the test set. In the validation set, the two-threshold algorithm showed 84.5% sensitivity and 81.0% specificity, as compared to 81.7% sensitivity and 83.0% specificity using the 1% cut off, using MMDx as a comparator. The two-threshold algorithm gave sensitivities for detection of ABMR, TCMR and mixed rejection in the test set of 81% (43/53), 100% (8/8) and 80% (8/10), respectively. AUC of 0.88 was calculated for the combination of dd-cfDNA fraction and quantity by both methods.

Conclusions: The two-threshold algorithm was validated in a large, multi-center study study, with higher sensitivity than the previously validated 1% dd-cfDNA cut-off in detecting active rejection.

Abstract No. 63

BELATACEPT AND SIROLIMUS IMMUNOSUPPRESSION INCREASES CD4+FOXP3+T-REG AND CENTRAL MEMORY RESPONSE IN ISLET-TRANSPLANTATION

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[1]School of Medicine, University of Sydney, [2]Centre for Transplant and Renal Research, The Westmead Institude for Medical Research, [3]Renal and Transplantation Unit, Westmead Hospital, Sydney, [4]Islet Biology, St Vincent's Institute, Melbourne, [5]Tom Mandel Islet Transplant Program, St Vincent's Hospital, Melbourne, [6]Tom Mandel Islet Transplant Program, St Vincent's Institute, Melbourne

Aims: To understand the innate and adaptive immunophenotype associated with maintenance immunosuppression with Tacrolimus and Mycophenolate or Sirolimus and Belatacept in islet-cell transplantation. To identify cell subsets associated with graft rejection and long-term insulin independence.

Methods: Of 18 islet-transplant recipients, 5 were treated with Belatacept and sirolimus maintenance immunosuppression. Whole blood flow-cytometric immunophenotyping was performed using 45 cell markers at pre-transplantation (0-months), then 0.5-, 1-, 3- and 12-months post-transplantation. Mean cell proportions between drug groups were compared at each timepoint using Mann-Whitney U test, and against adult controls at 0-months. Non-parametric and regression analysis will be performed at 12-months comparing cell proportions against graft function according to the Igl's criteria

Results: Overall there was a significant decrease in CD3+T-cell count (p=0.007) at 12-months post-thymoglobulin induction. Eighteen cell proportions differed significantly between drug groups (Fig. 1). Absolute mean CD4:CD8 ratio was reduced in both groups and lower at all post-transplantation Belatacept timepoints. However, the CD4+Foxp3+T-regs (p=0.036) proportion was higher in the Belatacept group at 12-months, suggesting the agent spares this subset while deleting effectors. This effect was especially noticeable at 3-months where the absolute CD4+FOXP3+T-reg count was higher in the Belatacept group. Central-memory CD62L+CD45RA- and CD62L+CD45RA+ CD4+T-cells were increased, while CD62L-CD45RA-CD4+T-cells decreased, suggesting an upregulated central-memory response. This was consistent with an increased proportion of CCR7+ compared to CCR7- CD45RA+CD4+T-cells and an increased proportion of CCR7+central-memory CD25+Foxp3+T-regs.

Conclusion: Belatacept and Sirolimus use was associated with increased CD4+Foxp3+T-regs and an upregulation of the central memory response when comparted to Tacrolimus and Mycophenolate.

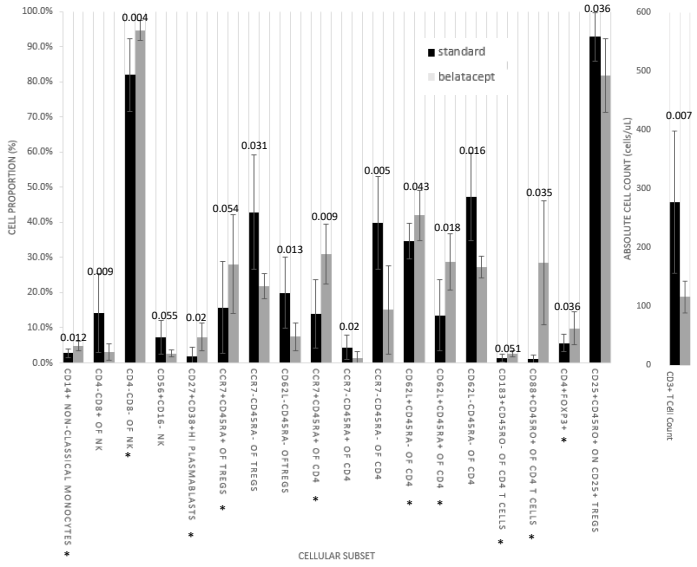

Figure 1: Mean cellular proportion and absolute cell count in patients receiving a standard (Tacrolimus and MMF) or Belatacept based (Belatacept and Sirolimus) maintenance immunosuppression at 12 months following islet-cell transplantation. Error bars are standard deviation. All subsets displayed show significant differences in means between drug groups (2-tailed Asymp. Sig.) based on Mann-Whitney U test. Asterisks indicate cellular subsets which were increased in the belatacept group

Abstract No. 64

IMPACT OF DONOR RISK INDEX ON THE OUTCOME OF LIVER TRANSPLANTATION OF URGENTLY LISTED PATIENTS IN AUSTRALIA AND NEW ZEALAND

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Australia and New Zealand (ANZ) prioritise liver transplantation for urgently listed patients with acute liver failure through a binational donor share scheme. The aims of this study were to compare the donor risk of grafts received by urgent and non-urgently listed patients, and to determine whether donor risk affects post-transplant outcomes in urgently listed patients:

Methods: This study utilised data from the ANZ Liver and Intestinal Transplant Registry from transplants occurring between January 2002 to December 2018. Donor risk was calculated with Feng's donor risk index (DRI). Multi-organ, living donor and paediatric transplants were excluded. Overall and graft survival curves were estimated using Kaplan-Meier methods and compared with log-rank testing. Wilcoxon rank-sum testing was used to compare medians.

Results: 281 urgently listed and 2,896 non-urgently listed transplants were included. 90-day, 1- and 5-year post-transplant patient survival for urgent listings was 86.2%, 82.8% and 78.8% respectively, and graft survival was 84.3%, 79.4% and 73.9%. 5-year overall survival was not significantly different between both groups, although 5-year graft survival was significantly poorer for urgent listings ($p=0.04$). The median DRI for urgently listed patients was significantly higher than for non-urgently listed patients (1.69 vs 1.44, $p<0.01$). When urgently listed recipients were stratified according to DRI, survival curves showed no differences in graft or patient survival ($p=0.90$ and 0.96, respectively).

Conclusion: Despite receiving higher DRI livers, urgently listed patients had reasonably good outcomes. Urgently listed recipients of higher risk grafts did not have significantly different outcomes from those who received lower risk grafts.

Abstract No. 65

THE IMPACT OF OBESITY ON DELAYED GRAFT FUNCTION AND SURVIVAL

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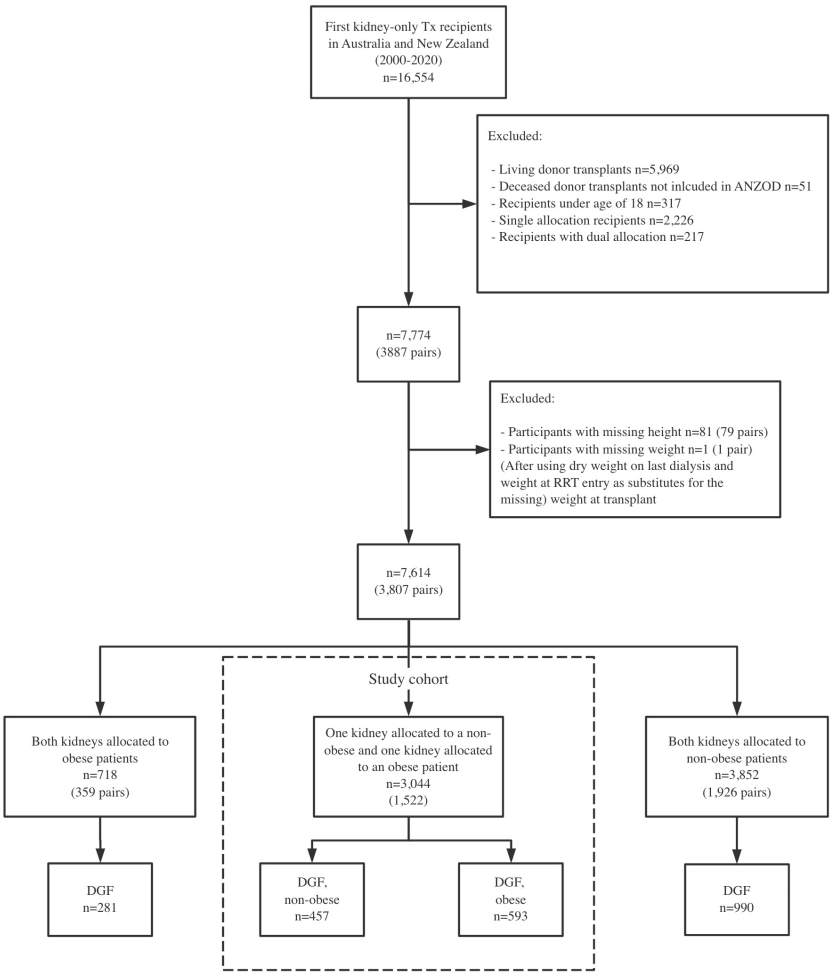
Aims: Obesity is increasingly prevalent among candidates for kidney transplantation. Existing studies have shown conflicting short and longer-term post-transplant outcomes for obese patients. We aimed to compare graft and patient survival between obese (BMI >27.5kg/m^2 for Asians; > 30kg/m^2 non-Asians) and non-obese kidney transplant recipients, while controlling for donor characteristics by comparing recipients of paired kidneys.

Methods: We accessed the ANZDATA Registry and selected all transplant pairs (2000-2020) where a deceased donor supplied one kidney to an obese patient and the other to a non-obese patient (Fig1). We compared the incidence of delayed graft function (DGF) by conditional Poisson regression, and graft failure and death by Stratified Cox regression.

Results: The proportion of obese recipients doubled between 2000-2020 (19% vs. 40%). Of the 1,522 pairs identified, 593 (39%) obese recipients experienced DGF vs. 457 (30%) non-obese recipients (Fig1). Obesity was associated with a 26% increased risk of DGF (aRR 1.26, 95% CI 1.11-1.44, p<0.001). Obese recipients were more likely to experience death-censored graft failure (aHR 1.25, 95% CI 1.05-1.49, p=0.012), and 1.3 times more likely to die prematurely with function (aHR 1.32, 95% CI 1.15-1.56, p=0.001), versus non-obese pair. Long-term patient survival was significantly better in non-obese recipients with 10-, 15-, 20-year survival of 77%, 63%, 54% compared to 71%, 56% and 37% in obese patients.

Conclusions: We found that obesity was strongly associated with an increased risk of DGF and inferior long-term outcomes. Addressing obesity is an unmet clinical need in kidney transplantation.

Figure 1. Flowchart of recipients included in the study cohort



Basic Science: Emerging Biomarkers and Techniques

Abstract No. 66

BILIARY REGENERATION DURING LONG-TERM EX-VIVO NORMOTHERMIC MACHINE PERFUSION

LY M[1], LAU N[1], DENNIS C[2], HUANG JL[1], TOOMATH S[1], CABANES-CREUS M[1], MCKENZIE C[2], KENCH J[2], MAJUMDAR A[3], GORRELL M[4], MCCAUGHAN G[3], CRAWFORD M[1], PULITANO C[1]

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Introduction: Biliary strictures after liver transplantation are hypothesised to result from an imbalance between biliary injury and biliary regeneration. Evaluation of biliary regeneration can, in theory, identify grafts likely to develop a biliary stricture. Assessment of biliary regeneration before transplantation is currently not possible due the 24-hour delay in cholangiocyte proliferation. We have developed a method of long-term ex-vivo normothermic machine perfusion (NMP) that can support grafts beyond 24 hours. This study was performed to investigate biliary regeneration during long-term ex-vivo NMP.

Methods: Human livers unsuitable for transplantation were perfused at normothermia beyond 24 hours. Long-term perfusion was achieved using a modified commercial system including dialysis, hormonal and nutritional support. Serial biopsies of the bile duct were collected throughout perfusion for histopathology. Biopsies were examined for presence of biliary epithelium and compared between time-points. Bile biochemistry was also measured.

Results: Eleven grafts were evaluated using long-term NMP up to 13 days. Grafts were unsuitable for transplantation due to medically unsuitable donor (n=2), steatosis (n=2) and donation after circulatory death (n=7). Nine grafts (82%) had complete biliary epithelial loss within 24 hours reperfusion. After 44 hours of perfusion, biliary epithelium was identified in seven grafts (78%) suggesting re-epithelisation. Presence of epithelium was not correlated with bile pH or glucose.

Conclusions: This is the first study to demonstrate biliary regeneration after 24 hours of NMP. Long-term NMP has the potential to assess biliary regeneration and identify grafts likely to develop biliary stricture after transplant. Additional biomarkers for biliary regeneration are being investigated.

Abstract No. 67

RIPK1 AND RIK3 PLAY A ROLE IN RENAL FIBROSIS FOLLOWING ISCHEMIA REPERFUSION INJURY

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Background: Ischemia reperfusion injury (IRI) following transplantation results in progressive organ fibrosis, affecting long-term graft outcomes. The pathogenesis is poorly understood, and there are no early clinical interventions that reduce fibrosis. The intracellular kinases RIPK1 and RIPK3 mediate necroptotic cell death and may have an independent role in fibrogenesis.

Aims: (i) To establish a mouse model of IRI-mediated renal fibrosis. (ii) Using this model, characterise changes in RIPK1 and RIPK3 expression following IRI, and (iii) determine the effect of blocking RIPK1 or RIPK3 activity on the development of fibrosis.

Methods: 10-12 week old male C57BL/6 mice underwent left renal pedicle clamping for 20-minutes. Mice were treated with a RIPK1 inhibitor (Nec-1s), a RIPK3 inhibitor (GSK872) or vehicle control daily on days 3-9 following the initial acute kidney injury. Kidneys were collected on day 28 to assess renal fibrosis (Masson's trichrome staining) and relevant gene expression (qRT-PCR).

Results: Vehicle-treated mice showed significant renal fibrosis 28-days after IRI compared to sham (fibrosis score 28.68±1.25 vs 2.33±0.11, p=0.0025), with increased expression of RIPK1 (p=0.0079), RIPK3 (p=0.0025), and the pro-fibrotic genes TGFb (p=0.0025), HIF1a (p=0.0025) and Col-1 (p=0.0025). Inhibiting RIPK1 or RIPK3 on days 3-9 resulted in reduced renal fibrosis at 28 days (Figure 1).

Conclusions: Data from our established model support a cell-death independent role for RIPK1 and RIPK3 in the pathogenesis of renal fibrosis following IRI. Further work optimising the dose, timing and combination therapy is underway. Inhibiting RIPK1 and/or RIPK3 may provide a novel therapeutic strategy to minimise long-term graft fibrosis.

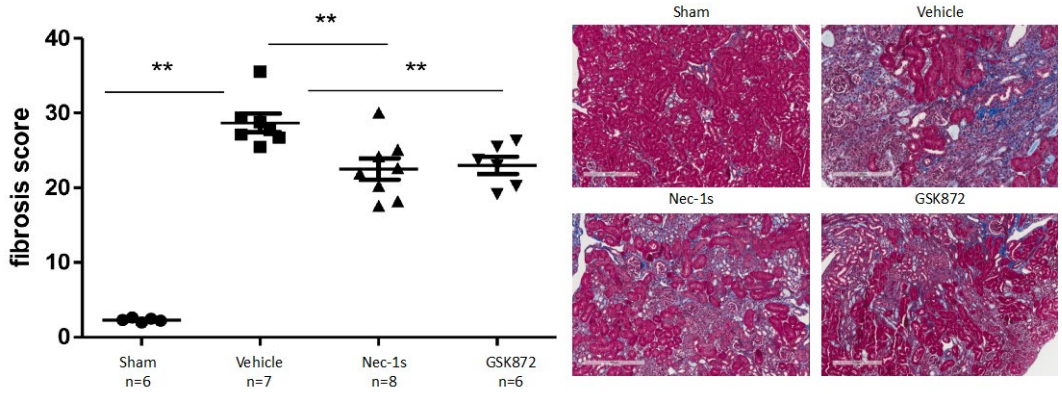

Figure 1. Renal fibrosis score on day 28 after IRI of mice receiving Nec-1s, GSK872 or vehicle control on days 3-9, compared to sham (left). Masson's trichrome staining of mouse kidney sections with collagen staining in blue (right). *t test; ** $p<0.01$, Data presented as mean ± SEM*

Abstract No. 68

FAECAL MICROBIOTA TRANSFER REDUCES ACUTE GRAFT-VERSUS-HOST DISEASE VIA IGA AND MUCIN SECRETION IN THE GASTROINTESTINAL TRACT

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[1]Transplantation Immunology Laboratory, QIMR Berghofer Medical Research Institute, [2]School of Chemistry and Molecular Biosciences - Australian Centre for Ecogenomics, University of Queensland, [3]Transplantation Laboratory, QIMR Berghofer Medical Research Institute, [4]Mater Research Institute - University of Queensland, Translational Research Institute, [5]Envoi Specialist Pathologists, [6]Clinical Research Division, Fred Hutchinson Cancer Research Center

Acute graft-versus-host disease (aGVHD) limits the success of allogeneic bone marrow transplantation (alloBMT). aGVHD of the gastrointestinal (GI)-tract is commonly lethal due to barrier integrity destruction. Low diversity in gut microbiota has been shown to be a predictor of GVHD-related mortality in alloBMT. Clinical studies examining the efficacy of faecal microbiota transplantation (FMT) to reconstitute normal microbiota and reduce GVHD are ambiguous, likely reflecting variable products, modes of delivery and patient cohorts. We thus established a murine model of FMT in alloBMT to interrogate predictors of success. This showed that FMT attenuated aGVHD and improved survival. Gut microbial profiling by 16S rRNA sequencing revealed that while FMT did not restore diversity, the post-transplant community differed between FMT and non-FMT mice. Of the mice which displayed a more robust microbiome shift in response to FMT, discrimination between these responders and non-responders was driven by members of the Muribaculaceae, Lachnospiraceae and Deferribacteraceae families. Confocal microscopy of the GI-tract revealed increased IgA deposition and Muc2 expression in responders after FMT, suggesting immunomodulatory bacteria may improve transplant outcome by invoking IgA and mucin secretion to reinstate barrier integrity. To determine whether host-derived IgA was critical in attenuating GVHD, we transplanted polymeric Immunoglobulin receptor (pIgR) deficient mice which lack the ability to transport IgA across epithelia. Compared to wild-type, pIgR-/- recipients displayed increased aGVHD demonstrating protection by host IgA. Interestingly, patients with GVHD remain chronically IgA-deficient, potentially identifying this as a feed forward mechanism maintaining and amplifying gut GVHD. In sum, we identify protective organisms and downstream immunomodulatory benefits of FMT that will serve as a basis for optimization strategies.

Abstract No. 69

TRANSCRIPTOMIC ANALYSIS IDENTIFIES A TOLEROGENIC DENDRITIC CELL SIGNATURE

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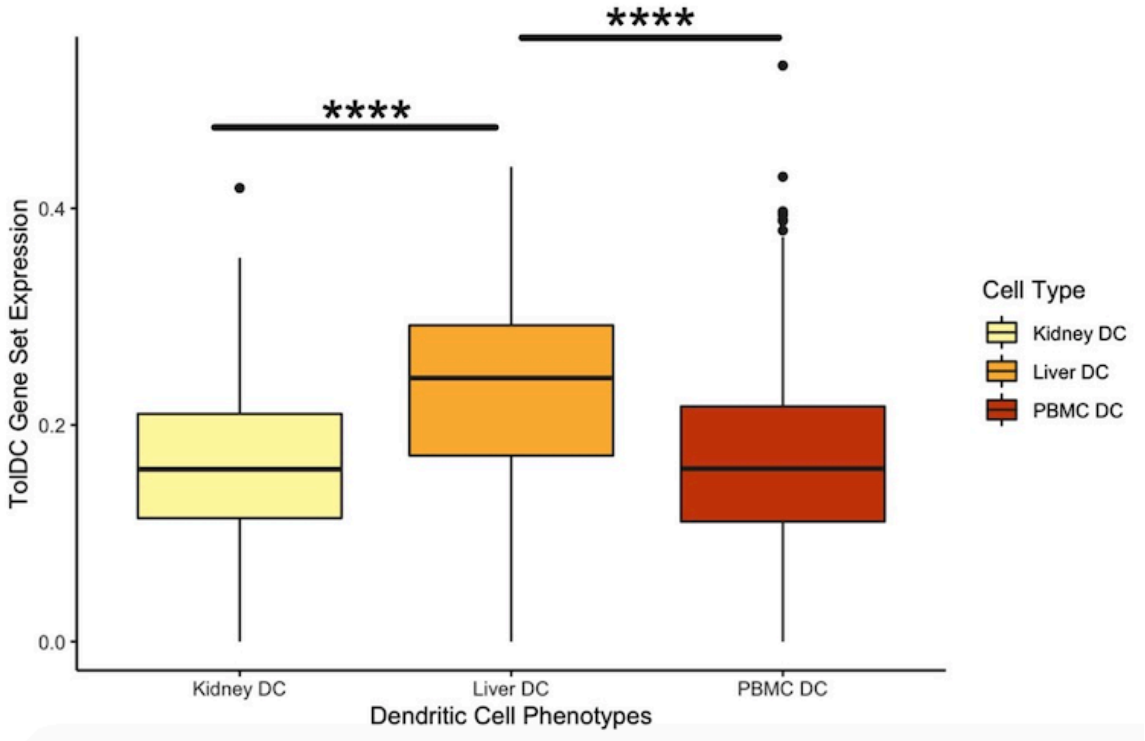
Introduction: Dendritic cells (DC) are central to regulating innate and adaptive immune responses. Strategies that modify DC function have provided new therapeutic opportunities in transplantation. Current pharmacological approaches can alter DC phenotype to induce tolerogenic DC (tolDC), a maturation-resistant DC subset capable of directing a regulatory immune response that are being explored in current clinical trials in transplantation. The classical phenotypic characterization of tolDC is limited to cell-surface marker expression and anti-inflammatory cytokine production, although these are not specific for current clinical trials. TolDC may be better defined using gene signatures, but there is no consensus definition regarding genotypic markers. **Methods:** We address this shortcoming by analysing available transcriptomic data to yield an independent set of differentially expressed genes that characterize human tolDC. We have validated this transcriptomic signature and also explored gene differences according to the method of tolDC generation.

Results: We established a set of 53 genes that accurately described the human tolDC genotype. The dataset was also validated in three independent, publicly available tolDC RNAseq datasets. Further, we utilised single cell RNAseq to establish that DCs isolated from the liver appeared to be more correlated with tolDCs than any other organ.

Discussion: Our panel of 53 genes may serve to independently quantify the regulatory capacity of a tolDC prior to clinical trial administration. Our finding, that DCs isolated from the liver are more tolerogenic than other organs may provide reasoning for the decreased incidence of rejection and resistance to ischemic perfusion injury within the liver.



TolDC gene set expression in dendritic cells (DC) isolated from respective organs.

Posters

Abstract No. 70

RECIPIENT AT1R ANTIBODY STATUS AND RISK OF KIDNEY REJECTION IN SIMULTANEOUS PANCREAS AND KIDNEY TRANSPLANTATION

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Aims: In kidney transplantation there is a well described relationship between raised serum AT1R antibody levels and the risk of rejection. The relevance of this non-HLA antibody in patients undergoing a dual organ transplant such as liver kidney or pancreas kidney is not known. In this study we evaluate the risks of kidney rejection in a cohort of patients undergoing simultaneous pancreas and kidney transplantation at a single centre from August 2018.

Methods: Prospectively collected data of 12 consecutive simultaneous pancreas and kidney transplants was analysed. A steroid free immunosuppression protocol with Antithymocyte globulin (ATG) induction, and Tacrolimus and Mycophenolate Mofetil maintenance was used. The need for a renal biopsy was based on biological parameters. The median follow-up of this cohort is 705 days (range 65 to 1292 days).

Results: 12 Simultaneous Pancreas and Kidney transplants were performed. AT1R results were available for all 12 recipients. 7/12 transplants had AT1R Ab andgt;20U/mL and 5 had andgt;40U/mL. Only 1 transplant had biopsy proven rejection in the setting of delayed graft function and low tacrolimus levels. The one-year rejection free graft survival is 93% and patient survival 100%.

Conclusions: In this early experience we have not seen an association of high AT1R antibody levels and rejection in the renal allograft in patients undergoing Simultaneous Pancreas and Kidney transplantation.

Abstract No. 71

CAN EARLY SF36 ASSESSMENT OF QOL IN SPK TRANSPLANTS IDENTIFY PATIENTS WHO MAY BENEFIT WITH INTENSIVE PSYCHOLOGY SUPPORT?

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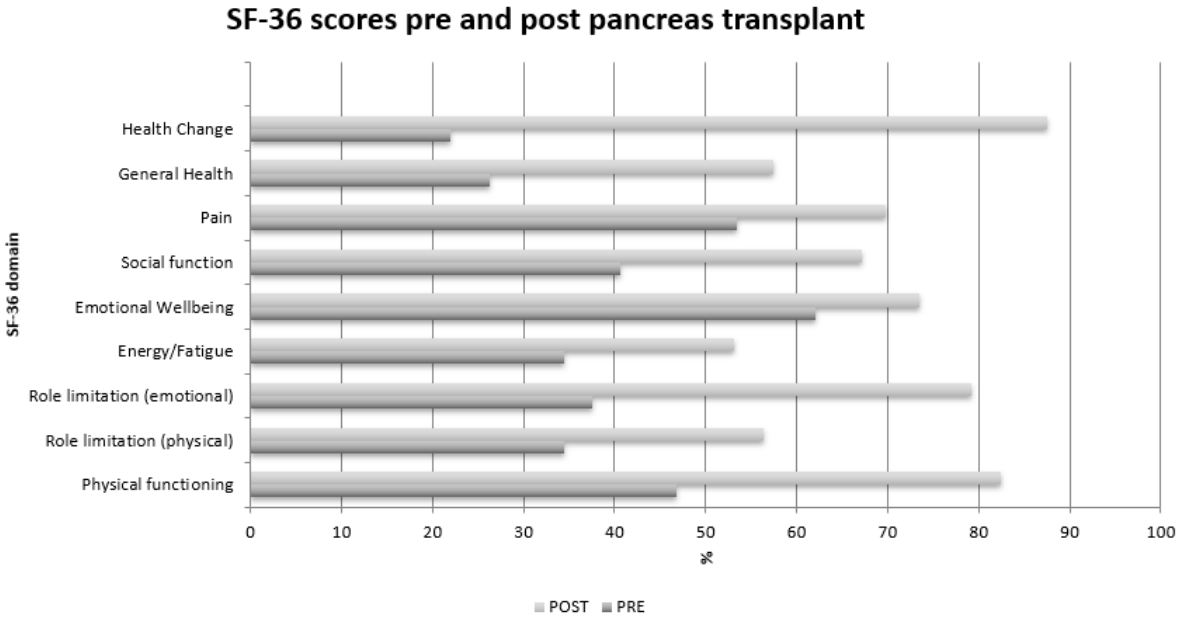
[1]Central Northern Adelaide Renal and Transplantation Service, Royal Adelaide Hospital

Aim: Simultaneous pancreas and kidney transplant from a deceased donor is the preferred option for suitable patients with Type 1 diabetes and kidney failure. Studies that have used the SF36 questionnaire to assess QOL have usually been conducted late using recall to assess pre-operative health, or comparison to a similar age matched cohort of pre-transplant patients with Type 1 diabetes and associated kidney failure. There is a well-established relationship between high psychopathology scores and poor QOL. The aim of this study was to identify whether an early SF36 performed within the first 3 months following a SPK transplant could identify recipients with low emotional wellbeing scores who can then be offered more intensive psychological support. **Methods:** After receiving local ethics approval, whole pancreas transplant recipients were given survey questionnaires to complete. Recall based pre-and post-transplant; data was collected using the SF-36 (a standardized survey assessing quality of life following a medical procedure) **Results:** 14 transplant recipients responded. Graph 1 shows the change in scores across the domains assessed. Domains demonstrating significant improvement post-transplant include physical functioning and health change. These showed a andgt;40% increase in the scores post-transplant. While all domains saw improvement post-transplant, 2 out of 14 recipients showed lower improvements in wellbeing scores following transplant. **Conclusions:** An early SF36 QOL questionnaire has the potential to identify a subgroup of patients who have lower emotional wellbeing scores following a successful SPK transplant. Additional psychological support may allow further gains to be achieved post transplantation.



Abstract No. 72

TWO-YEAR REJECTION RISK IN KIDNEY TRANSPLANT RECIPIENTS FOLLOWING MYCOPHENOLATE DOSE REDUCTION IN AUSTRALIA AND NEW ZEALAND

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[1]Department of Renal Medicine, Eastern Health Clinical School, Monash University, [2]Department of Nephrology, Monash Medical Centre, Melbourne

Aims: Mycophenolate dose reduction (MDR) is associated with acute rejection and graft failure in kidney transplant recipients (KTRs). The maintenance mycophenolate dose associated with rejection remains poorly defined.
Methods: Using ANZDATA, we assessed KTRs from 2005-2017 initiated on mycophenolate mofetil 2000mg/day, tacrolimus and prednisolone. KTRs with rejection within the first 30 days post-transplant were excluded. Factors associated with MDR to <1500mg/day by 6 months post-transplant were examined by logistic regression. The association of rejection with mycophenolate dose was examined by Cox proportional hazards regression with mycophenolate dose treated as a time varying covariate.
Results: Of the 3754 KTRs identified, 25.9%, 30.7% and 7.3% had MDR to 1500-1999mg/day, <1500mg/day or discontinued/withheld mycophenolate by 6 months respectively. Recipient age ≥60 years (OR 1.20; 95% CI 1.01-1.42), donor age (OR 1.007; 95% CI 1.002-1.012), delayed graft function (OR 1.78; 95% CI 1.48-2.12), thymoglobulin induction (OR 1.69; 95% CI 1.20-2.37) and transplant centre jurisdictions were independently associated with MDR at 6 months. The Cox regression demonstrated a stepwise increase in rejection risk with progressively lower mycophenolate doses. Although recipients aged ≥60 years had a lower risk of rejection (HR 0.72; 95% CI 0.56-0.91), the association of reduced mycophenolate dose with rejection risk was also observed in this age group, with the regression analysis stratified by recipient age <60 and ≥60 years (Table 1).
Conclusions: MDR was common and associated with an increased rejection risk at doses of <1500mg/day. Identifying KTRs at risk of rejection following MDR to optimise the maintenance dose is warranted.

Table 1

	All recipient age n=3617 HR (95% CI)	Recipient age <60 n=2770 HR (95% CI)	Recipient age ≥60 n=847 HR (95% CI)
Mycophenolate dose 1500-1999mg/d 1000-1499mg/d <1000mg/d	 1.21 (0.95-1.54); P=0.13 1.65 (1.28-2.14); P<0.001 1.98 (1.30-3.01); P=0.001	 1.19 (0.91-1.55); P=0.20 1.40 (1.05-1.88); P=0.024 1.79 (1.11-2.87); P=0.017	 1.35 (0.73-2.49); P=0.34 2.98 (1.68-5.29); P<0.001 3.05 (1.25-7.45); P=0.014
Recipient age ≥60 years	0.72 (0.56-0.91); P=0.006	-	-
HLA DR mismatch 1 2	 1.57 (1.22-2.02); P<0.001 1.74 (1.34-2.26); P<0.001	 1.70 (1.28-2.25); P<0.001 1.78 (1.32-2.39); P<0.001	 1.11 (0.62-1.99); P=0.72 1.55 (0.88-2.71); P=0.13
Delayed graft function	1.23 (0.98-1.53); P=0.07	1.27 (0.99-1.64); P=0.06	1.12 (0.70-1.78); P=0.64
Transplant era 2011-17 vs 2005-10	 1.21 (0.99-1.48); P=0.06	 1.16 (0.93-1.44); P=0.18	 1.62 (0.94-2.80); P=0.08

Abstract No. 73

USE OF DD-CFDNA TO GUIDE TAPERING OF IMMUNOSUPPRESSION THERAPY IN KIDNEY TRANSPLANT RECIPIENTS

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Background: Immunosuppressive therapy (IST) is required to avoid graft rejection but can cause significant side effects. Donor derived cell free DNA (dd-cfDNA) is a validated biomarker associated with allograft rejection. In this observational study, an independent physician used dd-cfDNA to guide IST reduction and minimize risk for allograft rejection.

Methods: Kidney transplant (KT) patients (n=24) who were considered low-risk for rejection by the physician had monthly dd-cfDNA testing (Prospera™, Natera, Inc.) for 7 months. IST was reduced for patients with low dd-cfDNA at month 1. At each visit, IST treatment and dosages were recorded, and allograft outcomes were recorded at the last visit.

Results: At visit 1, dd-cfDNA were <1% for 19 patients and ≥1% for 5 patients. For the former, reduction in MMF dosing was the most common IST modification, with a target dose of 1000 mg/day (Figure 1). Among the 22 patients administered MMF (dd-cfDNA <1%: n=18, dd-cfDNA ≥1%: n=4), dosage was adjusted for 17 patients with dd-cfDNA <1%, and 1 patient with dd-cfDNA ≥1%. Dosage of MMF remained constant in 3/4 of the patients with dd-cfDNA ≥1% (Figure 1). Among the patients with initially high dd-cfDNA and no IST reduction, adverse events (rejection and/or graft failure) occurred in 50% (2/4), among patients with initially low dd-cfDNA and IST reduction, no (0/18) adverse events were observed. (Figure 1*).

Conclusions: This observational study shows that dd-cfDNA measurement surveillance can inform physicians' own decision making in adjusting IST while minimizing allograft rejection.

Abstract No. 74

MYCOPHENOLIC ACID AREA UNDER THE CURVE ASSESSMENT AFTER MYCOPHENOLATE MOFETIL DOSE REDUCTION IN KIDNEY TRANSPLANT RECIPIENTS

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Aim To examine the utility of assessing mycophenolic acid area under the curve (MPA-AUC_{0-12}) following adverse event driven mycophenolate mofetil (MMF) dose reduction in kidney transplant recipients (KTRs), to guide subsequent MMF dosing.

Background MMF dose reduction and MPA underexposure are associated with acute rejection and graft loss. Universal MPA-AUC_{0-12} provides the opportunity to avoid this but is labour intensive. We examined our approach of targeted MPA-AUC_{0-12} testing post-dose reduction since 2016.

Methods A retrospective single centre analysis of MPA exposure in KTRs receiving tacrolimus, MMF and prednisolone who had adverse event driven MMF dose reduction to ≤1000mg/day in the first 12 months post-transplant was conducted. Estimated MPA-AUC_{0-12} was assessed following dose reduction, along with impact on subsequent dose changes.

Results Sixty-eight post-reduction MPA-AUC_{0-12} measurements were performed in 61 KTRs. Following initial dose reduction, MPA-AUC_{0-12} triggered a dose increase in 13% and allowed further dose reduction in 17%, whilst 70% of KTRs continued on the reduced dose. Compared to KTRs who continued on the reduced dose or had their dose further reduced, those who subsequently increased their dose had a lower AUC_{0-12} (P=0.036). Median MPA-AUC_{0-12} after reduction was lower at 500mg/day than 1000mg/day (P=0.048) (Table 1). Notably, 90% of those on 500mg/day were maintained on the reduced dose.

Conclusion MPA-AUC_{0-12} following reduction identified: those with significant underexposure requiring restoration of former dose; those capable of further dose reduction; and those who had adequate exposure, even at 500mg/day. This study supports the targeted use of MPA-AUC_{0-12} in those requiring dose reduction.

Table 1

	1000mg/day (n=58)	500mg/day (n=10)	P value
Median AUC (IQR) (mg/L.h)	34.5 (27.9-45.1)	27.0 (16.9-36.8)	0.048ǂ
Proportions of AUC levels (n (%))			0.011¶
<20mg/L.h (low)	0 (0%)	3 (30%)	
20-29.9mg/L.h	17 (30%)	3 (30%)	
30-60mg/L.h (target range)	37 (64%)	4 (40%)	
>60mg/L.h (high)	2 (3%)	0 (0%)	
Invalid	2 (3%)	0 (0%)	
Proportion of KTRs with subsequent dose changes post-dose reduction (n (%))*			0.471¶
Dose maintained	38 (70%)	9 (90%)	
Dose reduced	9 (17%)	0 (0%)	
Dose increased	7 (13%)	1 (10%)	
Median AUC post-dose reduction stratified by subsequent dose changes (mg/L.h)			0.036¥
Dose maintained	34.5 (28.01-43.1)		
Dose reduced	34.6 (31.1-49.9)		
Dose increased	24.8 (20.3-30.1)		

*Excluded: n=2 with invalid AUC results and n=2 with subsequent switch to everolimus

ǂMann-Whitney U-test

¶Fisher's exact test

¥Kruskal-Wallis test comparing AUC results across 3 outcomes of subsequent dose changes

Abstract No. 75

BELATACEPT FOR ACUTE T-CELL MEDIATED REJECTION AND MAINTENANCE IMMUNOSUPPRESSION IN A PEDIATRIC KIDNEY TRANSPLANT RECIPIENT

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Belatacept selectively inhibits T-cell activation by blocking surface ligands CD80 and CD86 on antigen presenting cells. Its role and safety in de-novo immunosuppression as an alternative to calcineurin inhibitors (CNIs) in kidney transplant recipients has been well reported.[2] Initial evidence indicated reduced risk of de-novo donor specific antibody formation, but increased risk of T-cell mediated rejection (TCMR). However, improved outcomes have been reported using a weaning regimen of tacrolimus rather than total CNI avoidance. Here we report the case of a 13-year old female with end stage renal failure secondary to focal segmental glomerulosclerosis. She underwent a deceased donor renal transplant that was well matched, complicated by vascular TCMR at 12 months treated with belatacept after failing conventional therapies. Her graft function has normalized with this therapy.

We suggest that the introduction of belatacept in conjunction with an extended CNI wean may be a safe and effective strategy in selected patients with TCMR in whom other options have been exhausted.

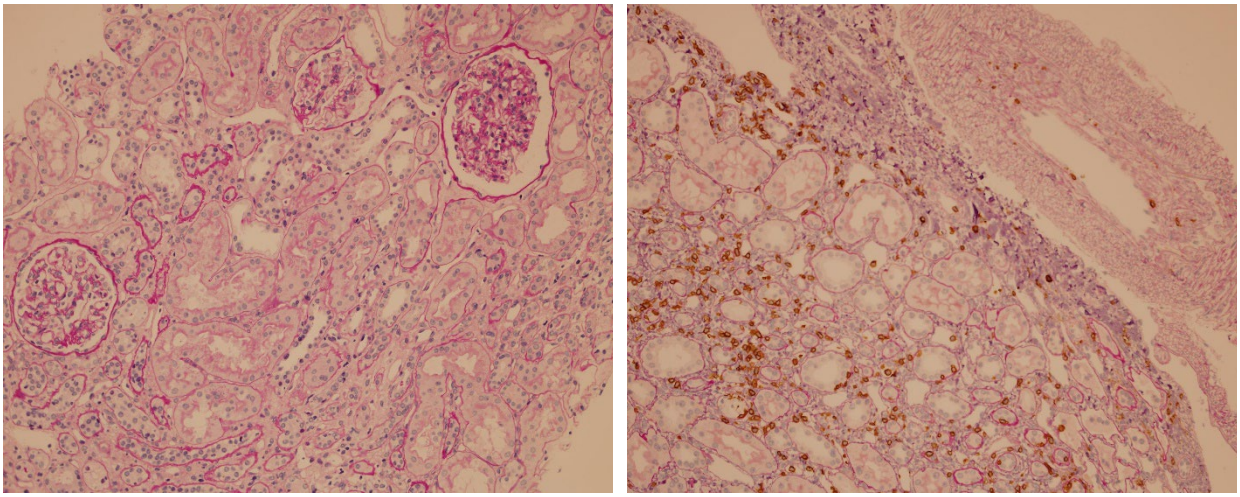

Figure 1 Kidney transplant biopsy demonstrating acute T-cell mediated rejection

Abstract No. 76

INTERIM SAFETY ANALYSIS OF SWITCHING MYCOPHENOLATE TO SIROLIMUS ENHANCING COVID VACCINE RESPONSE IN KIDNEY TRANSPLANT RECIPIENTS

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Background: Kidney transplant recipients (KTR) have inadequate responses to 2-dose COVID-19 vaccination schedules and have increased risk of severe COVID-19. In observational studies, KTR receiving mTOR inhibitors had improved immunological responses to COVID-19 vaccines. We performed a randomised controlled trial in KTR switching mycophenolate to sirolimus prior to a 3rd dose of COVID-19 vaccine to enhance immune responses. Here we provide an interim safety report for the sirolimus arm.

Methods: KTR aged 18 – 75 receiving tacrolimus, mycophenolate and corticosteroid with inadequate response to 2 doses of COVID-19 vaccine (defined by anti-RBD IgG<100U/mL) and no history of COVID-19 infection were recruited from 2 transplant centres. Patients required estimated GFR>25 mL/min and urinary ACR<100 mg/mmol. Patients were randomised 1:1 to continue mycophenolate or switch to sirolimus (trough target 6ng/mL). All patients received 3rd dose of BNT162b2 vaccine, with immunological responses measured 4-6 weeks later.

Results: To date 54 patients have been enrolled, with 28 randomised to sirolimus switch. Sirolimus patients were 71.4% male, mean age 57.4±10.5 years, mean graft age 6.2±5.4 years. Mean serum trough concentrations of sirolimus were 6.4 ± 1.4µg/L and tacrolimus 6.1±1.2µg/L. No serious adverse events or tolerability issues have been reported in the sirolimus cohort. Graft parameters were not different between baseline and end-of-trial (mean eGFR 61.0±19.0 µmol/L vs 60.5±22.0 µmol/L, p=0.8, urinary ACR (mean 5.4±8.3 vs 17.4±41.5, p=0.1), respectively.

Conclusions: Sirolimus switch has been safe and well-tolerated. This trial will determine whether mTOR switch will enhance COVID-19 vaccine responses in KTR, as compared to standard of care.

Abstract No. 77

A RANDOMIZED, CONTROLLED, BLINDED TRIAL OF INULIN VS PLACEBO TO BOOST COVID-19 VACCINE RESPONSE IN KIDNEY TRANSPLANT RECIPIENTS

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Aims: Kidney transplant recipients (KTR) commonly exhibit inadequate responses to 2-dose COVID-19 vaccination schedules and remain at increased risk of severe COVID-19. Gut dysbiosis is common among KTRs and is associated with poor vaccine responses. We hypothesised that a dietary fibre supplement may correct dysbiosis and enhance responses to a third dose of COVID-19 vaccine in KTRs.

Methods: KTRs who had received 2 doses of a COVID-19 vaccine were recruited from 2 Australian transplant programs. KTRs with an inadequate response (anti-RBD <100U/mL) were randomised to receive inulin (fibre) or maltodextran (control), 10g dissolved in 200ml water twice daily for 4 weeks prior, and 4 weeks after a 3rd vaccine, at which time vaccine response was measured by anti-RBD titre, vaccine-specific B and T cell responses, and 16s-rRNA sequencing of the faecal metagenome.

Results: Of 85 KTRs screened, 71 had baseline anti-RBD<100U/mL and were randomised to inulin (n=37) or control (n=34). Participants were 33% female, mean age 59±11, with mean eGFR 56±24 ml/min/1.73m^2, and were predominantly receiving tacrolimus, mycophenolate and prednisolone. All participants received a third dose of a mRNA COVID-19 vaccine after receiving a dietary supplement for 4-weeks. Week 8 assessment of vaccine response, supplement tolerability and change in microbiome are ongoing. Four participants tested positive for COVID-19 during the study.

Conclusion: Gut dysbiosis is one potential contributor to the poor COVID-19 vaccine responses exhibited by KTRs. This trial will determine whether a simple dietary fibre supplement is well tolerated and effective in correcting gut dysbiosis and restoring vaccine responsiveness.

Abstract No. 78

GUT DYSBIOSIS MAY CONTRIBUTE TO THE SUBOPTIMAL IMMUNE RESPONSE TO COVID-19 VACCINATION IN KIDNEY TRANSPLANT RECIPIENTS

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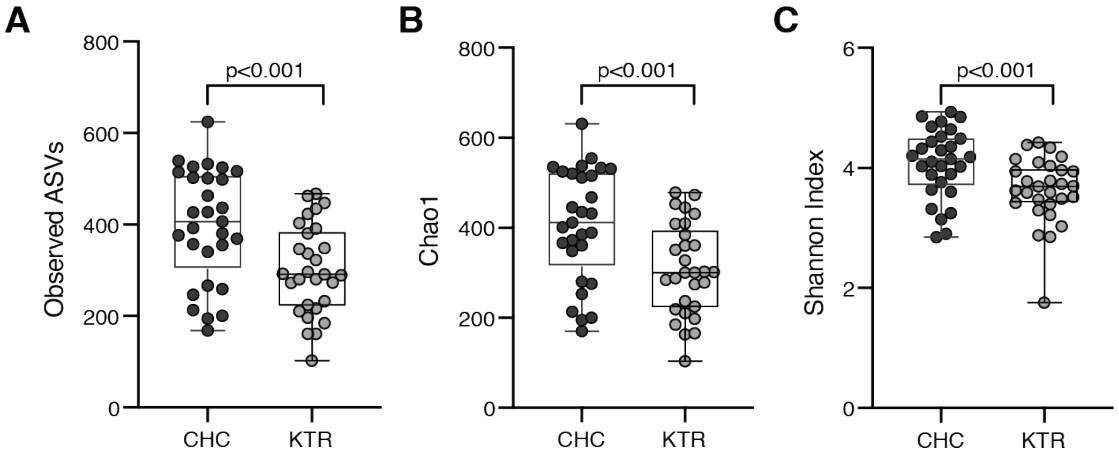
Aims: Kidney transplant recipients (KTRs) frequently exhibit a suboptimal immune response to COVID-19 vaccination. Inadequate vaccine responses have been linked to alterations in the gut microbiome. We therefore explored the relationship between the gut metagenome and COVID-19 vaccine responses in KTRs.

Methods: Using 16s-rRNA sequencing, we compared the faecal metagenome of KTRs (n=27) and healthy cohabitant controls (CHC, n=27) at the time of vaccination in a prospective observational clinical trial. Vaccine efficacy was determined by SARS-CoV-2 anti-RBD IgG.

Results: KTRs were age-matched to their CHCs (mean 66±8), with a mean eGFR 54.8±18 ml/min/1.73m^2, and were most commonly taking tacrolimus, mycophenolate, and prednisolone. Following a 2-dose vaccination schedule, protective immunity (anti-RBD>100U/mL) was achieved in 100% of CHCs, and 11% of KTRs ($p<0.001$). Compared to paired CHCs, KTRs were dysbiotic with a loss of microbial richness (Chao, $p<0.001$) and diversity (Shannon index, $p<0.001$, Figure 1). The microbial communities of KTRs were more closely related to that of their paired CHC, than to other KTRs, or unpaired healthy controls ($p=0.02$). Using a multivariate association model, we identified differentially abundant microbiota in KTRs associated with mycophenolate use (3 taxa) and vaccine response (6 taxa) (qval<0.05).

Conclusions: Dysbiosis is common in KTRs, and loss of bacterial taxa may be associated with subsequent inadequate vaccine responses. Whilst immunosuppression use influences the microbial community, environmental determinants such as diet remain a significant factor. The potential for pre- and pro-biotic interventions to modify the microbiota and restore protective immunity in KTRs remains an attractive therapeutic option.



Abstract No. 79

UTILITY OF SERIAL ANTI-A/B BLOOD GROUP ANTIBODY TESTING TO ALLOW ABO INCOMPATIBLE DECEASED DONOR RENAL TRANSPLANTATION

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Aims: Deceased donor ABO incompatible (ddABOi) kidney transplantation is not adopted because of uncertainty about benefit and a reliable method to identify suitable recipients. We established a ddABOi program and measured ABO titres in patients entering the transplant wait list (TWL).
Methods: Review of 257 transplanted (149) or TWL (108) from 2018-2022 with ABO antibody testing by tube haemagglutination to determine eligibility for ddABOi transplant (IgG anti-A/B ≤ 1:32).
Results: Group O 118/137 (86%), A 85/91 (93%) and B 28/29 (97%) had ≥ 1 Anti-A/B titres measured at TWL entry and 6-monthly. For Anti-A, Group O 29/118 (25%) and Group B 15/28 (54%) and for Anti-B Group O 39/118 (33%) and Group A 54/85 (64%) were potentially suited to ddABOi transplant at entry (Table). 58% of O and B and 52% of O and A recipients had more than 1 anti-A/B titre respectively (median 2 IQR 1-3) with a median of 0 (IQR -1 to 1) titre change but a range of -3 to 9 titre variation. The patients with a titre ≤ 1:32 at entry, last follow up and the change (delta %) is shown (Table). Between 10-25% of TWL moved in/out of the ≤1:32 group. Compared with entry titres, Group 0 had 78% & 81% anti-A/B stability, Group A 90% anti-B stability and Group B 70% anti-A stability.
Conclusions: Repeated anti blood group titres identifies a significant proportion of potential ddABOi TWL recipients with a high degree of intra-individual stability. Additional study and cross centre validation is required to develop a national ddABOi program.

A/B ≤ 1:32	A entry	A last	Delta* (%)	B entry	B last	% delta
O = 118	29 (25%)	27 (23%)	14 (12%)	39 (33%)	43(36%)	12 (10%)
A = 85	-	-	-	54 (64%)	55 (64%)	11 (13%)
B = 28	15 (54%)	20 (71%)	7 (25%)	-	-	-

*Delta % = sum of patients leaving&entering <1:32 category/total

Abstract No. 80

THE FIRST REPORTED CASE OF SUCCESSFUL KIDNEY TRANSPLANT OUTCOMES FROM A RECENTLY COVID-19 POSITIVE DONOR IN AUSTRALIA

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BACKGROUND: COVID-19 has significantly impacted Australian and international deceased donor transplant rates. Furthermore, the utility and safety of transplanting organs from donors with recent COVID-19 infection has been of interest. We report the outcomes of the first kidneys accepted for transplantation from a COVID-19 PCR-positive deceased donor in Australia.
CASE DETAILS: A 49yo obese female required intubation and extracorporeal membrane oxygenation (ECMO) on day 5 post-COVID-19 infection. She remained PCR positive at day 17, but given high cycle threshold (CT) values (>40) was deemed very low infectious risk and de-isolated from COVID-19 precautions. Superimposed nosocomial respiratory sepsis led to respiratory failure despite antibiotics and ECMO support. She was referred for potential donation after circulatory death (DCD) on day 30. Donor kidney function was normal (terminal creatinine 83umol/L). Retrieval biopsies reported normal histology and were COVID-19 PCR negative.
A 24yo male and 64yo female received the left and right kidneys respectively. Both were double vaccinated with high levels of COVID-19 antibodies (IgG >550BAU/mL). Both recipients had delayed graft function and biopsies performed within the first 10 days post-transplant showed moderate acute tubular necrosis without evidence of acute rejection. Biopsy tissue from both recipients was COVID-19 PCR negative. Graft function improved spontaneously and both recipients remained negative on weekly nasopharyngeal and urine PCR testing for the first month post-transplant. There remains no sign of disease transmission through to 3-month post-transplant.
SUMMARY: Kidneys from deceased donors which remain PCR positive with high CT values after recent COVID-19 infection can be considered for transplantation.

Abstract No. 81

SURVEY OF CLINICIANS' APPROACH TO THE REPORTING OF KIDNEY DONOR PROFILE INDEX IN DECEASED DONOR KIDNEY ALLOCATION

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Aims. Kidney Donor Profile Index (KDPI) and Estimated Post-Transplant Survival (EPTS)-scores were respectively introduced in 2016 and 2018 to inform clinical decision-making regarding acceptance of deceased donor kidneys in Australia. We evaluated clinicians' understanding and application of these scores in deceased donor kidney acceptance.

Methods. In 2020, a web-based invitation and survey were distributed to practising adult and paediatric nephrologists in Australia through the Australia and New Zealand Society of Nephrology (ANZSN) and the Transplantation Society of Australia and New Zealand (TSANZ). The survey was active for a 3-month period between March 2020 and June 2020.

Results. Of the 28 respondents who completed the survey (25 adult nephrologists and 3 paediatric nephrologists), 61% had worked as a consultant nephrologist for more than 10 years and 96% were involved in the acceptance of deceased donor kidneys. Of the respondents, 32% would routinely consider a maximum KDPI for their waitlisted patients but only 28% reported that they would decline a donor kidney offer based on high KDPI, irrespective of other donor characteristics. Respondents reported a reluctance to accept high KDPI donor kidneys for low EPTS-score recipients but 84% reported they would consider accepting a donor kidney with KDPI above 90% for highly sensitised patients with waiting times beyond 5 years.

Conclusion. There is variable utilisation of KDPI and EPTS-scores in deciding on deceased donor kidney acceptance among nephrologists. Higher KDPI kidneys are more likely to be accepted for highly sensitised recipients.

Abstract No. 82

NON-UTILIZATION OF KIDNEYS FROM DONORS AFTER CIRCULATORY DETERMINANT OF DEATH

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Background: The expansion of donation after circulatory determination of death (DCDD) programs and unmet demands for kidney transplantation indicate that there is a need to improve the efficiency and utilization of these organs.

Methods: We studied all DCDD donors retrieved for kidney transplantation in Australia between 2014 – 2019, and determined the factors associated with non-utilization using least absolute shrinkage and selection operator and random forest models. Self-organising maps (SOM) were used to group these donors into clusters with similar characteristics and features associated with non-utilization were defined.

Results: Of the 762 DCDD donors, 116 (15%) were not utilised for kidney transplantation. Of the nine clusters derived from SOM, two had the highest proportions of non-utilized kidneys. Factors for non-utilization (adjusted OR (95%CI), per SD increase) were duration from withdrawal of cardiorespiratory support (WCRS) till death (1.38, 1.16-1.64), admission and terminal serum creatinine (1.43, 1.13-1.85) and (1.41, 1.16-1.73). Donor kidney function and duration of warm ischemia were the main factors for clinical decisions taken not to use kidneys from DCDD donors.

Conclusions: Donor terminal kidney function and the duration of warm ischemia are the key factors for non-utilisation of DCDD kidneys. Strategies to reduce the duration of warm ischemia and improve post-transplant recipient kidney function may reduce rates of non-utilization.

Abstract No. 83

ISLET CELL TRANSPLANTATION LOWERS RESTING HEART RATE IN TYPE 1 DIABETES SUGGESTING IMPROVED CARDIOVASCULAR AUTONOMIC NEUROPATHY

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Background: In type I diabetes (T1DM), a higher resting heart rate (RHR) correlates with poor glycemic control, cardiovascular (CV) disease and CV autonomic neuropathy (CAN). Intensive glycemic control has been shown to be associated with a lower heart rate and reduced risk of developing CAN. However, the reversibility of an elevated RHR and CAN with intensive glycemic control remain to be established.

Aims: To determine the effect of ICT on RHR and left ventricular ejection fraction (LVEF). To assess the value of performing serial myocardial perfusion (MP) scans in ICT recipients.

Methods: A retrospective case series of 16 patients undergoing ICT between 2007 and 2020. Cardiac and metabolic measurements were obtained from pre- and post-transplant myocardial perfusion (MP) scans. Results are shown as mean ± SD.

Results: RHR was 78.7 ± 15.0 vs 70.1 ± 12.5 bpm (p = 0.007), LVEF 67.5 ± 5.7 vs 68.8 ± 5.7 % (NS) and HbA1c 7.7% ± 1.3% vs 6.4 ± 0.9 % (p = 0.001), pre and post ICT, respectively. Serial MP scans had mean cost (AUD) of $4296 ± $2843 per patient and mean radiation exposure of 51.6 ± 36.6mSv. 6/16 (37.5%) recorded a positive MP scan, with only 1 subsequently undergoing revascularization.

Conclusion: There was a significant reduction in RHR in T1DM ICT recipients at 4.7 years post-transplant, consistent with a reduction in some manifestations of CAN. Transplantation had no effect on LVEF. Serial MP scans were costly and exposed patients to harmful amounts of radiation without substantial benefit.

Table 1. Comparison of HbA1c, LVEF and resting HR pre- and post-ICT using paired t-test, expressed as mean ± SD with p value for significance.

	Pre-ICT	Post-ICT	p-value
HbA1c	7.8 ± 1.33%	6.4 ± 0.92	0.001
LVEF	67.5 ± 5.7%	68.8 ± 5.7	0.605
Resting HR	78.6 ± 14.5	70.1 ± 12.1	0.007

Abstract No. 84

COST-EFFECTIVENESS OF ACCEPTING KIDNEYS FROM DECEASED DONORS WITH INCREASED RISK OF BLOOD BORNE VIRUS TRANSMISSION

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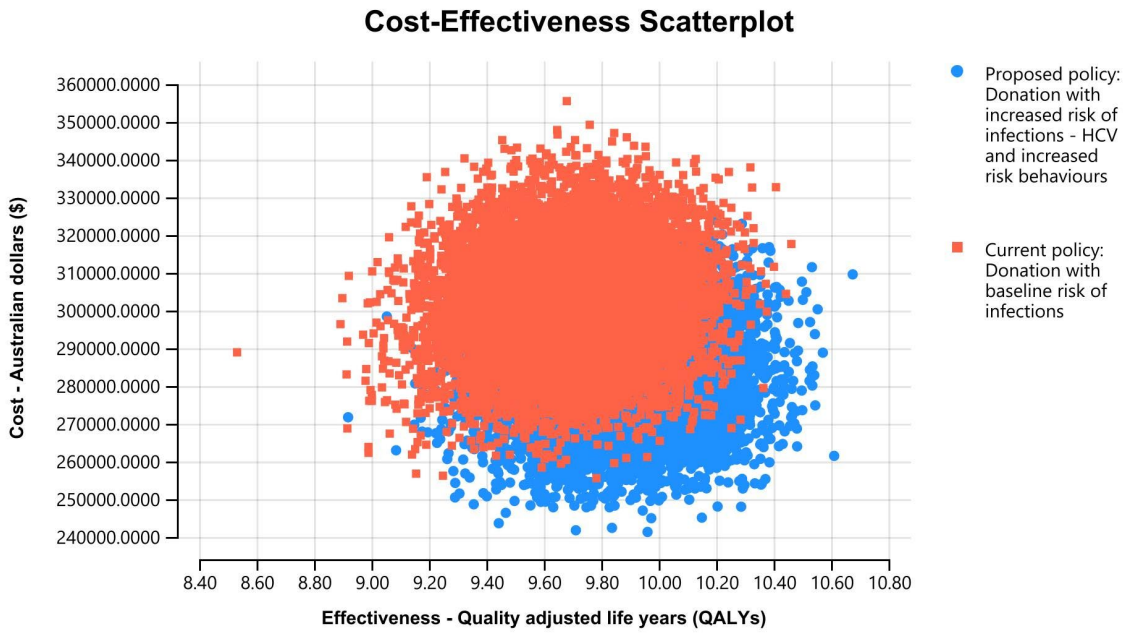
Aims: Demand for donor kidneys outstrips supply. Utilising kidneys from donors with increased risk of blood borne virus (BBV) transmission has been debated as a strategy to expand the donor pool. We assessed the cost-effectiveness of accepting such donors into the donor pool versus not.

Methods: A cohort-based Markov model was developed to compare costs and quality-adjusted life years (QALYs) of accepting kidneys from potential donors with increased risk of BBV transmission, due to history of HCV and/or behavioural risk factors, versus declining them. Our model ran simulations over 50-year time horizon for patients waitlisted for a deceased donor kidney transplant. Cost-effectiveness was defined as an incremental cost-effectiveness ratio (ICER) of <$50,000 per QALY.

Results: Total costs were $295,075 and $303,122, and QALY gains were 9.88 and 9.80, for the policies of accepting and declining increased BBV risk donors respectively. Accepting increased BBV risk donors would increase annual kidney transplants by 7%, (2% from donors with increased risk behaviours and 5% from donors with active or past HCV infection) generate cost savings ($8,046) and lead to an additional 0.08 QALYs (~1 month) per person compared with declining potential donors. The proposed policy of accepting increased BBV risk donors was dominant with lower costs and higher QALYs and cost-effective with ICER < $50,000.

Conclusion: Accepting kidneys from donors with increased risk of BBV transmission is cost effective with lower costs and increased quality of life outcomes over policy of rejecting these donors.

Figure – 1 10,000 Monte Carlo simulations to assess cost-effectiveness of proposed policy versus current policy



Abstract No. 85

OUTCOMES OF LIVE RENAL DONORS WITH A HISTORY OF NEPHROLITHIASIS

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Aim: Live donors with pre-existing or a history of renal calculi were thought to be a relative contraindication due to safety concerns for donors. We aim to systematically review current literature assessing outcomes of donors who were found to have renal calculi.

Methods: Ovid and Embase were searched between 1960 to 2021 using key terms and Medical Subject Headings (MeSH) – nephrolithiasis, renal stones, renal transplantation and renal graft. Articles included conference proceedings and journal articles and were not excluded based on patient numbers. Studies were excluded if kidney organ was not identified, duplicated reports found or if post-transplant outcomes were not recorded. Primary outcome was donor stone-related event. Secondary outcomes were renal function upon follow-up or post-operative nephrectomy complications.

Results: Upon reviewing 345 articles, 13 manuscripts met inclusion criteria. A total of 344 live donors were identified. Mean stone size was 3.8 ± 1.4mm (1 – 16) with average follow up duration 21.1 months (1 – 96). Twelve studies provided primary outcome and seven for secondary outcomes. No donors had any stone-related event upon follow up except for 1 donor that passed a pre-existing stone post-donation. No secondary outcomes were recorded.

Conclusion: Data suggests minimal morbidity involved for live renal donors with a history of nephrolithiasis in the short term. Hence, we recommend that after careful assessment, these patients may still be considered for living kidney donation. Exclusions should be applied for patients with metabolic abnormalities, recurrent stone formers or significant bilateral stones.

Abstract No. 86

AUSTRALIA'S FIRST HIV-POSITIVE DECEASED DONOR KIDNEY TRANSPLANT TO AN HIV-POSITIVE RECIPIENT

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Background: HIV has generally been a contraindication to organ donation in Australia. South African experience and the HOPE study have demonstrated excellent outcomes for HIV+ donor transplants. Here we report Australia's first HIV+ deceased donor kidney transplant.

Case Report: A 45-year-old male donor presented with respiratory failure secondary to pneumocystis and CMV pneumonia in the context of newly diagnosed HIV-1 (RNA 655000). Despite prolonged treatment, including antiretroviral therapy (ART) and appropriate antimicrobials, he developed irreversible respiratory failure. He had normal kidney function. The recipient was a 55 year old male with ESKD secondary to IgA nephropathy and a previous kidney allograft. He had longstanding HIV with suppressed viral load and CD4+ count 0.56x10^9cells/L. With informed consent, he underwent a DCD, ABO-incompatible transplant with 4/6 HLA mismatch and weak class II DSA. He received immunoglobulin preoperatively and standard induction and maintenance immunosuppression with methylprednisolone, basiliximab, mycophenolate, tacrolimus and prednisone. No adjustments to ART were required. A day-10 protocol biopsy showed borderline acute cellular rejection and was treated with pulse methylprednisolone. At week 10 his creatinine was 145umol/L with no proteinuria, his HIV viral load remains suppressed, and he has had no opportunistic infections.

Conclusions: HIV+ deceased donors are suitable on a case-by-case basis for HIV+ kidney transplant recipients and expand the potential donor pool. Drug interactions and rejection episodes maybe increased and warrant close attention. Developing approaches to consent processes, ART optimisation and transplant/donor sector education are required to maximise these opportunities.

Abstract No. 87

TRENDS IN LABOUR AND DELIVERY OUTCOMES AMONG TRANSPLANTED MOTHERS

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Background: Delivery outcomes in the Australian pregnant transplant population are unknown.
Methods: Data from the Australia and New Zealand Dialysis and Transplant Registry (ANZDATA) was linked to perinatal datasets (all births ≥20 weeks' gestation) in four states from 1991-2013. Delivery outcomes were analysed between three cohorts: non kidney replacement therapy (KRT) and renal transplant cohorts.
Results: We assessed a total of 2,903,135 births (1,627,408 mothers) representing 50% of all births in Australia. Of this, 202 births from 137 transplanted mothers were identified. Our most salient findings are detailed in Table 1. There was a disproportionately increased trend towards caesarean section (CS) delivery in the transplant cohort compared to non KRT group (63.4% vs 26.4%). Of significance, 45.5% had direct CS delivery with no experience of labour. Furthermore, 10% of transplant deliveries occurred under general anaesthesia. Transplant women also had significantly lower rates of spontaneous labour (25.7% vs 59.3%), and within this subgroup 42% converted to CS delivery mid labour due to obstetric and fetal complications. Pregnancy induced hypertension was the most common cause of induction of labour. Breech presentation, postpartum haemorrhage and fetal distress were also more common.
Conclusion: Transplanted women have higher risk deliveries, more birth interventions and complications. This may be reflective of standard ongoing practices, patient and physician preference, despite the known inherent higher risks of CS delivery. This data will equip patients and clinicians in pre pregnancy counselling and informed decision making around delivery.

Table 1: Labour and Delivery Outcomes

Outcomes	Non-KRT	Transplant	p-value
Onset of labour, n (%)[a]			<0.001
Spontaneous	1,719,861 (59.3)	52 (25.7)	
Induction	745,370 (25.7)	58 (28.7)	
No labour	437,240 (15.1)	92 (45.5)	
Method of birth, n (%)[a,b]			<0.001
Vaginal (non-instrumental)	1,780,496 (61.4)	48 (23.8)	
Vaginal (Assisted delivery)	356,531 (12.3)	26 (12.9)	
Caesarean section	764,978 (26.4)	128 (63.4)	
Indication for caesarean section, n (%)[a,b]			
Failure to progress	112,332 (21.9)	7 (8.2)	0.001
Other	343,991 (67.0)	71 (83.5)	0.002
Analgesia/anaesthesia administered, n (%)[a,c]			<0.001
Yes	327,692 (48.7)	115 (74.2)	
No	345,809 (51.3)	40 (25.8)	
Type of analgesia/anaesthesia used, n (%)[a,d]			
General anaesthesia	11,301 (3.5)	11 (9.6)	<0.001
Other (systemic opioids, IM narcotics)	151,282 (46.2)	26 (22.6)	<0.001
Complications of labour, n (%)[a]			
PPH[e]	125,527 (6.6)	20 (13.3)	0.006
Fetal distress[f]	228,134 (10.1)	31 (18.1)	0.001
Presentation, n (%)[a]			<0.001
Vertex	1,055,780 (94.8)	167 (83.5)	
Breech	48,094 (4.3)	29 (14.5)	
Other	10,175 (0.9)	4 (2.0)	

[a]The same mother is counted multiple times if they had multiple pregnancies
[b]Data available for non-KRT n=513,592 and transplant n=85; Data not available from ACT and WA; denominator restricted to those who had a caesarean section; Other includes maternal choice, previous caesarean section, antepartum/intrapartum hemorrhage, multiple births, hypertensive disorders and breech or other malpresentation
[c]Data available for non-KRT n=673,501, dialysis n=29 and transplant n=155; Data not available from SA and NSW non-KRT population
[d]Denominator is restricted to those who had any anaesthesia or analgesia
[e]Data available for non-KRT n=1,916,642 in non-KRT and transplant n=151
[f]Data available for non-KRT n= 2,253,941, dialysis n=32 and transplant n=171; Data not available from ACT

Abstract No. 88

PREFERENCES OF KIDNEY TRANSPLANT RECIPIENTS FOR EHEALTH: DISCRETE CHOICE EXPERIMENT

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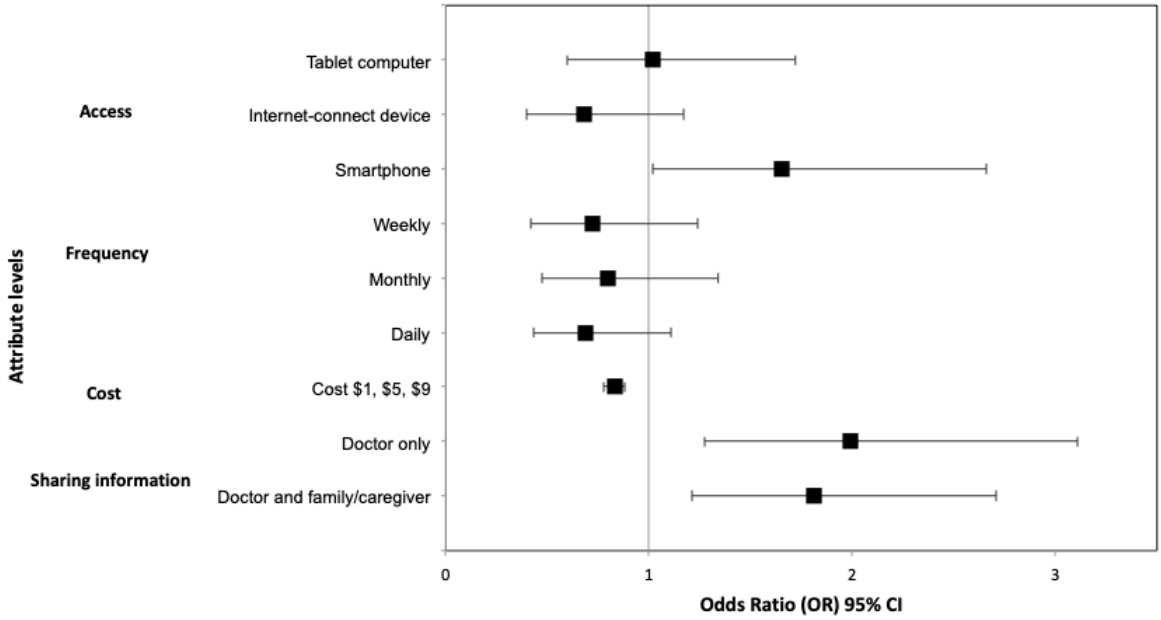
Background: The uptake and optimal use of eHealth may be limited as it may not address the needs of patients. This study aimed to quantify preferences for eHealth use among kidney transplant recipients.

Methods: We conducted a discrete choice experiment among kidney transplant recipients (aged ≥ 18 years) recruited from 3 transplant units and an Australian consumer network between June - November 2020. Preferences and trade-offs among four characteristics: eHealth modality, frequency of use, cost and information sharing, were quantified using multinomial logit and latent class models.

Results: Of 117 invited, 88 (response rate 75%) completed the survey, with a mean age of 51 years (SD 15). Overall, participants preferred smartphones over other modalities (OR (95% confidence interval) 1.65 [1.02-2.66]), low cost (0.83 [0.78-0.88]), ability to share information with their clinicians only (1.99 [1.27-3.11]) and sharing with clinicians and family/caregivers (1.81 [CI 1.21-2.71]). Participants were largely indifferent to the frequency of use. (Figure 2) Individual preferences influenced uptake in eHealth interventions, but the relative impacts on eHealth attributes did not significantly vary with socio-demographic and clinical factors. **Conclusion:** Patient preference of affordability, ability to share information, and using smartphones should inform policies for designing and implementing eHealth interventions.

Figure 1. Patients' preferences for eHealth use



Abstract No. 89

LIVER TRANSPLANTATION FOR INCIDENTAL CHOLANGIOCARCINOMA: ANALYSIS OF THE ANLTU EXPERIENCE

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Aim Intrahepatic cholangiocarcinoma (ICCA) has a poor prognosis with a median survival of 12-24 months without treatment. Liver transplantation (LT) is a curative option for Hepatocellular Carcinoma (HCC) but remains experimental in ICCA due to perceived risk of high tumour recurrence. Improvements in ICCA management show promising results prompting reconsideration of ICCA as an indication for LT. We reviewed disease free and overall survival of patients who underwent LT for presumed HCC but were found to have ICCA or mixed ICCA and HCC (ICCA-HCC) on explant pathology.

Method A retrospective review of a prospective database maintained by the Australian National Liver Transplantation Unit was performed. Explant pathology of patients undergoing LT for HCC between 1996-2020 was analysed to identify those with ICCA or ICCA-HCC. Patient demographics, locoregional tumour treatment, AFP and MELD scores, size and number of lesions and tumour characteristics (invasion, differentiation, necrosis and dysplasia) were collected by review of medical records for assessment of disease free and overall survival.

Results 12/420 patients (2.9%) had either ICCA (3) or ICCA-HCC (9), divided into mixed (5) or separate nodules (4). The mean tumour size was 2.5cm. Tumour recurred in two patients (16.7%) who eventually died within 13-19 months. They had no locoregional treatment with moderate to poor tumour differentiation. Mean survival in the ICCA group was 43 months versus 77 months in the ICCA-HCC group. The five-year disease-free survival and overall survival were 42% respectively.

Conclusion Our results show promising survival prompting reconsideration of selected ICCA patients as candidates for LT.

Abstract No. 90

IMPACT OF THE COVID PANDEMIC ON PANCREAS TRANSPLANTATION IN AUSTRALIA AND NEW ZEALAND; AN ANZIPTR ANALYSIS

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Aim: To identify changes in the Australian pancreas transplant program from both patient and donor perspectives during the COVID-19 pandemic.

Methods: We analysed data from the Australia and New Zealand Islet and Pancreas Transplant Registry (ANZIPTR) from 2018-2021. We summarised changes to patient characteristics of waitlisted and transplanted patients, and to donor profiles. We compared transplant numbers over time with lockdown periods and COVID-19 case numbers.

Results: The annual total number of pancreas transplants in Australia and New Zealand was grew in 2020 (51, +9%) compared to 2019 (47) and significantly dropped in 2021 (36, -29%). The number of transplants in March 2020 decreased with the introduction of COVID-19 restrictions in Australia (Figure 1). However, aside from this period, the number of transplants performed over time was positively correlated with COVID-19 case numbers. (Figure 1). There were demographic changes to Australian patients transplanted during 2020, notably an increase in the number of male patients (32, +5%) and patients over the age of 50 (9, +350%) transplanted. The gender demographic changes reverted in 2021 but the age demographic changes did not, with transplant numbers of patients aged 35-49 falling to 22 (-39%).

Conclusions: Pancreas transplantation had a complex relationship with COVID-19 case numbers and lockdown periods. The correlations observed are likely connected to the number of kidney transplants performed over this period, because most pancreas transplants are simultaneous with a kidney transplant. Additionally, the variation in the number of pancreas transplants performed affects particular subsets of patients more than others.

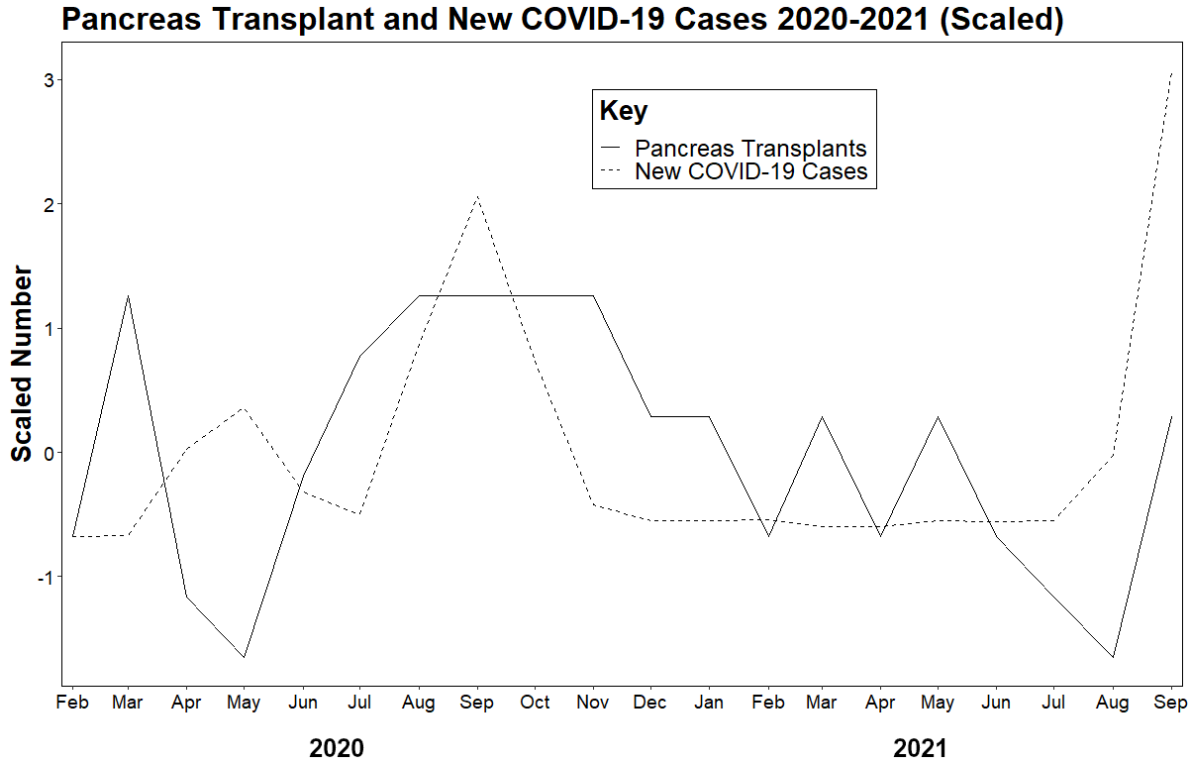

Figure 1: The number of pancreas transplants and new COVID-19 cases per month in Australia and New Zealand in the period 2020-2021. The raw counts are from the beginning of each month and have been centred and scaled to make them more comparable. The first COVID-19 cases in early 2020 correspond to a reduced number of pancreas transplants, but the second and third spike in numbers correspond to an increased number.

Abstract No. 91

WHAT DRIVES MEDICATION TAKING BEHAVIOUR IN ELDERLY KIDNEY TRANSPLANT RECIPIENTS?

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Aims: Patients aged over 65 years routinely undergo kidney transplantation. The post-transplant medication regimen is complex, and barriers to medication taking are likely confounded by both functional and intrinsic changes with advancing age. Thus, to support best health outcomes, it is important to identify the strategies elderly patients' currently employ to manage a complex medication regimen.

Methods: Semi-structured patient interviews were used to explore how elderly kidney transplant recipients manage their immunosuppressant regimen. Data were themed using the principles of Grounded Theory. **Results:** Fourteen participants, ranging in age from 64 – 74 years, on an average of 13 medicines, were recruited. Two distinct patterns of behaviour were identified, with some overlap. 'Group One' participants were perceived to have greater ability to cope with the routine, than those in 'Group Two' (Figure 1). 'Group One' participants seemed to have a more sophisticated approach to medication taking, developing adaptive methods to prevent forgetfulness when out of routine: e.g. one patient linked their evening medication taking to feeding the cat. 'Group Two' participants relied more on reminders to prevent forgetfulness and these failed when the participants were out of their normal routine.

Conclusions: Patient strategies to support medication taking need to account for changes in routine. Future interventions should consider strategies to foster adaptable medication taking behaviours that link medication taking to already established habits such as meals or teeth cleaning.

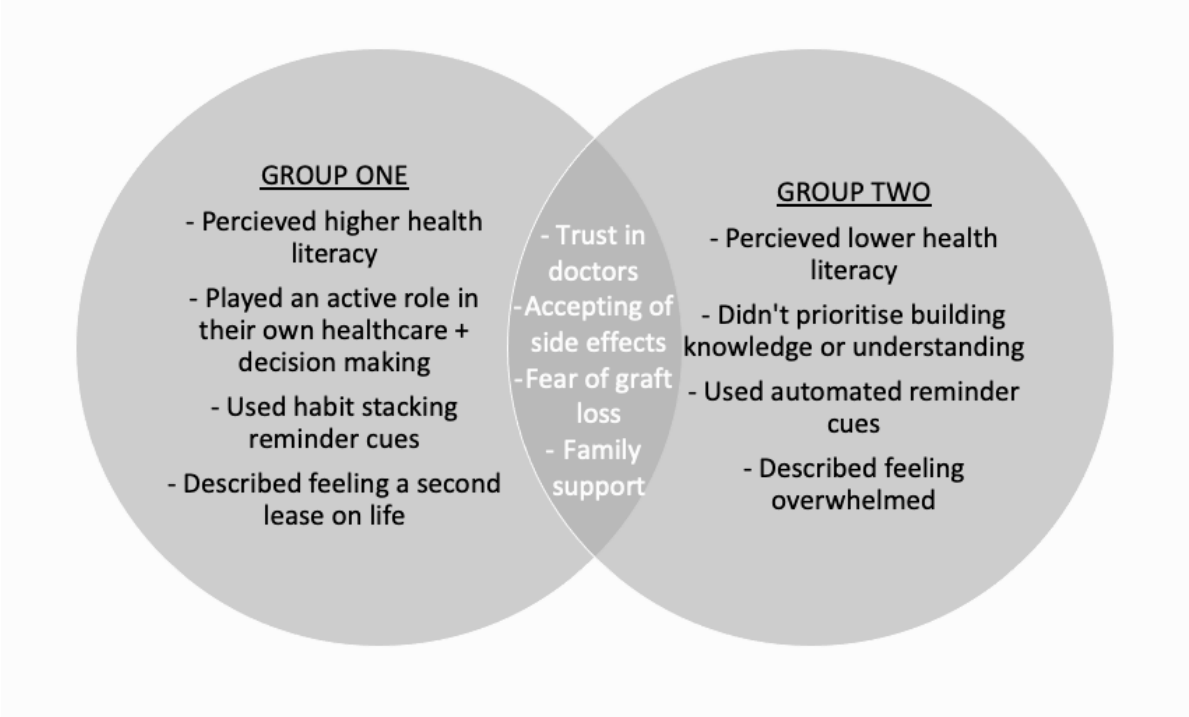

Figure 1 – The perceived similarities and differences in medication taking behaviours, defined as two different patient groups.

Abstract No. 92

SYNBIOTICS, PREBIOTICS, PROBIOTICS FOR SOLID ORGAN TRANSPLANT RECIPIENTS: SYSTEMATIC REVIEW AND META-ANALYSIS

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Background: Immunosuppressants are essential to graft acceptance and effective post-transplantation recovery but often accompanied by gastrointestinal (GI) issues. It is believed high doses of prebiotics and probiotics are able to modify gut microbiota balance and improve dysbiosis.

Methods: We followed standard Cochrane methodology to search for RCTs up to 1 December 2021 and to analyse outcome data to report risk ratios (random-effects), heterogeneity, risk of bias, and GRADE. **Results:** We included five RCTs (2 full-texts and 3 abstracts) across 250 kidney and liver transplant recipients. Synbiotics versus placebo had uncertain effects on the change in total plasma p-Cresol but no difference to faecal characteristics, adverse events, kidney function, or albumin concentration (1 study, 26 participants, very low certainty). Probiotics versus placebo had uncertain effects on GI symptoms, post-transplant infection, or liver function, but made no difference to blood pressure, change in fatty liver, or lipids (1 study, 30 participants, very low certainty). Synbiotics versus prebiotics had uncertain effects on acute liver rejection (RR [95%CI]): 0.73 [0.43,1.25]; I^2=0%), rates of infection (0.18 [0.03,1.17]; I^2=66%) and use of immunosuppression (2 studies, 129 participants, very low certainty). Synbiotics compared to prebiotics made no difference to GI function (time to first bowel movement), adverse events (0.79 [0.40,1.59]; I^2=20%), serious adverse events (1.49 [0.42,5.36]; I^2=81%), death, and organ function measures (2 studies; 129 participants; very low certainty).

Conclusions: There is currently no evidence to support or refute the use of synbiotics, prebiotics, or probiotics in solid organ transplant recipients. Findings should be viewed with caution.

Table 1: Synbiotics compared to placebo in solid organ transplant recipients

Outcome *(30 days post-op)*	Synbiotic		Placebo		RR (95% CI)	P-value	I^2	No. Participants	No. Studies	Risk of Bias	GRADE Certainty of Evidence
	Events/Total	*Corresponding Risk**	*Events/Total*	*Assumed Risk^*							
Acute liver rejection	16 / 64	247 per 1000 (146 to 423)	22 / 65	38 per 1000	0.73 (0.43 to 1.25)	0.71	0%	129	2	Low to high[1]	Very low[2]
Adverse events	14 / 64	219 per 1000 (111 to 440)	18 / 65	277 per 1000	0.79 (0.40 to 1.59)	0.26	20%	129	2	Low to high[1]	Very low[2]
Serious adverse events	28 / 64	527 per 1000 (149 to 1000)	23 / 65	354 per 1000	1.49 (0.42 to 5.36)	0.02	81%	129	2	Low to high[1]	Very low[3]
Infection	5 / 64	75 per 1000 (12 to 486)	27 / 65	415 per 1000	0.18 (0.03 to 1.17)	0.07	66%	129	2	Low to high[1]	Very low[3]

Key
AE: adverse events (no. patients reporting an event); **I^2:** heterogeneity; **No.:** number; **P:** P value of significance at 0.05; **RR (95% CI):** relative risk/risk ratio (95 % confidence interval); **SAE:** serious adverse events (no. patients reporting an event); **%:** percentage.
*****: The basis for the **corresponding risk** (and its 95% CI) is based on the assumed risk in the comparison group and the relative effect (RR and its 95%CI).
^: The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes.

Footnotes
[1]: One RCT rated high risk of bias for allocation concealment and blinding (open-label), unclear risk for selecting reporting bias and funding disclosures, low risk for randomisation and attrition. One RCT rated unclear risk of bias for outcome assessor blinding, selecting reporting bias and funding disclosures, low risk for randomisation, allocation concealment and attrition.
[2]: Downgraded two levels for risk of bias and one level for sparse data from small study sizes.
[3]: Downgraded two levels for risk of bias and one level for sparse data from small study sizes, and high heterogeneity.
Very low certainty: We are very uncertain about the estimate.

Abstract No. 93

DISCRETE CHOICE EXPERIMENT OF PATIENT PREFERENCES FOR MANAGEMENT OF GASTROINTESTINAL SYMPTOMS IN KIDNEY TRANSPLANT RECIPIENTS

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Background: Gastro-intestinal (GI) intolerance is common and debilitating among kidney and kidney-pancreas (KP) transplant recipients. Knowledge of patients' preferences for options to treat GI symptoms ensures these interventions are aligned with their treatment goals and priorities.

Methods: We conducted a discrete choice experiment survey in kidney and KP transplant recipients between February and June 2021 in a single transplant centre. A multinomial logit model was used to quantify the preferences and trade-offs between five characteristics: cost, mode of delivery, dietary changes, resolution of GI symptoms, and medication changes.

Results: Seventy patients participated with mean age of 47±15 years, 39 (56%) were female and 40 (57%) had GI symptoms. Patients preferred management plans that provide complete remission of GI symptoms compared to no improvement (OR [95%CI]: 15.3 [1.80, 129.50]), interventions that would avoid changes to their current diet compared to eliminating dairy and gluten (6.0 [2.19, 16.27]), tablet probiotics over sachet (1.6 [1.27, 2.08]), reduced medication burden (1.4 [1.06, 1.79]), and lower costs (0.98 [0.96, 1.00]). The relative impact on these attributes did not differ significantly by sex, age, or transplant duration. Participants are willing to pay AUD$142.2 [$83.9, $200.4] monthly to achieve complete remission of GI symptoms or AUD$100.9 [$9.6, $192.1] to have moderate improvements.

Conclusions: Patients preferred management plans that provide complete remission of GI symptoms, avoid changes to their current diet and include probiotics in tablets form. GI symptom control is high priority for transplant recipients. They are willing to 'pay' a high 'price' to be symptom free.

Table 1

Attribute and Level	Coefficient	P-value	OR (95% CI)	Willingness to Pay AUD$ (95% CI) / month
Monthly cost to the patient	-0.02	0.035	0.98 (0.96 to 1.00)	-
Method of taking probiotics				
Tablet probiotics	0.49	0.0001	1.6 (1.27 to 2.08)	$25.34 ($-30.59 to $81.27)
Sachet probiotics (reference)	Reference	Reference	1	$0
Changes required to usual diet				
No changes	1.79	0.0005	6.0 (2.19 to 16.27)	$93.21($14.59 to $171.83)
Minor changes	1.11	0.00	3.0 (1.78 to 5.12)	$57.66 ($-7.29 to $122.62)
Major changes (reference)	Reference	Reference	1	$0
Changes in bowel symptoms				
Complete remission	2.73	0.013	15.3 (1.80 to 129.50)	$142.15 ($83.89 to $200.41)
Some improvements	1.93	0.0006	6.9 (2.30 to 20.79)	$100.86 ($9.58 to $192.14)
No improvement (reference)	Reference	Reference	1	$0
Changes to current medications				
Some reduction	0.32	0.019	1.4 (1.06 to 1.79)	$16.53 ($-25.70 to $58.76)
No changes (reference)	Reference	Reference	1	$0
AUD: Australian Dollars; CI: 95% confidence interval; OR: odds ratio; p: p-value of significance at 5%.				

Abstract No. 94

COVID-19 IN LUNG TRANSPLANT RECIPIENTS: AN AUSTRALIAN CENTRES' EXPERIENCE

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Aims: Solid organ recipients are more susceptible to viral infection due to immunosuppression. The novel severe acute respiratory syndrome (SARS) like coronavirus (SARS-CoV-2) causing the global COVID-19 pandemic has had worldwide ramifications and its impact on Lung Transplant (LTx) recipients is yet to be fully elucidated. The purpose of this research is to outline the demographics, therapeutic management and outcomes of LTx recipients with COVID-19 in an Australian population.

Methods: A retrospective audit was undertaken to describe the incidence and outcomes of COVID-19 at a single LTx program in Melbourne, Australia.

Results: A total of fifty LTx patients had acquired COVID-19 since Sept 2021; only one LTx patient had COVID-19 prior (Sept 2020). The mean age of patients was 54 years (20-81), with an equal distribution of males and females (25 females, 25 males). Of the 49 patients that had their vaccination status recorded, 44/49 (90%) had andgt; 2 vaccinations. Thirty-five (70%) received the monoclonal antibody sotrovimab, a further eight patients were referred to other health networks for infusion and one received the IL-6 receptor monoclonal antibody tocilizumab. The overall survival rate was high (94%), with a total of 3 patients succumbing to complications directly related to COVID-19. These patients tended to be older (mean age 68) and less likely to have received sotrovimab (1/3).

Conclusion: This retrospective audit describes a single centres' experience of COVID-19 within their lung transplant population. LTx patients tended to be vaccinated, treated with monoclonal antibody therapy and surprisingly had a low overall mortality rate.

Abstract No. 95

CROSSING THE RUBICON: ECMO AS BRIDGE TO LUNG TRANSPLANTATION

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Aim: Extracorporeal membrane oxygenation (ECMO) support is used in selected patients as a bridge to transplantation. The aim of this retrospective audit was to describe the indications for potential lung transplantation bridged with ECMO in addition to survival outcomes**.**

Methods: A single centre retrospective audit was performed at The Alfred Hospital in Melbourne Australia over a ten-year period (2010-2020) complete with a minimum of one year follow up. Baseline patient characteristics, indications for lung transplantation and ECMO initiation and survival outcomes were analysed.

Results: Twenty-seven referrals for consideration of lung transplantation in patients on ECMO were received. Indications for lung transplantation and ECMO initiation included cystic fibrosis (n=10), pulmonary hypertension (n=7), interstitial lung disease (n=5), bronchiectasis (n=3) and chronic lung allograft dysfunction (n=2). Four patients were ineligible and subsequently not wait listed for transplantation. ECMO patients awaiting lung transplantation were young (mean age 33) with a female predominance (61%). Type of ECMO support was venous arterial in 7 patients and venous-venous in sixteen. Average time on ECMO preceding transplantation was 11 days. Twenty patients underwent lung transplantation, with three dying while active on the wait list. One year survival was 85%, with all recipients (10) transplanted in the last 4 years currently alive. **Conclusion:** In a carefully selected population ECMO can successfully bridge severe lung disease patients to a life saving transplant.

Abstract No. 96

SUCCESSFUL KIDNEY TRANSPLANTS FROM A HEPATITIS C VIREMIC DONOR INTO HEPATITIS C NEGATIVE RECIPIENTS WITH THE USE OF DIRECT ACTING ANTIVIRAL AGENTS

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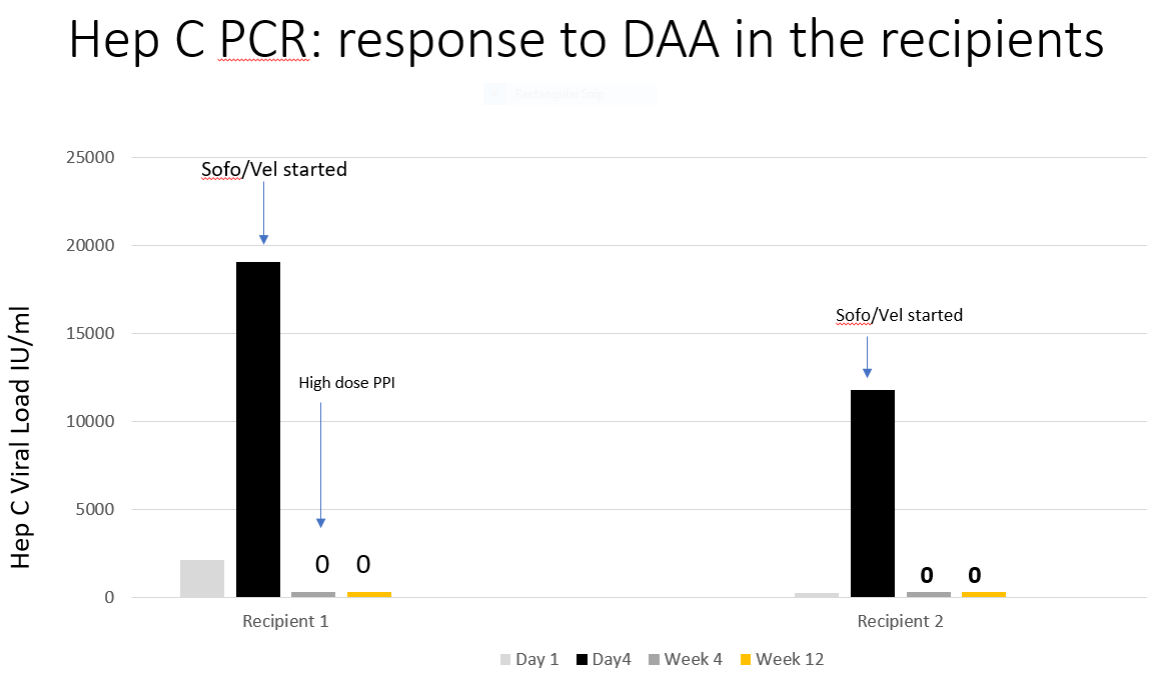
Background: Hepatitis C virus (HCV) cure rates are very high and organ outcomes are excellent with HCV RNA (PCR) D+R- kidney transplantation treated early with Direct Acting Antiviral (DAA) therapy. We report our experience with 2 kidney transplant recipients from a single HCV PCR positive deceased donor.

Case reports: A 49-year-old female sustained cardiac arrest following fentanyl overdose and proceeded to kidney donation via DNDD pathway. At donor assessment, HCV antibody and RNA tested positive. Terminal creatinine was 63, with Kidney Donor Profile Index of 31. Donor and both recipients (male aged 63 and 33 years) were blood group A. Both recipients had 6/6 HLA mismatch with the donor, with no DSAs and prior to transplant HCV antibody negative. They gave informed consent. They received standard triple immunosuppression with Basiliximab induction, with immediate graft function and were discharged on day 6 with plasma creatinineandlt; 120.Both recipients tested positive for HCV RNA day 1 post- transplant and were started on tablet Epclusa (Sofosbuvir 400mg/Velpatasavir 100mg; pangenotypic, used in all levels of renal impairment, no immunosuppressant drug interactions) once daily on day 4 for 12 weeks with PBS approval. HCV RNA was negative at week 4 and 12. Recipient 1 presented with bleeding duodenal ulcer during week 4 and made satisfactory recovery with high dose Proton Pump Inhibitor therapy. He remained HCV PCR negative despite potential PPI interaction with Velpatasavir.

Conclusion: Transplanting kidneys from HCV RNA positive donors with early initiation of DAA is feasible, safe and well tolerated.



Abstract No. 97

SELF EMPOWERMENT OF INGINDIGENOUS AUSTRALIANS WITH RENAL FAILURE TO ASK THEIR DOCTORS "AM I ON THE KIDNEY TRANSPLANT WAITING LIST?"

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Background: Thirteen per cent of patients on dialysis in Australia are Indigenous yet only 2.5 per cent of patients who receive a kidney transplant are Indigenous people. Our studies and those of other have shown multiple factors including medical comorbidities, psychosocial and cultural factors contribute to the difference.
Aims: To produce educational videos for Indigenous patients to encourage them to ask their kidney doctor "Am I on the List" and progress the conversation.
Methods: Indigenous dialysis and transplant recipients were interviewed by an Indigenous transplant nurse and their journey from dialysis through transplant work-up and then transplantation mapped out. Individual patient responses were used in scripting the video.
Results: Two short videos were produced with patients describing their journey in their own words. The videos have been linked to an "Am I on the List" website (see hyperlink) which provides additional information regarding kidney transplantation and important links for patients to obtain more detailed information. **Conclusion:** Educational videos featuring Indigenous Australians describing their transplant journeys and encouraging viewers to ask their doctors "Am I on the List" may raise awareness of kidney transplantation. In addition, patients more actively involved in transplant discussions will have a greater understanding of the assessment process and potentially lead to earlier listing for a greater number of patients.

Abstract No. 98

THE ROLE OF EPLET SHARING IN THE DEVELOPMENT OF HYPERACUTE REJECTION IN A HIGHLY SENSITISED RECIPIENT

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This case report describes a highly sensitised recipient and the outcome of her fourth deceased donor kidney transplant with shared epitope mismatch to a donor Human Leucocyte Antigen (HLA). The 53-year-old female, with kidney failure of unknown cause, was offered an ABO-identical kidney from the deceased donor waitlist. At the time of offer, there was only one out of six (HLA-A, -B, -DR) HLA mismatch at the HLA-B allele with no donor specific antibodies and a negative T and B cell crossmatch using Complement-Dependent Cytoxicity assay. The recipient received induction immunosuppression with anti-thymocyte globulin, methylprednisone, tacrolimus and mycophenolic acid. Day one doppler showed poor perfusion in the kidney parenchyma with reversed diastolic flow in the kidney artery and biopsy showed cortical necrosis, scattered fibrin thrombi and focal C4D staining suggestive of hyperacute rejection. Thus, she received plasma exchange, intravenous immunoglobulin, rituximab and more ATG. With ongoing delayed graft function and persistent perfusion changes on doppler, she underwent a graft nephrectomy five days later. Retrospective immunological typing using the HLA-matchmaker revealed a shared epitope between two HLA-B alleles which led to the development of hyperacute rejection. There has been increased focus on eplets and their role in post-transplant clinical outcomes. The utility of individual eplet mismatch in waitlist allocations have not yet been determined as their clinical significance remains unknown. Recognition of antibody-verified eplet mismatches may have identified this recipient's significant risk of rejection in this transplant and examination of her eplet load may better guide immunological matching for future transplantation.

Abstract No. 99

PARENTHOOD POST TRANSPLANTATION: EVOLUTION AND EVALUATION OF THE PARENTHOOD DATA COLLECTION OF THE ANZDATA REGISTRY

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Background: ANZDATA has collected parenthood data since inception, introduced a specific parenthood survey in 2001, and expanded it in 2017. We evaluated the reporting completeness and data quality for each survey.
Methods: Parenthood data for male and female transplant recipients reported between 1963 and 2020 was analysed for missingness of data and comparison of surveys over time.
Results: Core data items of pregnancy outcome, date of foetal birth or loss, gestational age, neonatal survival had 90-100% completeness across all parenthood surveys for males and females. Birthweight was reported in 65-88% across surveys. Data completeness improved for maternal creatinine prior to conception (2001 Survey: 66.4%; 2017 survey: 77.1%) and three months post-delivery (2001 Survey: 61.1 %; 2017 survey 65.6%). New data items introduced in 2017 had variable completeness including creatinine in each trimester, immunosuppression at conception, and acute rejection in pregnancy (Table 1).

Table 1: A comparison of completeness of transplant specific maternal and paternal parenthood event data, both total numbers and percentage, across the evolving parenthood surveys.

DATA ITEMS	Maternal parenthood event data MATERNAL PARENTHOOD EVENT DATA		PATERNAL PARENTHOOD EVENT DATA Paternal parenthood event data	
	Using the 2001 Parenthood survey numerator/denominator (%)	Using the 2017 Parenthood survey numerator/denominator (%)	Using the 2001 Parenthood survey numerator/denominator (%)	Using the 2017 Parenthood survey numerator/denominator (%)
Creatinine prior to conception	338/509 (66.4)	47/61 (77.1)		49/74 (66.2)
Creatinine 3 months post partum	311/509 (61.1)	40/61 (65.6)		
Creatinine at delivery		37/61 (60.7)		
Prednisolone at conception		36/48 (75.0)		47/63 (74.6)
Tacrolimus at conception		36/48 (75.0)		47/63 (74.6)
Azathioprine at conception		38/48 (79.2)		44/63 (69.8)
Other immunosuppression at conception		28/48 (58.3)		41/63 (65.1)
Creatinine in trimester 1		28/48 (58.3)		
Creatinine in trimester 2		26/43 (60.5)		
Creatinine in trimester 3		23/42 (54.8)		
Acute rejection during pregnancy		27/48 (56.3)		

Conclusion: ANZDATA remains a robust source of parenthood data for basic parenthood outcomes. Parenthood in transplanted women, and men, requires careful preconception planning and antenatal surveillance due to its medical complexity. Robust data should underpin our care of this highly specialised group of patients; therefore, further education is required to improve completeness for relevant new data items introduced to the Parenthood survey in 2017. It is this dataset that underpins pregnancy counselling in our transplant cohort and will eventually translate into the development of management guidelines in this highly complex patient cohort.

Abstract No. 100

RENAL TRANSPLANTATION IN PRISONERS: LEGAL AND ETHICAL ISSUES

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Aims: This research aims to examine the legal and ethical issues surrounding Australia prisoners as potential renal transplant recipients.

Methods: Examination of relevant statutory and common law including human rights law, state and territory corrections legislation and negligence law. Ethical principles considered, particularly in regard to practical and logistical considerations including adequate delivery of transplantation medical care and implications on the broader organ donation program. Australian guidelines including from the Transplant Society of Australia and New Zealand are referenced.

Results: Prisoners are more likely than non-incarcerated individuals to have chronic medical conditions.[1] For most patients with end stage kidney disease (ESKD), renal transplantation improves both quality of life and life expectancy compared to dialysis therapy.[2] Prisoners have a right to access reasonable medical care under state-based corrections legislation which is underpinned by human rights law and ethical principles, primarily beneficence, transparency and justice. The right of prisoners to receive reasonable medical care likely extends to ensuring prisoners with ESKD are considered for renal transplantation and waitlisted if medically appropriate. Social factors and logistical factors can be relevant when considering eligibility for transplantation as they can relate to a patient's ability to comply with medical therapy. Additionally, organ allocation decisions can be emotive and a decision to offer a renal transplant to a prisoner may generate significant negative publicity. **Conclusion:** Prisoners with ESKD should be considered for renal transplantation. Logistical barriers, such as guard availability, should be addressed by state departments responsible for prisoner health.

References:

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3. Kaballo MA, Canney M, O'Kelly P, Williams Y, O'Seaghadha and Conlon PJ. A comparative analysis of survival of patients on dialysis and after kidney transplantation. Clin Kidney K. 2018 Jun;11(3):389-393.

Abstract No. 101

DO DECISION AIDS HELP PEOPLE WHO ARE FACING DECISIONS ABOUT SOLID ORGAN TRANSPLANTATION? A SYSTEMATIC REVIEW

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Background: Decisions about solid organ transplantation are complex. The best decision for a patient will depend on their values, including the relative importance of benefits, harms and uncertainty. Patient decision aids add to traditional education by encouraging patients to identify their values and align these with treatment options. In other fields, decision aids have been shown to increase knowledge, decision quality and patient involvement in health-care decisions.

Aim: To assess if patient decision aids help with decision making in solid organ transplantation.

Methods: We searched the Cochrane Register of Controlled Trials, EBSCO, EMBASE, MEDLINE, and PsycINFO databases in October 2020. All abstracts were screened by 2 reviewers, with disagreements resolved with a 3rd reviewer. We included primary studies of solid organ transplantation decision aids. All comparators and outcomes were included. Bias evaluation was performed based on study types. Selection criteria were from the International Patient Decision Aids Standards. Mean difference in knowledge was meta-analysed using random effects. Other outcomes were synthesised by summary. The study protocol was registered with PROSPERO(CRD42020215940).

Results: 7463 studies were screened,163 studies underwent full-text review and 15 studies with 4278 participants were included. Nine studies were randomised controlled trials. Seven of these assessed knowledge; all demonstrated increase in knowledge with decision aid use (mean difference 8.01; 95% CI 4.69-11.34, p<0.00001,figure 1). They were mostly considered acceptable. The other outcomes were too heterogeneous for meta-analysis.

Conclusions: In solid organ transplantation, patient decision aids increase knowledge. It is unclear whether their use affects other markers of decision quality.

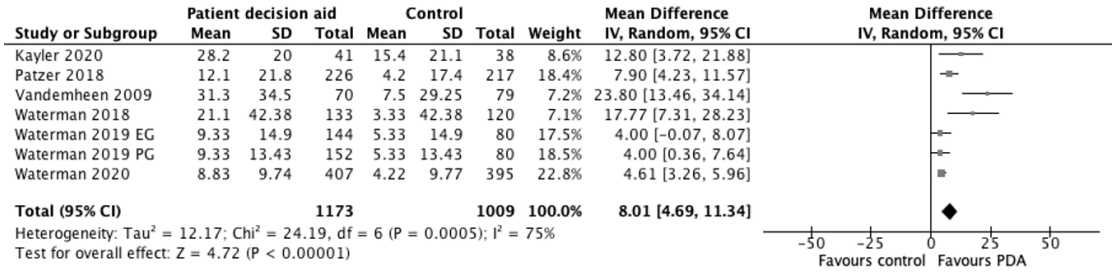

Figure 1: Forest plot of mean knowledge difference for randomised control trials for Patient decision aids compared to controls. Mean knowledge scores and standard deviations have been scaled to be out of 100.

Abstract No. 102

UNCONCIOUS BIAS OR COMPLICATING FACTORS? FEEDING PRACTICES DIFFER FOR OBESE AND NON-OBESE PATIENTS AFTER LIVER TRANSPLANT SURGERY

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Aims: We aimed to investigate post-operative nutrition initiation and diet upgrade practices for obese and non-obese patients after liver transplant.

Methods: We conducted a retrospective chart audit (January 2018-June 2020) of post-surgical diet upgrade orders and clinical outcomes for liver transplant recipients. Obesity was defined as a body mass index >30kg/m2 (using pre-transplant dry weight). Diet code progressions were assessed from day of transplant (day 0) until full diet was reached. Nutrition initiation was defined as commencement of free fluids and/or full diet. Clinical outcomes included infectious complications (Y/N), 30-day readmission (Y/N) and length of stay (LOS; days).

Results: Eighty-four patients (73% male, median age 54 years) were audited. Twenty patients (24%) were obese. There was no difference in time to nutrition initiation between obese and non-obese patients (2 days [IQR 2] vs 2 days [IQR 1], p=0.36), however, obese patients were slower to reach full diet ordered compared to non-obese (4 days [IQR 2] vs 3 days [IQR 1], p=0.003). Compared to the non-obese, obese patients had a longer LOS (15 days [IQR 23] vs 12 days [IQR 6], p=0.04) and a higher proportion were re-admitted within 30 days (40% vs 13%, p=0.02). There was no difference in infectious complications (14% vs 11%, p=0.72).

Conclusions: In the setting of greater LOS and higher readmission rates, obese patients wait longer to receive a full diet compared to non-obese patients. Exploring conscious and unconscious factors that may influence decisions related to diet upgrade in obese patients after transplant is warranted.

Abstract No. 103

CLINICIAN'S PERSPECTIVES OF DECISION MAKING AND PRACTICES RELATED TO FEEDING AFTER LIVER TRANSPLANT SURGERY

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Aims: We aimed to explore clinicians' perspectives on post-operative nutrition care and the barriers/enablers to early oral feeding after liver transplant surgery in a tertiary hospital in Queensland.

Methods: Semi-structured interviews were undertaken with clinicians (n=19) involved in care of patients after liver transplant (6 Surgeons, 1 Fellow, 1 Registrar, 1 Resident, 6 transplant Nurses, 2 Intensivists and 2 ICU nurses). Interviews were audio-recorded, transcribed and analysed using thematic analysis.

Results: Nutrition was ubiquitously seen as important, despite a lack of awareness of current evidence for early feeding practice. Nutrition-related decisions were governed by the surgeons and variability in their practice was accepted. Decisions were influenced by surgeon experience, clinical factors and patient "tolerance". Clinicians described other competing priorities and weigh up the benefits verses the risks of early nutrition in a complex patient group. An evolving nutrition culture was evident in that the traditional stepwise progression of diet, role of clear fluids and bowel sounds to indicate gut function were questioned by many and considered outdated by some. There were system vulnerabilities in implementing early oral feeding including discordant verbal and written communication and a lack of processes to monitor implementation of diet code directions.

Conclusions: Despite acceptance that nutrition is important, it is acknowledged that nutrition initiation practice is variable and there are system-related vulnerabilities that negatively impact the provision of early oral feeding after liver transplant. Multi-faceted strategies to target system vulnerabilities and embed a consensus protocol for early feeding practices is warranted.

Abstract No. 104

CAPILLARY DRIED BLOOD SPOT SAMPLING IN THE CARE OF RURAL KIDNEY TRANSPLANT RECIPIENTS

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[1]Centre for Drug Repurposing and Medicines Research, Hunter Medical Research Institute, [2]Renal Transplant Unit, John Hunter Hospital

Aims: Rural kidney transplant recipients have worse graft outcomes than their urban counterparts, especially in Indigenous populations. Graft failure can be related to under-immunosuppression and drug toxicity. While several risk factors have been identified, the burden of regular blood sampling and its effect on both treatment adherence and adjustment is less well understood. A role for dried blood spots (DBS) obtained from capillary blood was explored.
Methods: We reviewed the literature around the use of DBS in transplantation and developed assays to measure creatinine and tacrolimus concentrations in DBS obtained by fingerprick. We then conducted a pilot study to explore both feasibility and attitudes towards DBS in the care of adult kidney transplant recipients.
Results: While the range of tests currently performed in DBS is limited, it can be a useful adjunct in patient management. DBS samples are less invasive than venepunctures, may be collected by patients or carers, and do not require cold chain transport. Their laboratory analysis can be cost-effective. Our pilot study demonstrated successful DBS sampling by clinic nurses; patients expressed a preference for capillary sampling over venepuncture and willingness to learn the procedure. We encountered practical challenges with sample transport to the laboratory.
Conclusions: Capillary DBS may ease the burden of regular blood sampling for transplant recipients. While their collection requires training, patients appear interested in the use of this technology. Clinical and economic benefits for the care of rural transplant recipients should be explored.

Abstract No. 105

THE USE OF NOVEL NON-INVASIVE BLOOD PRESSURE MONITORING IN RENAL TRANSPLANT PATIENTS

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Background: Continuous non-invasive blood pressure monitoring is an emerging technology. It is yet to demonstrate exchangeability for use intraoperatively or in the perioperative operative period. If validated, advanced non-invasive haemodynamics could provide enhanced intraoperative monitoring without the risk of invasive monitoring, allowing for more tailored perioperative management. This technology has largely been assessed in those undergoing cardiothoracic surgery and to our knowledge there has been no assessment of its applicability in renal transplantation.
Method: 31 consecutive patients undergoing renal transplantation had a continuous non-invasive monitoring device (ClearSight, Edwards Life Sciences) applied for the perioperative period. Standard non-invasive blood pressure (NIBP) and ClearSight blood pressure values were collected at simultaneous time points during post-operative recovery care – a comparatively controlled and low variability environment.
Results: There was strong correlation between the systolic, diastolic and mean arterial pressure recorded via NIBP monitoring and the ClearSight cuff (r=0.697, r=0.595, r=0.674 respectively). Though there was no significant difference in the average blood pressure values (p=andlt;0.001). Where there was difference the ClearSight blood pressure tended to be of a higher value than that recorded via NIBP monitoring.
Conclusion: ClearSight blood pressure monitoring appears to correlate well with current NIBP measurements in renal transplant recipients during the post-operative period. Further work is required regarding the use of this new technology to validate its exchangeability in this cohort.

Abstract No. 106

VASOPLEGIA IN PATIENTS UNDERGOING RENAL TRANSPLANTATION

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Background: Fluid management during renal transplantation can often be clinically challenging particularly as increasingly medically complex patients are being considered for transplantation. There has been increasing interest in a flow directed approach to the perioperative management of renal transplant recipients rather than a goal-based approach.

Methods: We conducted a retrospective audit on 55 consecutive patients undergoing cavaderic renal transplantation at a major Australian transplant hospital. Demographic data, peri-operative data, operative characteristics and post-operative recovery including graft function were collected from electronic medical records.

Results: Patients were divided into two cohorts – those with immediate graft function (n=26) (spontaneous drop in creatinine of 10% within 24 hours) and those with any degree of delayed graft function (n=28). Patients in the delayed function cohort had a lower pre-operative mean arterial pressure (91mmHg) vs. those with immediate graft function (99.5mmHg) (p=0.049). Operative MAP and MAP in recovery however was comparable between the groups. Patients with delayed graft function received on average less fluid than those with immediate graft function (2300mL vs. 2900mL, p=0.027).

Conclusion: Perioperative fluid management of the renal transplant recipient is challenging and may become increasingly so in the era of expanded recipient criteria. Patients with some degree of delayed graft function appeared to receive less fluid despite equivocal intraoperative parameters. This may reflect a degree of vasoplegia amongst this group that may warrant a more flow based rather than goal-based volume approach.

Abstract No. 107

PERI-OPERATIVE USE OF VASOPRESSIVE AGENTS DURING CADAVERIC RENAL TRANSPLANTATION

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Background: During renal transplantation maintaining adequate perfusion pressure to the graft is a key component of intraoperative management. This can prove challenging in chronic renal failure patients who are often vasoplegic and vulnerable to large fluid shifts. Intraoperative hypotension is an independent risk factor for delayed graft function however the use of vasopressive agents after graft perfusion may have an unwanted vasoconstrictive effect leading to decreased graft flow despite protected pressures.

Methods: We conducted a retrospective audit on 55 consecutive patients undergoing brain death cavaderic renal transplantation at a major Australian transplant hospital. Demographic data, peri-operative data, operative characteristics and post-operative recovery including graft function were collected from electronic medical records. In assessing graft outcome patients were divided into two cohorts – those with immediate graft function (n=26) (spontaneous drop in creatinine of 10% within 24 hours) and those with any degree of delayed graft function (n=28).

Results: The majority of patients (82%, n=45) had intraoperative inotropic use. There was a wide degree of variation regarding timing and dose used. The most commonly used agent was phenylephrine alone(n=33). Meteraminol (n=16) and ephedrine (n=6) were used far less frequently. Those with delayed graft function received higher average doses intraoperatively (39725mcg) vs. those with immediate graft function (1800mcg) p=0.047. The intraoperative average mean arterial pressure did not differ significantly between these groups (83mmHg vs 81mmHg).

Conclusions: Many patients undergoing renal transplantation receive ionotropic agents intraoperatively. Patients with delayed graft function appeared to receive higher doses of vasopressive agents. The clinical decision making regarding this decision is often complex and multi-faceted, aiming to strike a balance between adequate fill without causing potentially harmful fluid overload and oedema.

Abstract No. 108

SUCCESSFUL RENAL TRANSPLANTATION IN A PATIENT WITH DGKE-NEPHROPATHY

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Background: The association of atypical Haemolytic-Uraemic syndrome (aHUS) and genetic abnormalities have extended beyond mutations in the alternate complement proteins. Mutation in DGKE (diacylglycerol kinase epsilon) gene resulting in aHUS was first described in 2013.

Case Report: The clinical course of a patient with DGKE nephropathy, caused by a novel mutation of DGKE gene is reported with the short-term outcome of a successful renal transplant. A 22 year old woman presented in 2016 with history of repeated episodes of microangiopathic haemolytic anaemia (MAHA) since the age of nine-months. A renal biopsy at 3 years of age had revealed arteriolar fibrin thrombi without glomerulopathy. A repeat renal biopsy in 2016 with stage 4 CKD demonstrated chronic thrombotic microangiopathic changes with extensive glomerulosclerosis. She commenced peritoneal dialysis in 2019. Genetic testing for a broad aHUS gene panel by next-generation sequencing was unremarkable. As she was a product of consanguineous marriage, an autosomal recessive condition was suspected. Sanger sequencing of DGKE led to the discovery of novel homozygous variants (c.1A>T; p. M1_). She received a zero HLA-mismatched deceased donor kidney transplantation in September 2021, with ATG induction and standard tacrolimus-based immunosuppression regime, with close follow up of TMA-related investigations. Complement inhibition with Eculizumab was not used. Three-month protocol transplant biopsy was normal, with no features of recurrence of thrombotic microangiopathy. Five months post-transplant, she remains well with excellent allograft function and normal haematological parameters.

CONCLUSION: A rare case of non-complement mediated aHUS due to DGKE mutation transplanted successfully with standard immunosuppression is presented.

Abstract No. 109

PSYCHOSOCIAL STRENGTHS AND VULNERABILITIES AS PROGNOSTICATORS OF POST-LIVER TRANSPLANT PATIENTS' OUTCOMES: A QUALITATIVE APPROACH IN THE EVALUATION OF LIVER TRANSPLANT RECIPIENTS

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AIM: We aimed to raise surgeons' awareness of key psychosocial strengths and vulnerabilities which when present, may influence post-liver transplant patients engagement with treatment plans and transplant outcomes. **METHODS:** This was a single-centre cross-sectional study involving qualitative interview with specialised transplant social workers and subsequent thematic analysis.

RESULTS: I-SEAT were the key psychosocial determinants identified. Consideration of these determinants and the potential presence of their associated risk and protective factors can help shape and optimise treatment prognoses and processes. I: Indication for liver transplant - acquired vs autoimmune, Indigenous heritage, Income resources and debt; S: Stressors (including caregiving, health status, treatment impact, family circumstance), Substance use, Social supports, Stability of relationships, Sexuality issues; E: Ethnicity (and migratory/refugee experience), Education, Employment; A: Age and life stage, Address relative to transplant centre, Accommodation and; housing, Abuse; T: Thinking patterns, Trauma, Transport. **CONCLUSION:** Through the identification of "I-SEAT", it is contended that timely referrals and strengthened collaboration with the broader team, can mitigate poor patient outcomes and facilitate adherence to shared treatment goals.

Abstract No. 110

CEREBRAL TOXOPLASMOSIS MIMICKING GLIOBLASTOMA MULTIFORME IN A RENAL TRANSPLANT RECIPIENT

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Background: Toxoplasmosis is a common parasite that infects one-third of the world's population. In solid organ transplant recipients, toxoplasmosis can occur due to donor-transmission, reactivation of latent infection, or de novo infection. Donor-derived infection typically occurs within three months of transplant. It is uncommon in renal transplant with an incidence of and 1%, compared to 50-75% in heart transplant recipients not receiving prophylaxis. Late-onset toxoplasmosis is rare after renal transplant. We report a case of toxoplasmosis occurring seventeen years after transplant.

Case report: A 59-year-old female presented with progressive left-sided visual change, headaches, and confusion over one month. Her background included living donor renal transplant seventeen years prior. Her native kidney disease was lupus nephritis, managed with prednisolone. Maintenance immunosuppression was with mycophenolate sodium 360mg BD and tacrolimus XL 1.5mg daily. A non-contrast CT brain at the onset of illness was normal. A repeat CT brain with IV contrast one month later showed a lesion in the right parieto-occipital lobe with mass effect. MRI brain confirmed the presence of this lesion with rim enhancement and vasogenic oedema, with a presumed diagnosis of glioblastoma multiforme. The patient was commenced on dexamethasone and underwent debulking surgery, which returned as toxoplasmosis [figure 1]. She was commenced on pyrimethamine and sulfadiazine with good clinical response.

Conclusion: Although rare, toxoplasmosis can occur late after renal transplant. A broad differential diagnoses should be considered in these patients. A contrast CT would be helpful for early diagnosis.

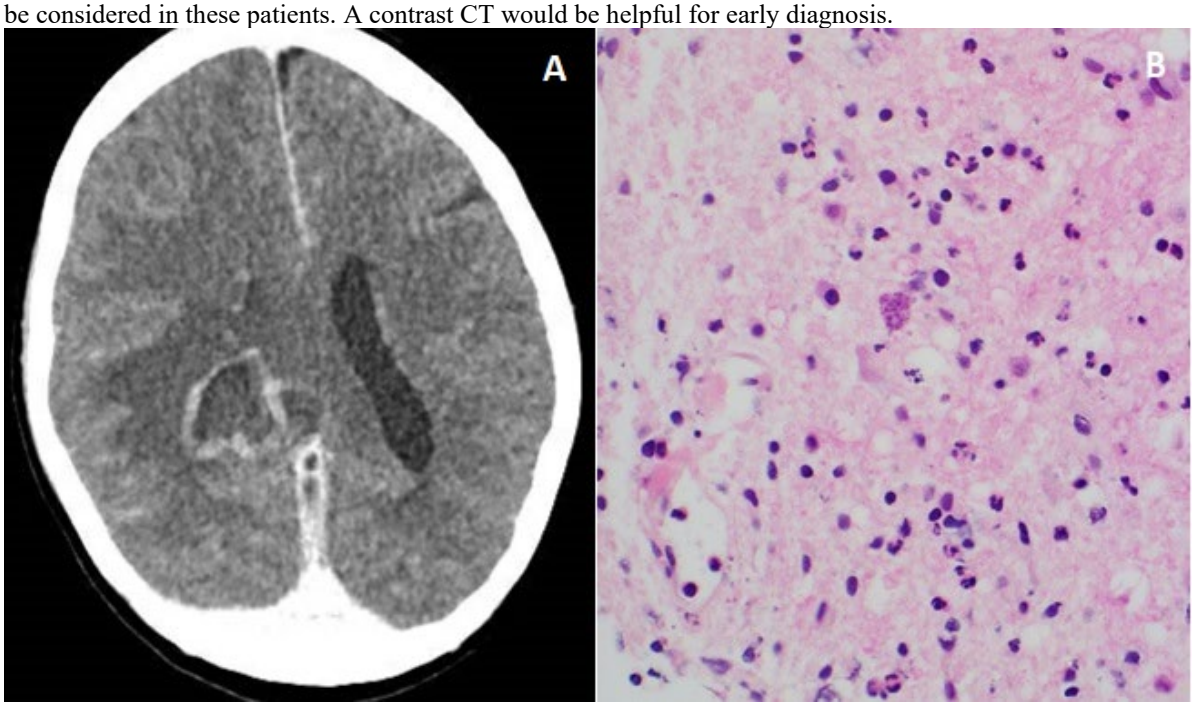

Figure 1: (A) Contrast CT brain showing rim-enhancing lesion with surrounding oedema and mass effect. (B) Histopathology showing toxoplasma cyst filled with bradyzoites and adjacent dispersed extracellular tachyzoites on a background of dirty necrosis.

Abstract No. 111

THE PROMOTION FOR THE TRANSPLANTATION AND ORGAN DONATION BY THE GLOBAL VIRTUAL SPORTS COMPETITION UNDER THE PANDEMIC OF COVID-19

MARUI Y

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Introduction: World Transplant Games (WTG), which is a multidisciplinary sports competition for transplantee as competitors, have been a global promotion to raise the awareness of the transplant and organ donation. The USA team who charged WTG2021 organized the virtual sports competition, 5K AnyWay, as the alternative due to pandemic of COVID-19.
Aims: To examine how the 5K AnyWay had affected the participants, and the WTG spirit.
Method: The 5K AnyWay as the online virtual sports competition was held from 28th May to 4th June 2021. Any recipients and supporters could participate anywhere in the world, and they competed 5000m or 5000times virtually choosing their favorite sports or activities, such as run, bike, swim etc. The result and photo of the proof were uploaded to the online site and the awards were certified. In addition, a Teddy bear was gifted to a child on the transplant waiting list, every time there were 10 participants in a team.
Results: From 40 countries more than 2,500 participants attended the various kinds of sports. The participants who had wished to meet on site could recognize each other online, and the vigorous appearance of recipients could have been shown through the website. Then, the total distance that the participants earned overcame the length of the circumference of the earth.
Conclusion: The 5K AnyWay became the opportunity not only for the promotion, but to share the sense of solidarity by visually competing with the colleagues and the sense of accomplishment to the same goal.

Abstract No. 113

PREDICTIVE FACTORS FOR RECURRENT MEMBRANOUS NEPHROPATHY AFTER KIDNEY TRANSPLANATION

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Aims: To identify predictive factors for post-transplant recurrent membranous nephropathy (MN) in a national cohort of kidney transplant recipients using routinely collected clinical data including donor-recipient human leukocyte antigen (HLA) serotypes and HLA mismatch characteristics.
Methods: Data from the Australian and New Zealand Dialysis and Transplant (ANZDATA) registry were used to develop two prediction models for recurrent MN (Group Least Absolute Shrinkage and Selection Operator (LASSO) regression and random forest). Models were tuned using 10-fold cross-validation and model performance evaluated using cross-validated area under the receiver operating characteristic curve (AUC-ROC). Covariates with non-zero coefficients were included in an adjusted logistic regression model.
Results: 199 kidney transplant recipients with MN were included and 25 (13%) had recurrent MN (median follow-up 5.9 years). Median age was 48 years, male sex 73%, and Caucasian ethnicity 82%. The AUC-ROC for Group LASSO and random forest models were 0.85 (95% confidence interval (CI) 0.76-0.93) and 0.66 (0.60-0.71) respectively, with reasonable agreement in selected variables between the models (88%). Variables of importance chosen by the two models included interleukin (IL)-2 receptor blocker induction therapy, maintenance on standard anti-metabolites (mycophenolate mofetil (MMF) and azathioprine), recipient HLA-A2, donor HLA-DR12, donor-recipient HLA-B65 and HLA-DR12 match. With reference to those without HLA-A2 and not on MMF, the adjusted odds ratio (95% CI) for disease recurrence were 6.84 (2.04-22.88) and 0.17 (0.04-0.82).
Conclusions: The predictive factors for disease recurrence included recipient HLA-A2 and recipients not on maintenance MMF.

Abstract No. 114

TESTICULAR GRANULOMATOUS VASCULITIS IN A PRE-TRANSPLANT PATIENT

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Case: We present a case of a 42-year-old dialysis patient with quiescent disease presenting with a flare of vasculitis localised to his testes prior to transplantation. Patient with known renal PR3 ANCA vasculitis initial presentation in 2014 treated with 4 cycles IV cyclophosphamide and maintenance MMF and prednisolone. Flare of disease in 2019 treated with Rituximab. Good serological response with PR3 titres dropping from peak 74IU/mL to 2-4 IU/mL. Despite this renal function deteriorated over 2020 necessitating commencement of haemodialysis and work-up for living related renal transplant. 1 month prior to elective transplant patient presented with a 2-week history of testicular pain and a palpable right testicular mass. US identified a lesion on the right testicle. Beta HCG, AFP and LDH normal but given concern for malignancy pre-transplant proceeded to orchidectomy. Histology post orchidectomy identified a testicular granulomatous vasculitis [Image 1]. Transplant proceeded August 2021 with excellent outcome under standard immunosuppression protocol.

Discussion: A fascinating case of a rare potential complication of ANCA vasculitis [1]. The atypical nature of presentation, absence of active ANCA antibodies and the need to delay transplantation workup in the setting of a suspicious testicular mass are unique. It is important to remember that despite a lack of antibody presence these autoimmune processes affect multiple organ system. The fact that patent was persistently ANCA positive but MPO and PR3 negative highlights that antibody measurement alone is not enough to rule out an active flare and a low threshold for further investigation of these patients is of vital importance.

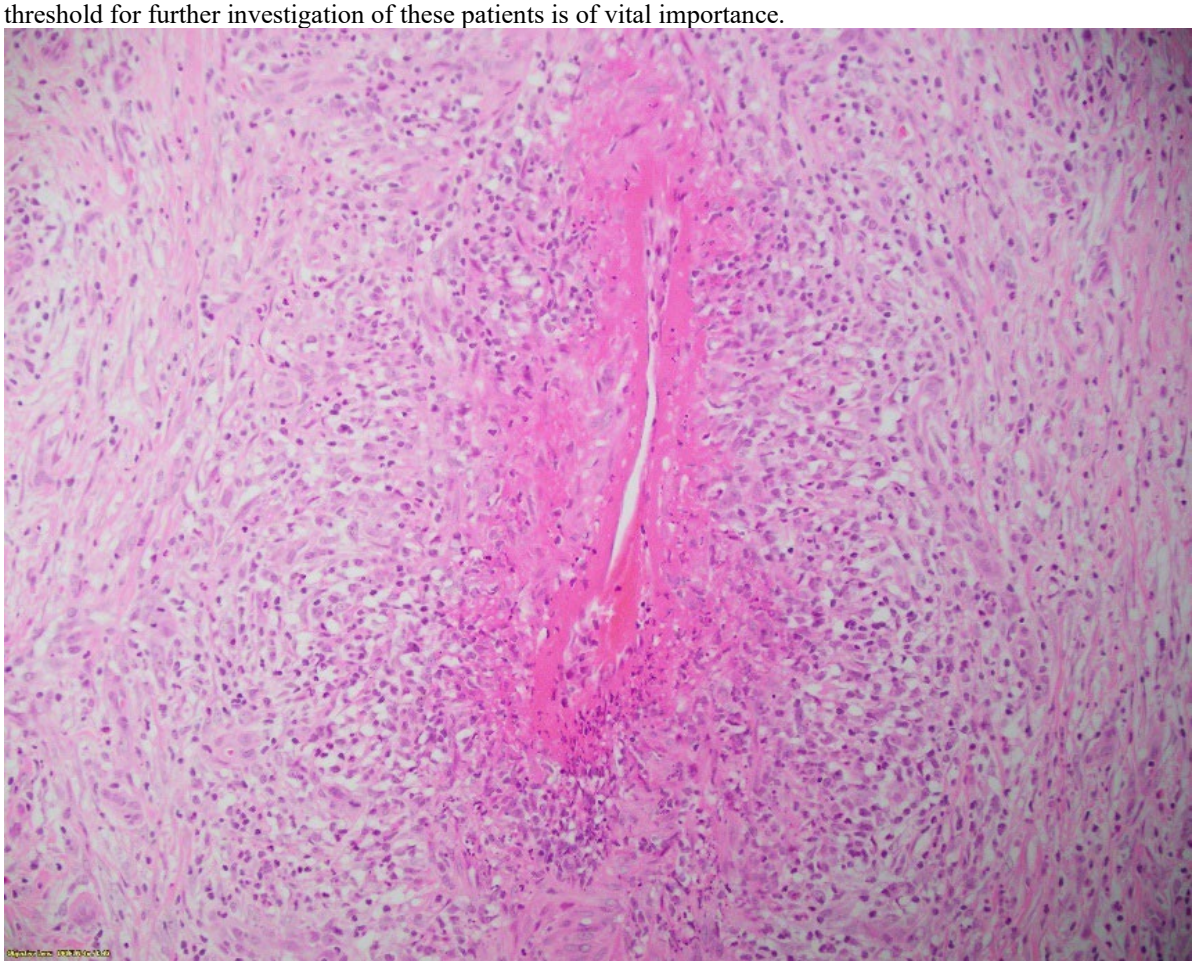

Image 1 Image of testes showing necrotising vasculitic lesion. Medium sized muscular artery with mural mononuclear inflammation and very focal fibrin exudation in the expanded intima.

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Curr Urol. 2013 Nov; 7(2): 107–109. doi: 10.1159/000356258

Abstract No. 115

PLASMA CELL-FREE DNA AND SURVIVAL IN KIDNEY TRANSPLANT RECIPIENTS

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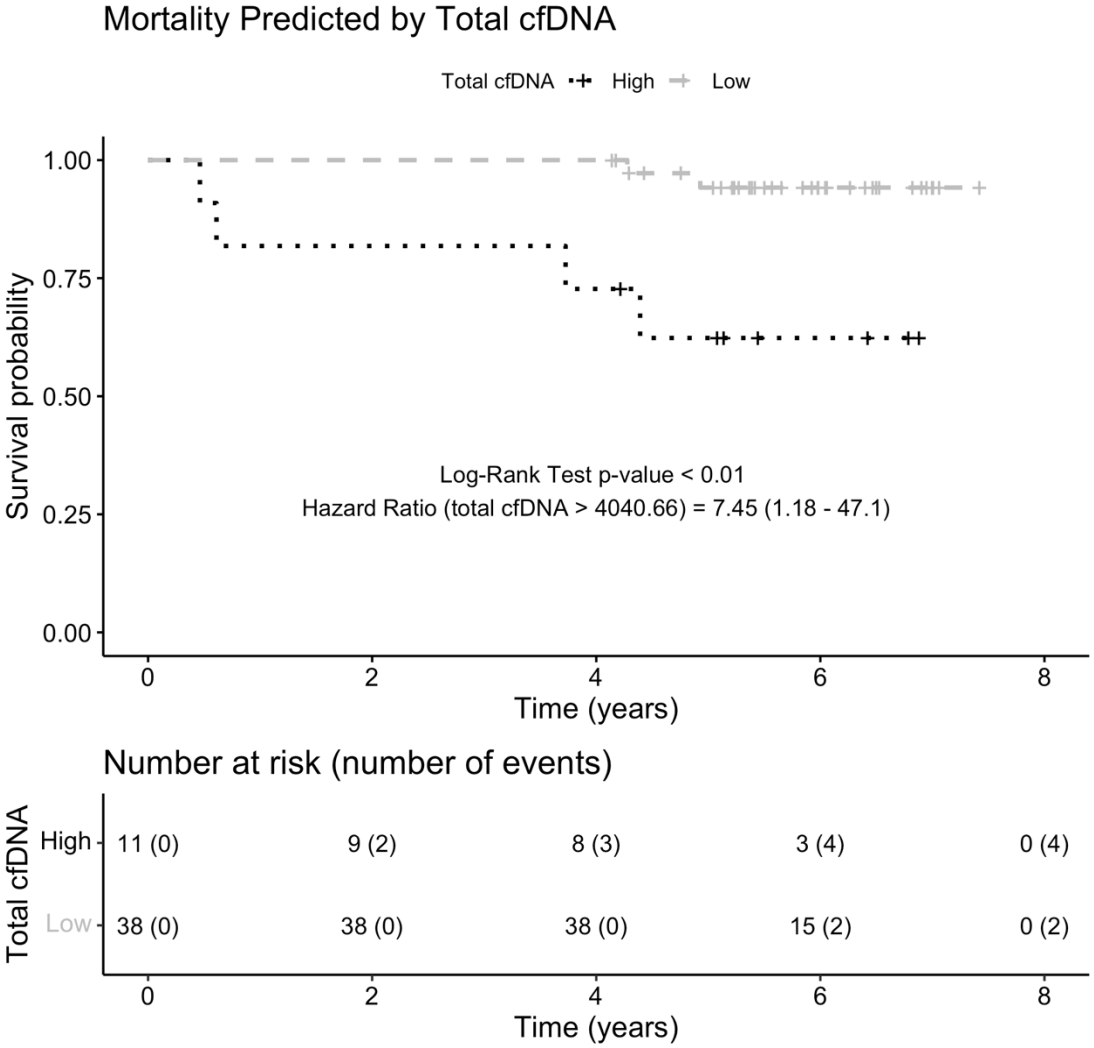
Aims: To examine the long-term prognostic value of plasma donor-derived cell-free DNA (ddcfDNA) and total cell-free DNA (cfDNA) measured immediately prior to indication kidney transplant biopsies.

Methods: A retrospective review was performed of kidney transplant recipients (KTRs) who underwent prospective cfDNA quantification by droplet digital PCR, at the time of transplant indication biopsy between 2014 and 2017. Absolute (cp/mL) and relative (%) ddcfDNA levels, and total cfDNA concentration, were analysed against long-term survival outcomes.

Results: Of 49 unique KTRs (mean follow-up 5.8 years), there were 6 deaths and 6 failed grafts. Total cfDNA was higher (4736.6cp/ml vs 1639.91cp/ml, p=0.04) and relative ddcfDNA was lower (0.21% vs 0.52%, p=0.047) in KTRs that died. The optimal cutpoint (by Youden's index) for mortality was 4040.66cp/mL (AUC 0.76) for total cfDNA, and 0.31% (AUC 0.75) for relative ddcfDNA. On multivariate analysis, increased KTR mortality was predicted by total cfDNA above the cutpoint (HR 7.45, 95% CI 1.18-47.1), and by relative ddcfDNA below the cutpoint (HR 20.53, 95% CI 1.4-299.8). Total cfDNA was lower in KTRs with death-censored allograft failure (912.43cp/ml vs 1803.09cp/ml, p=0.02). All cases were identified by total cfDNA below the optimal cutpoint of 1304.68cp/mL (AUC 0.81). Absolute ddcfDNA was not associated with survival outcomes.

Conclusions: Death was significantly associated with higher total cfDNA and lower relative ddcfDNA. Allograft failure was significantly associated with lower total cfDNA. These associations are a novel finding in KTRs. Relative ddcfDNA has been used to identify transplant rejection, but cfDNA and ddcfDNA may indicate prognosis more widely.



Abstract No. 116

CRITICALLY IMPORTANT OUTCOMES FOR INFECTION IN TRIALS IN KIDNEY TRANSPLANTATION: AN INTERNATIONAL SURVEY

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Background: Infections are a common complication following kidney transplantation but are reported inconsistently in clinical trials. This study aimed to identify the infection outcomes of highest priority for patients/caregivers and health professionals to inform a core outcome set to be reported in all kidney transplant clinical trials.

Methods: In an international online survey, participants rated the absolute importance of 16 infections and 8 severity dimensions on 9-point Likert Scales, with 7-9 being critically important. Relative importance was determined using a best-worst scale. Means and proportions of the Likert-scale ratings and best-worst preference scores were calculated.

Results: 353 healthcare professionals (19 who identified as both patients/caregiver and healthcare professionals) and 220 patients/caregivers (190 patients, 22 caregivers, 8 who identified as both) from 55 countries completed the survey. Both healthcare professionals and patients/caregivers rated bloodstream (mean 8.4 and 8.5 respectively; aggregate 8.5), kidney/bladder (mean 7.9 and 8.4; aggregate 8.1) and BK virus (mean 8.1 and 8.6; aggregate 8.3) as the top 3 most critically important infection outcomes, whilst infectious death (mean 8.8 and 8.6; aggregate 8.7), impaired graft function (mean 8.4 and 8.7; aggregate 8.5) and admission to the intensive care unit (mean 8.2 and 8.3; aggregate 8.2) were the top 3 severity dimensions. Relative importance (best-worst) scores were consistent.

Conclusions: Healthcare professionals and patients/caregivers consistently identified bloodstream infection, kidney/bladder infections and BK virus as the three most important infection outcomes, and infectious death, admission to intensive care unit and infection impairing graft function as the three most important infection severity outcomes.

Abstract No. 117

DOES A LONG COURSE OF INTRAVENOUS IMMUNOGLOBULIN IMPROVE GRAFT SURVIVAL IN ANTIBODY-MEDIATED REJECTION OF THE KIDNEY TRANSPLANT?

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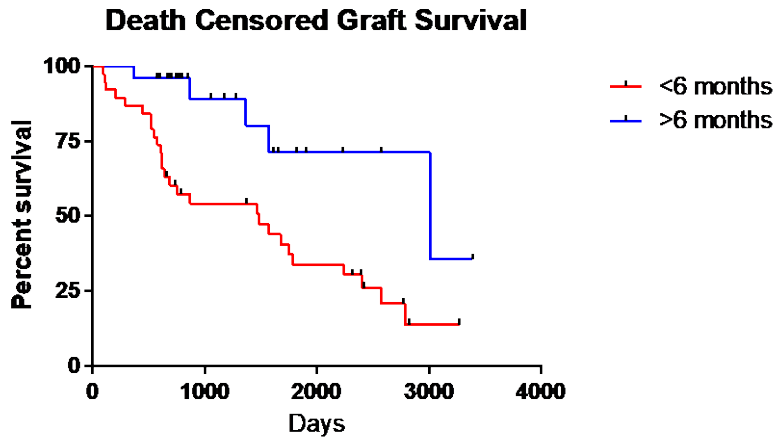
Background: Antibody-mediated rejection (ABMR) continues to be a major cause of graft loss in the kidney transplant recipient. Intravenous immunoglobulin (IVIG) has been suggested to be associated with improved outcomes, and has become a widely used treatment, however evidence to support its dose and duration is limited.

Aim: To determine if a short treatment course (<6 months) versus a long course (>6 months) of IVIG impacts graft survival following a diagnosis of ABMR.

Methods: A single transplant centre retrospective study was performed. Patients with biopsy-proven ABMR between January 1, 2010, and June 30, 2020, who received IVIG as part of treatment were included. Patients were grouped based on long course or short course of IVIG with graft survival rates compared between the 2 groups. Those who died with a functioning graft were censored at time of death. Patients were excluded if they had early ABMR (diagnosis <180 days since transplant) or were followed up at a different centre with incomplete information for analysis.

Results: Of 63 patients included, 38 received a short course of IVIG and 25 patients received a long course. The median graft survival was 1488 days for the short course group and 3011 days for the long course group (p=0.003 by log-rank test).

Conclusion: IVIG appears to have a beneficial effect on graft survival with a longer treatment duration having significantly increased graft survival compared to a short course. This could provide evidence to support its immunomodulatory effect in the treatment of ABMR.



Abstract No. 118

DONOR IN SITU ISCHEMIA TIME (DISIT) IN KIDNEY TRANSPLANTATION

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Introduction: Multiple factors in organ retrieval and transplantation influence the short-and long-term renal allograft outcome. Donor In Situ Ischaemia Time (DISIT) is the time from commencement of cold perfusion in the deceased donor, until the organ is removed and placed within ice. We studied the association between DISIT and short time graft function in kidney transplant recipients.

Methods: Using data from 540 consecutive kidney transplants between 1st of January 2014 and 1st of January 2022, we assessed the association between DISIT and graft function post-transplant using a multivariable ordinal logistic regression, adjusted for DCD status, donor sex and age, and KDPI. We defined graft function as immediate, slow graft and delayed graft function. In a subset of our cohort, n = 47, histological assessment (cv score – Banff criteria for xx) of the allograft was assessed using a linear regression.

Results: The mean age (SD) of the transplant recipient was 51.69 (12.89), with median DISIT time of 34 minutes. For every one-minute increase in the DISIT, odds of developing slow graft function and delayed graft function versus immediate graft function is 3.3 times higher, given all other variables are held constant. the DISIT correlated significantly with initial renal allograft function (pandlt;0.05). Further, DISIT was also correlated with an increase in cv score during the first 12-months post-transplantation (p<0.01).

Conclusion: These results demonstrate the importance of minimising this novel ischaemia time as a way of reducing the incidence of short- and long-term graft injury.

Figure 1: Results of multivariable ordinal logistic regression. DISIT, as well as DCD status, KDPI and donor sex were all significantly associated with poor initial graft function.

	outcome		
Predictors	*Odds Ratios*	*Statistic*	*p*
(Intercept)	0.17 (0.06 – 0.48)	-3.34	**0.001**
dcd [Yes]	11.10 (6.21 – 20.92)	7.80	**<0.001**
donor sex [Male]	1.78 (1.08 – 2.95)	2.27	**0.023**
donor age	0.98 (0.96 – 1.00)	-1.62	0.105
kdpi	1.02 (1.00 – 1.03)	2.37	**0.018**
DISIT	1.02 (1.00 – 1.03)	2.36	**0.018**

Figure 1: Results of multivariable ordinal logistic regression. DISIT, as well as DCD status, KDPI and donor sex were all significantly associated with poor initial graft function.

Abstract No. 119

THE IMPACT OF BANFF BORDERLINE ACUTE T-CELL MEDIATED REJECTION ON TRANSPLANT OUTCOMES: AN ANZDATA ANALYSIS

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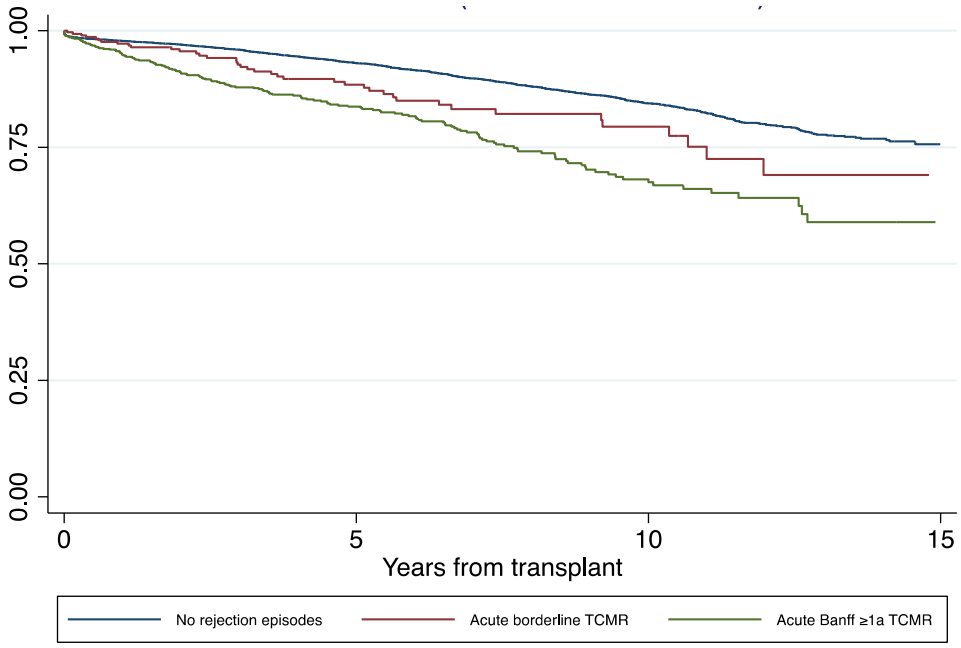
Aims: The impact of borderline acute T cell mediated rejection (bTCMR) on graft and patient outcomes is uncertain and better information is needed to guide treatment decisions. We investigated the association between bTCMR and graft and patient survival.

Methods: Using ANZDATA, we examined the relationship between biopsy diagnosed bTCMR occurring in the first year post-transplant, and graft and patient survival in kidney only recipients between 2004 and 2018. Cox proportional hazards, Kaplan–Meier and competing risk analyses were used.

Results: bTCMR was found in 321(15%) transplant recipients, while 1007(48%) had no rejection and 771(37) were found to have ≥BANFF 1a TCMR. In univariate analysis, bTCMR was associated with a significantly increased risk of graft loss (HR 1.56, 95%CI:1.13 to 2.13), but no difference in risk of patient death (HR 0.66, 95%CI: 0.40 to 1.07). In multivariate analysis the results were similar (graft loss HR 1.36, 95% CI: 1.00 to 1.87, patient death HR 0.63, 95%CI: 0.39 to 1.03) after adjusting for demographic variables (age, sex, ethnicity), comorbidities (underlying kidney disease, diabetes, peripheral vascular disease, smoking history) and transplant variables (donor type, donor age, pre-transplant peak PRA, and delayed graft function). In a competing risks (Fine-Gray) model where graft loss and patient death were considered competing risks, results were similar. **Conclusions**: bTCMR is associated with an increased risk of graft loss. These results suggest that bTCMR diagnosis is likely to be clinically meaningful, and future research on whether treatment of bTCMR improves outcomes is warranted.

Figure 1:
Fully adjusted Kaplan-Meier survival curve for death censored graft loss stratified by rejection type



Abstract No. 120

BK NEPHROPATHY AND CYSTITIS IN A PAEDIATRIC HEART TRANSPLANT RECIPIENT

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Introduction: BK Nephropathy is a common complication following kidney transplant but has rarely been described in heart transplant patients. We report a case of BK nephropathy in a young heart transplant recipient.

Results: A 4-year-old boy presented with bladder and penile pain, 15 months after heart transplant. He had undergone heart transplant for severe dilated cardiomyopathy, and was on tacrolimus (levels 7.5-14.4), mycophenolate, enalapril and Bactrim at the time of presentation. Bladder ultrasound at presentation with bladder pain showed thickened bladder wall, and he was treated for allergic cystitis. Serum BK PCR returned positive, but no changes were made to his immunosuppression at this time. He represented 4 months later with dysuria, bladder pain and reduced appetite. Repeat ultrasound showed a severely thickened bladder wall. Bladder biopsy showed BK-positive chronic cystitis. Creatinine peaked at 100µmol/L, from a baseline of 35-45µmol/L. Serum BK level was 1,110,000 copies/ml (6.0log10). He proceeded to kidney biopsy which confirmed BK nephritis. His immunosuppression was reduced to aim for tacrolimus level 5-7 and mycophenolate 10mg/kg BD. He was treated with weekly IVIG (0.3g/kg) and Cidofovir IV (initially 0.25mg/kg, then increased to 1mg/kg) for 12 weeks. BK level reduced to 8,500 copies/ml (3.9log10) and creatinine improved to 55µmol/L but did not return to baseline.

Conclusion: BK infection of the urinary tract and kidneys should be considered when solid organ transplant recipients present with dysuria, bladder pain or elevated creatinine. Failure to recognise this can result in significant delays in treatment, and loss of kidney function.

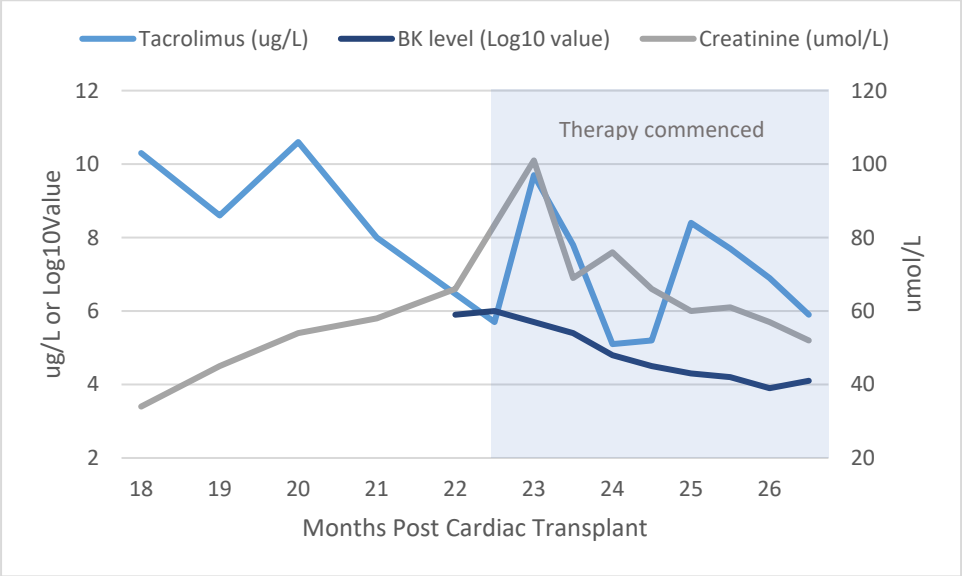

Figure 1: Tacrolimus, BK level (log10value) and creatinine (umol/L) for duration of therapy

Abstract No. 121

RECENT TROUBLE WITH VENOUS THROMBO-EMBOLISM POST TRANSPLANTATION

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Aims: Venous thrombo-embolism (VTE), including pulmonary embolus (PE) and deep vein thrombosis (DVT) can occur post any period of immobility and major surgery. Kidney transplantation is a major surgery and the patients undergoing these have multiple hypercoagulable factors. Our Renal Unit has experienced a succession of PE/DVT post transplantation which prompted this audit. Our aim is to ascertain timings of VTE and determine background characteristics.
Methods: Retrospective review of patients in the Renal unit who has had thrombosis diagnosed (via CTPA/V/Q perfusion scans/dopplers) since kidney transplantation. All transplants from 2021 were reviewed.
Results: 11 out of 81 (13.5%) transplants from January – November 2021 had post-operative VTE. Of these 9 (11%) had PE and 2 (2.4%) had DVT alone. The range of days for post-transplantation VTE onset was between 8 – 35 days. Despite all these patients being on prophylactic anticoagulation within 12 hours post-surgery, they still suffered with VTE. The potential contributing factors maybe haemoconcentration from hypovolaemia from polyuria. Other factors include immobility from admissions for renal biopsy post transplantation.
Conclusions: In response to this audit, we have changed our practice to discharge patients post kidney transplants with 28 days of prophylactic anticoagulation. We are also ensuring adequate fluid resuscitation post transplantation to combat hypotensive episode. Since this change in practice, the subsequent 17 patients transplanted over 2021 have not experienced post-operative VTE. We will re-review thrombosis post transplantation to ensure that we have solved the mystery behind this recent succession of clots.

Abstract No. 122

EFFICACY AND SAFETY OF SGLT2 INHIBITORS (SGLT2I) IN DIABETIC RENAL TRANSPLANT RECIPIENTS: A SINGLE CENTRE EXPERIENCE

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Background: Large trials of SGLT2i have demonstrated impressive renoprotective effects in the non-transplant population. The main haemodynamic effect of these agents is via inhibition of the juxtaglomerular feedback (JGF) mechanism. It is unclear whether these agents will offer similar renoprotective effects in transplant recipients.
Aims: (1) To determine the effect of SGLT2i on creatinine, estimated Glomerular Filtration Rate (eGFR), urine albumin-to-creatinine ratio (ACR) and HbA1c from baseline to 3 months (T1) and 12 months (T2) post initiation, in a single centre cohort of renal transplant recipients and (2) To evaluate tolerability and adverse events.
Methods: A single centre retrospective study of all transplant recipients prescribed an SGLT2i between 2017-2022. Clinical and biochemical data was derived from the EMR.
Results: 48 renal transplant recipients were prescribed an SGLT2i. Pre-existing diabetes mellitus n=25; post-transplant diabetes mellitus n=23. Median time from post-transplant to initiation of the SGLT2i was 59 months. Median creatinine and eGFR were not significantly different at baseline compared with either time point. There was also no statistically significant difference in median serum uACR or HbA1c at baseline compared with either time point (see table). 4 subjects discontinued the SGLT2i (3 with UTIs and 1 with a rash).

	Median			
	Baseline	T1	T2	p
Creatinine (umol/L)	112 (89, 128)	120 (98, 138)	119 (79, 138)	0.43
eGFR (mL/min/1.73m2)	53 (43, 69)	49 (42, 66)	53 (41, 68)	0.57
uACR (mg/mmol)	7 (2, 41)	4 (2, 42)	3 (1, 14)	0.57
HbA1c (%)	8 (7, 9)	8 (7, 8)	8 (7, 9)	0.12

Conclusion: The SGLT2i were well tolerated. 6% discontinued the medication due to UTIs, all with a pre-existing history of UTIs. No significant drop in eGFR or urine ACR was noted, raising the possibility of an impaired JGF mechanism in transplant recipients although few patients had significant albuminuria at baseline. Prospective studies are required to examine the potential renoprotective effects of the SGLT2i in this cohort.

Abstract No. 123

INTRA-OPERATIVE CORTICAL RESISTIVE INDICES IN THE PREDICTION OF DELAYED GRAFT FUNCTION IN DECEASED DONOR RENAL TRANSPLANTS

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Aim. To determine the value of intra-operative cortical resistive indices (RI) in the prediction of delayed graft function (DGF) in deceased donor renal transplantation and whether physical factors improve DGF prediction. **Methods.** Logistic regression modelling for DGF was performed using data from 152 of 153 consecutive adult single renal grafts from 2013 to 2020 with deceased donors. Tissue match, donor and recipient co-morbidities were not included in the modelling.

Results. DGF occurred in 82 (54%) grafts. The mean (±sd) intra-operative RI was 0.64 (±0.10), and was significantly (pandlt;0.001) higher, (0.67±0.09) in those with DGF than in those without (0.60±0.09). In univariate analysis, RI had an AUROC of 0.72. The AUROC of the best multivariable model of RI, graft length, recipient height and weight, DCD, and on and off-ice ischaemia times was 0.81, and for a model with RI, height, DCD and off-ice ischaemia time 0.79. Ninety-two live donor grafts were also performed during the study period with DGF in 5 (5%).

Conclusions. Intra-operative RIs have not previously been described in predictive models of DGF. The accuracy of the intra-operative RI as a single real time predictor of DGF is comparable to many current complex retrospective multivariable models. The RI directly measures cortical perfusion and likely takes much account of the effect of pre-implantation factors including ischaemia. That recipient and graft physical features are in multivariable models, suggests factors that likely cause DGF by external graft compression post-operatively are also important. Validation of the predictive modelling is being undertaken.

Abstract No. 124

VALIDATION OF PREDICTION OF DELAYED GRAFT FUNCTION USING INTRA-OPERATIVE CORTICAL RIS IN DECEASED DONOR RENAL TRANSPLANTS

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Aim. To assess using prospectively collected data, the validity of prediction of intra-operative cortical resistive indices (RI) for renal delayed graft function (DGF) in deceased donor single renal transplants.

Methods. Univariate and multivariable logistic regression models for DGF in deceased donor grafts, using retrospective data from 2013-20, have been developed, and were used to test prospectively collected data. The RI was the median of the cortical RIs measured in the upper, middle and lower poles in the kidney as soon as practicable after clamp release intra-operatively. A multivariable model also included the DCD status, off-ice ischaemia time, and recipient height.

Results. Prospectively collected data from 34 deceased donor single grafts was analysed including 7 deceased cardiac donors (21%). Nineteen (56%) patients had DGF. Univariate modelling using the intra-operative RI alone, had a cumulative probability of DGF of 18.5 compared to 19 observed cases. Increasing tertiles of predictive scores had average probabilities very similar to observed DGF rates (0.33, 0.53 and 0.76 vs 0.27, 0.58 and 0.73). The multivariable model was slightly less accurate with a cumulative probability of DGF of 16.8. **Conclusions.** Intra-operative RI has not previously been tested prospectively in predictive models of DGF and alone is a very efficient real time predictor of DGF comparable to many retrospective multivariable models.

Abstract No. 125

RETROSPECTIVE, SINGLE-CENTRE COHORT STUDY OF FLUID THERAPY AND HYPOTENSION POST KIDNEY TRANSPLANTATION

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AIMS: To investigate the rates of perioperative hypotension during kidney transplantation, and the measures used to treat hypotension.

METHODS: A retrospective study of all kidney (kidney alone) transplantations conducted at the Royal Adelaide Hospital in 2020, after the introduction of the Electronic Medical Record in February 2020. Recipient data was collected, including age, weight, dialysis modality, comorbidities and primary renal disease. Intraoperative data such as fluid volume administered and total vasopressor dose administered were collected. Postoperative data was collected for 24-hour post operatively, measured from the time entered into recovery room. Postoperative data include; hypotensive event (defined by 2 readings of a systolic blood pressure of under 100mmHg or a mean arterial pressure under 65mmHg), admissions to the intensive care unit (ICU) and ICU length of stay. Weight and total fluid therapy at 24 hours was also collected. Finally wound breakdown rates at 4 weeks were collected.

RESULTS: 94 kidney alone transplants were done in the study period. 47 patients (50%) were hypotensive within the first 24 hours and of these 12 patients (12.8%) required ICU admission for hypotension. Similar rates of hypotension were observed in patients receiving living donation and deceased donations (Table). Patients requiring more vasopressor intraoperatively had a trend towards hypotension, though non-significant. There was no significant different in weight gain and fluid therapy in patients with and without wound breakdown.

CONCLUSION: Post transplant hypotension represents a significant problem in the first 24 hours post transplantation, affecting both living donor and deceased donor transplants.

Table

Demographics (Mean ± SD)	
Transplants (n)	93
Living Related (LRD)	9
Living Unrelated (LURD)	13
Donation after Brain Death (DBD)	52
Donation after Circulatory Death (DCD)	19
Age (years)	49.2 ±13.9
Gender	
Male	51
Female	43
Comorbidities (%)	
Hypertension	70 (74.4%)
Ischaemic Heart Disease	10 (10.6%)
Diabetes Mellitus	28 (29.7%)
Hypotension (%)	
Transplants (n)	47 (50.5%)
Living Related (LRD)	4 (44.4%)
Living Unrelated (LURD)	7 (53.8%)
Donation after Brain Death (DBD)	26 (49.1%)
Donation after Circulatory Death (DCD)	10 (52.6%)
Perioperative Characteristics (Median, (Q1-Q3))	
Intraoperative fluid (mls)	2000 (1300 - 2267)
Intraoperative metaraminol use (mg)	7.7 (4.6 - 10.8)
Weight gain in first 24hrs (kg)	3.3 (2.0 - 4.5)
ICU admission	
Transplants (n)	12 (12.8%)
Living Related (LRD)	0 (0%)
Living Unrelated (LURD)	1 (7.7%)
Donation after Brain Death (DBD)	9 (17%)
Donation after Circulatory Death (DCD)	2 (10.5%)

Abstract No. 126

MARKERS OF GRAFT INJURY AMYLASE AND LIPASE INCREASED IN SPK PATIENTS WITH EXTENDED DISIT

GABOR H[1], ROBERTON H[2], ROBERTSON P[3], HORT A[4], HITOS K[5], WONG G[3], PATRICK E[2], LAURENCE J[4], YUEN L[4], YAO J[4], LEE T[4], ROGERS N[6], PLEASS H[4]

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Aims: To determine the association between donor in situ ischemic time (DISIT), pancreas graft function and graft loss in SPK transplant recipients.

Methods: We performed a retrospective analysis on 184 SPK transplant recipients from a single-centre. DISIT was defined as the time between in-situ organ perfusion and placement of the pancreas on ice. A generalised logistic regression model assessed the relationship between DISIT and 1-year pancreatectomy or death within 10-years. A mixed effect model factoring in individual patients was used to model the decline of amylase, lipase and BSL from day-1 to day-3, 7 and 14, using recipient age and KDPI as covariates. This analysis was also performed using the peak measurements across the four time points.

Results: DISIT ranged from 15 to 104-minutes with a mean DISIT time of 38-minutes. Ten pancreas grafts thrombosed at a median time of 6-days post-operatively (5.4%) and one was lost to rejection at 157-days. DISIT was not correlated with either 1-year pancreatectomy or 10-year death, although KDPI and donor age were significant for both outcomes. Mixed effect modelling showed that lipase, but not amylase, declined significantly slower between day-1 and 7 in patients with longer DISITs. The peak amylase and lipase was not correlated to longer DISIT.

Conclusion: Neither 1-year graft failure nor all-cause death were associated with longer DISIT in this small cohort. The slower decline in lipase in patients with longer DISITs indicates that this surgical time remains important to minimise and should be studied in a larger cohort.

Abstract No. 128

BACK TO THE MACHINE: TRANSITION FROM TRANSPLANT TO DIALYSIS

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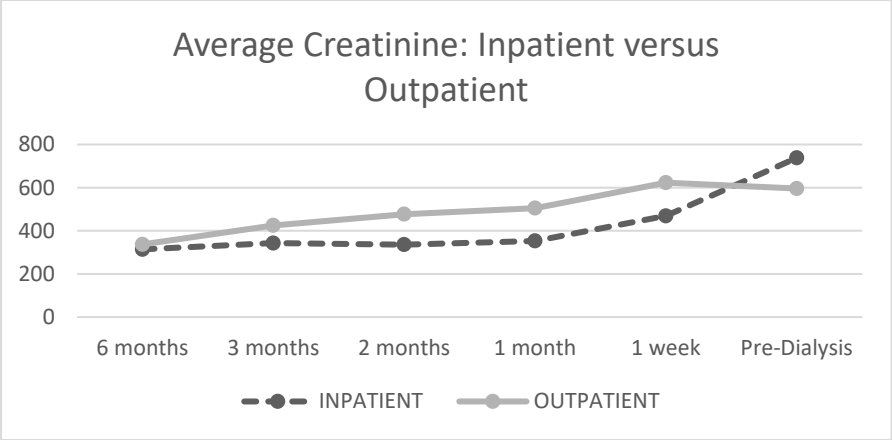
Aims: The prevalence of transplanted kidney graft dysfunction requiring initiation of dialysis is increasing and this group represent a poorly studied group due to paucity of research in this cohort. Furthermore, the optimal timing of recommencing dialysis is unknown. This study aims to review characteristics of this subset of patients and outline trends of renal function in the months leading up to the transition to dialysis as well as the cause of their failing graft.
Methods: Retrospective single centre cohort study of patients cared for by the Renal unit at Royal Adelaide Hospital in the last 5 years. Patient names have been de-identified and anonymised.
Results: 67 patients were identified to have commenced dialysis from transplant in the study period between 2015 and mid 2020. Thirty-five (52%) patients had AV fistula that were already present at the time of starting dialysis. Thirty patients (45%) required insertion of permacath. One had a fistula made 1 month prior to starting, but this was not mature enough. One had an old permacath that was used. Out of those who commenced dialysis as outpatients, the cause of graft failure was progressive renal dysfunction, uraemia and fluid overload. Those who commenced dialysis as an inpatient were due to sepsis, GI bleed, gastroenteritis, or AKI during pregnancy. The creatinine rise between inpatient and outpatient starts are shown in Figure 1.
Conclusions: Acute graft dysfunction requiring commencement of dialysis has a steeper deterioration of renal function in comparison to those who commenced dialysis as an outpatient.
Figure 1:



Abstract No. 129

POTASSIUM CLEARANCE POST KIDNEY TRANSPLANTATION: A SINGLE CENTRE AUDIT

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Aims: Kidney transplantation types can be categorised into those from deceased donors or living donors. The presumption is that kidney allografts from living donors generally do not experience delayed graft function and hence potassium clearance post-transplant is immediate. The aim was to review potassium pre- and post-transplantation and compare the management differences following deceased versus living donor kidney transplantation.

Methods: We conducted a retrospective audit of the last consecutive 100 kidney transplants in a single centre.

Results: Of the 100 transplant recipients, 37% were female and 63% were male. 40/100 (40%) required immediate post-transplant dialysis, and 60/100 (60%) did not. Of the 40 patients who required dialysis post-transplantation, the potassium range was 4.5 – 7.3mmol/L following donation after brain death (DBD) transplantation (25/40 requiring dialysis) and between 4.9 – 7.4mmol/L following donation after cardiac death (DCD) transplantation (14/40 requiring dialysis). Only one patient post living donor transplantation required dialysis due to a potassium of 8.6mmol/L. This was an anomaly. Of the 60% of patients who did not require dialysis post-transplantation, the potassium range was between 3.5 – 6.4mmol/L from the deceased donors and between 3.4 – 6.9mmol/L among the living transplant group. Due to adequate urine output, only medical management was required to correct hyperkalaemia in these patients. There was no statistically significant difference in the length of surgery.

Conclusions: Hyperkalaemia post living donor kidney transplantation is very rare and there may be external contributing factors. Fortunately, this is not a common occurrence.

Abstract No. 130

TRANSPLANT RENAL ARTERY STENOSIS – AN IMAGING CHALLENGE

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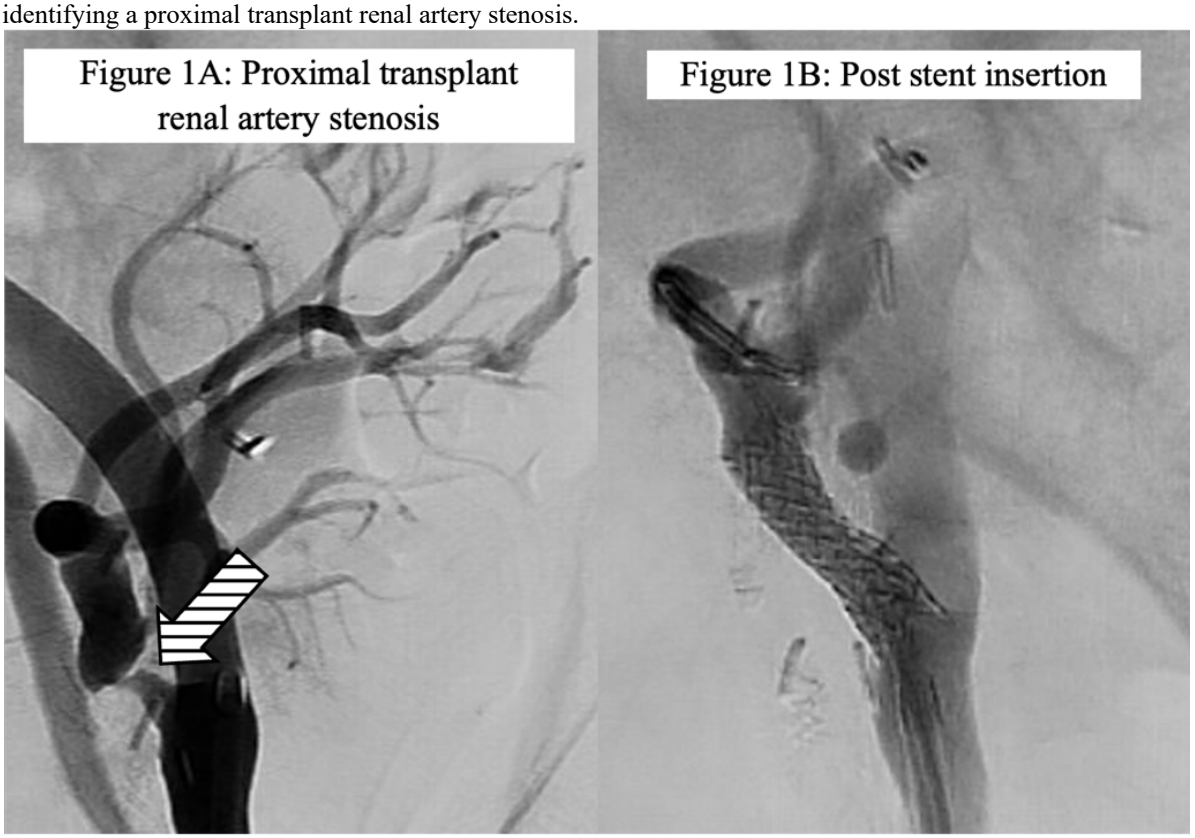
Background: Transplant renal artery stenosis is an uncommon but treatable complication post-transplant. Ultrasonography remains the main diagnostic tool with a high reported sensitivity and specificity. However, our case highlights the ongoing importance of angiography as a diagnostic procedure.

Case report: A 61-year-old lady presented four months post-deceased donor renal transplant in acute pulmonary oedema with a blood pressure of 180/60 mmHg. Graft function at the time showed a creatinine (Cr) of 148 umol/L (estimated glomerular filtration rate of 33 mL/min/1.73min2) and potassium 5.6 mmol (3.5-5.2mmol/L). The transplant kidney ultrasound doppler was reported to be normal. She responded quickly to diuresis but developed rapidly worsening graft function. Her transplant biopsy was unremarkable. Given her clinical presentation, we opted for direct angiogram which demonstrated a proximal transplant renal artery stenosis (see Figure 1A). Following stent insertion (see Figure 1B), her graft function improved back to baseline and she became normotensive. Our case emphasises the ongoing utility of angiography in select cases, noting the occasional ambiguity of ultrasound in identifying a proximal transplant renal artery stenosis.



Abstract No. 131

TACROLIMUS ASSOCIATED NON-INFECTIOUS GI ULCERS WITH HAEMORRHAGE IN A KIDNEY TRANSPLANT RECIPIENT – A CASE REPORT

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Background: Non-infectious gastrointestinal (GI) ulcers in transplant patients are a rare occurrence. Some cases describe an idiosyncratic tacrolimus reaction as a potential cause.
Case: We describe a case of a 40 years-old man, four months after ABO-incompatible living-related kidney transplant, with Rituximab + plasma exchange induction, tacrolimus, mycophenolate mofetil (MMF) and prednisolone, presenting with recalcitrant gastric and ileal ulceration and significant bleeding. Extensive investigations did not support infective aetiologies such as bacterial infections, Tuberculosis, CMV and others, PTLD, bowel cancer, mesenteric ischemia or vasculitis. There was no response to empirical treatment for CMV disease or changing MMF to mycophenolate sodium or azathioprine. Infliximab was trialled, considering de novo inflammatory bowel disease with no response. The persistence of ulcers and recurrence of GI bleeding resulted in significant morbidity and malnutrition. Finally, changing tacrolimus to cyclosporine, and adding thalidomide led to resolution of GI ulceration and healing and no further episodes of GI bleeding.
Discussion: Tacrolimus has been reported to cause GI inflammation and crypt abnormalities including distortion, destruction, apoptosis, and associated gastrointestinal ulceration in solid organ transplant recipients. This is the first reported case of tacrolimus associated GI ulcers in a kidney transplant recipient from Australia. Thalidomide, a teratogenic barbiturate derivative, has utility in a variety of chronic GI bleeding pathologies through a combination of anti-angiogenic effects as well as by stimulating regulatory T lymphocytes.
Summary: Idiopathic GI ulceration in kidney transplant recipients may be associated with tacrolimus and successfully treated with cessation of tacrolimus and use of thalidomide.

Abstract No. 133

EFFECTS OF KIDNEY DISEASE HERITABILITY AND DONOR-RECIPIENT RELATIONSHIP ON GRAFT FAILURE AFTER LIVE DONOR KIDNEY TRANSPLANTATION

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Aims To evaluate the effects of primary renal disease (PRD) heritability and donor-recipient relationship on graft failure (GF) in live kidney transplant recipients.
Methods This retrospective cohort study included all first kidney transplants from live donors conducted in Australia and New Zealand between 1st January 1998 to 31st December 2018, recorded in the ANZDATA registry. Exposures were PRD heritability (majority monogenic, minority monogenic, non-genetic) and type of donor-recipient relationship (syngeneic, 1°, 2°, 3°, social non-genetic, non-social non-genetic). Kaplan-Meier (KM) survival curves was applied for plotting graft-survival experience, and Cox proportion hazards regression was used to generate hazard ratios (HR) and adjusted hazard ratios (AHR) for graft failure. Recipient and donor factors were included as covariates.
Results In KM analysis, GF in 1, 3, 5 years were 3%, 6.6%, 11.1% respectively. On univariable analysis, majority monogenic and minority monogenic PRD were associated with reduced GF. Only the signal for reduced GF in people with majority monogenic PRD remained statistically significant after controlling for covariates (AHR 0.84, 95% CI 0.72-0.97). Compared to grafts from socially related donors (the referent), grafts from 1° relatives were associated with reduced GF (HR 0.87, 95% CI 0.78-0.97) in univariable analysis but statistical insignificant in multivariable analysis. Grafts from donors with no social nor genetic relationship were linked to increased GF (AHR 1.40, 95% CI 1.10-1.77) on univariable and multivariable analyses.
Conclusions Recipient PRD heritability and donor-recipient relationship can impact GF risk in kidney transplantation. This information is important for discussion with and selection of potential kidney donors.

Abstract No. 134

PANCREATIC-PERITONEAL FISTULA POST RENAL TRANSPLANT

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Pancreatitis post renal transplantation has been described in case reports, however, spontaneous pancreatic fistulae have not.[1] A 69-year-old female with FSGS on PD underwent DBD renal transplantation on a background of hypertension and cholecystectomy. Ten days post transplantation she developed RUQ pain, nausea, vomiting and loss of appetite with generalised abdominal tenderness. She was stable and afebrile. WCC $15.0x10^9$/L and CRP 393g/L were elevated. LFTs and serum lipase were normal. Contrast CT demonstrated a 6.5x5.8x6.7cm fluid collection surrounding the pancreatic head and proximal duodenum with a 3.2x4.1x4.6cm hyperdense component consistent with haemorrhage. There was extension of the collection into the peri-hepatic space. Peritoneal fluid showed a leucocytosis ($2080x10^6$, 56% PMNs), elevated lipase of 1528 U/L and was culture negative. Intravenous antibiotics were administered, Tenckhoff catheter removed and abdominal washout performed to treat potential culture negative PD peritonitis without improvement. As per best practice pancreatic fistula management, two 18Fr Blake drains were inserted to the right parahepatic space and right paracolic gutter to drain the pancreatic fluid.[2] Parahepatic drain fluid was amylase rich. The aetiology of the leak remains unclear. Medication induced pancreatitis was considered, however, the patient never met AIA/APA criteria for diagnosis of acute pancreatitis.[3] Serum lipase peaked at less than three times ULN and serial CT scans showed no radiological evidence of pancreatitis nor obstruction. Serum triglycerides were normal. The case highlights the utility of measuring pancreatic enzyme levels in PD fluid to assist in establishing the diagnosis of pancreatic-peritoneal fistula.

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3. Working Group IAP/APA Acute Pancreatitis Guidelines. IAP/APA evidence-based guidelines for the management of acute pancreatitis. *Pancreatology*. 2013;13(4 Suppl 2):e1-e15. doi:10.1016/j.pan.2013.07.063

Abstract No. 135

SIMULTANEOUS PANCREAS AND KIDNEY TRANSPLANTATION: USING A LIMITED RESOURCE

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Aims Simultaneous pancreas-kidney (SPK) transplantation requires good quality organs to reduce the risk of early pancreas loss. SPK donors would therefore also be expected to result in good outcomes for recipients of the contralateral kidney. We aimed to compare the demographic patterns of SPK recipients to recipients receiving the contralateral kidney of an SPK donor as well as comparing outcomes between groups.

Methods Data related to all SPK transplants from 2007-2016 were provided by the ANZDATA and ANZIPTR registries. These were analysed along with data related to transplantation of the contralateral kidney. Recipient age, body mass index (BMI), ethnicity, duration of dialysis, and comorbidities as well as graft and patient survival rates were analysed by each group (SPK and contralateral kidney transplants) and compared between groups. Recipients with prior transplants before the study period and those with missing data were excluded. Patient survival and kidney graft survival was compared between groups.

Results 352 SPK and 303 contralateral kidney recipients were analysed after exclusions as above. One-year patient and death-censored pancreas, kidney survival was 98%, 90% and 95% respectively. When compared to SPK recipients, recipients of the contralateral kidney were older and more overweight and less likely to be transplanted pre-emptively (Table 1). Kidney graft and patient survival of contralateral kidney recipients were not significantly different to SPK recipients.

Conclusions Historically, SPK donors result in excellent outcomes for both SPK and contralateral kidney recipients. Differences in recipient characteristics between groups reflect more restrictive eligibility criteria for transplanting SPK recipients.

Table 1

Recipient Characteristics	Solid Pancreas Transplant Recipients (n=352)	Contralateral Kidney Recipients (n=303)	p-value
Age (years)*	40 (33-45)	53 (43-60)	<0.001
Gender (if female)	156 (44)	117 (38)	0.1
BMI categories (kg/m2) andlt;25 25-29.9 ≥30	205 (58) 93 (26) 54 (15)	128 (42) 77 (25) 98 (32)	<0.001
Duration of dialysis: Pre-emptive andlt;1 year ≥1 years	52 (15) 100 (28) 200 (57)	2 (1) 29 (9) 272 (90)	<0.001

Abstract No. 136

LIVER TRANSPLANT FOR ADULT HEPATIC MESENCHYMAL HAMARTOMA- A LITERATURE REVIEW

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Introduction: Hepatic mesenchymal hamartomas(HMH) are considered the 2nd most common benign hepatic tumour in the paediatric population, however, they are extremely rare in adult population with only 49 reported cases in the literature. Liver transplantation has been described as a potential treatment modality for non-resectable HMH.
Aim: We performed a systematic review investigating liver transplantation in non-resectable adult HMH.
Method: A literature search was performed, identifying all primary literature on adult HMH requiring liver transplant on three search engines (PubMed, Cochrane library and Google Scholar). Search criteria included the following key words (liver, mesenchymal hamartoma and transplant) conducted in three-word search combinations. Non-human trials were excluded. Full text articles were retrieved from the Internet, or obtained through the Royal Perth Hospital, Western Australia Health library. The duration of performing the literature search took place between 01/06/2021-01/07/2021.
Results: We identified only 3 adult HMH patients who required liver transplantation.All 3 patients presented with abdominal pains. Two HMHs were bilobar multicystic and one was large right sided solid HMH, all were not appropriate for resection and therefore proceeded to transplantation. 1 patient had biliary anastomotic leak treated conservatively, otherwise there were no acute or chronic post-operative complications or any signs of rejection at 1 year follow up.
Conclusion: Given the rarity of the disease, there is little evidence of best practice recommendation, however, offering liver transplantation for non-resectable giant HMH seems to be a feasible treatment modality with good overall outcome.

Abstract No. 137

LIVER TRANSPLANT FOR RECURRENT ADULT MESENCHYMAL HAMARTOMA(HMH): A SURPRISING TURN OF EVENTS!

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[1]Renal Transplant Unit, Fiona Stanley Hospital, [2]Transplant Surgery, Sir Charles Gairdner Hospital, Perth

Aim: To the best of our knowledge, we report the first case in English literature of a recurrent HMH requiring liver transplantation.
Case Report: a 46-year-old Female underwent a right hemi-hepatectomy in 2018 for large symptomatic multiseptated cystic hepatic lesions, histopathological analysis confirmed a completely resected Giant cystic HMH. After reviewing histopathological results at the hepatobiliary MDT, no ongoing surveillance recommended given the reported benign nature of the disease. 2.5 years post-resection, patient presented with abdominal pain and distension, imaging identified a large multiseptated cystic hepatic lesion occupying entire remnant liver and abdominal cavity.
Discussion at hepatobiliary meeting deemed patient non-resectable, proceeded for liver transplant assessment, deemed suitable. Orthotopic classical cavo-caval liver transplantation performed. Finding included: Giant multi-cystic hepatic lesion occupying the entire abdomen, dense adhesions onto colon, stomach and pancreas. Histopathological analysis of explanted liver confirmed a large multi-cystic recurrent HMH with no malignant transformation, consistent with previous histopathological resection. Cytogenetic analysis performed revealed loss of 19q13.Patient discharged day 10 post op and the 3 months post-transplant follow was un-remarkable with no signs of post-operative complication or transplant rejection.
Conclusion: No guidelines on post-resection surveillance for HMH exist and given the unknown progression nature, such as in our case report, and reported potential sarcomatous malignant transformation, there maybe prospective benefit of surveillance post-resection to monitor recurrence or any malignant transformation. Offering liver transplantation for non-resectable recurrent HMH is a feasible treatment modality.

Abstract No. 138

GETTING THE BEST FROM THE INTRA-OPERATIVE DUPLEX ULTRASOUND IN RENAL TRANSPLANTATION

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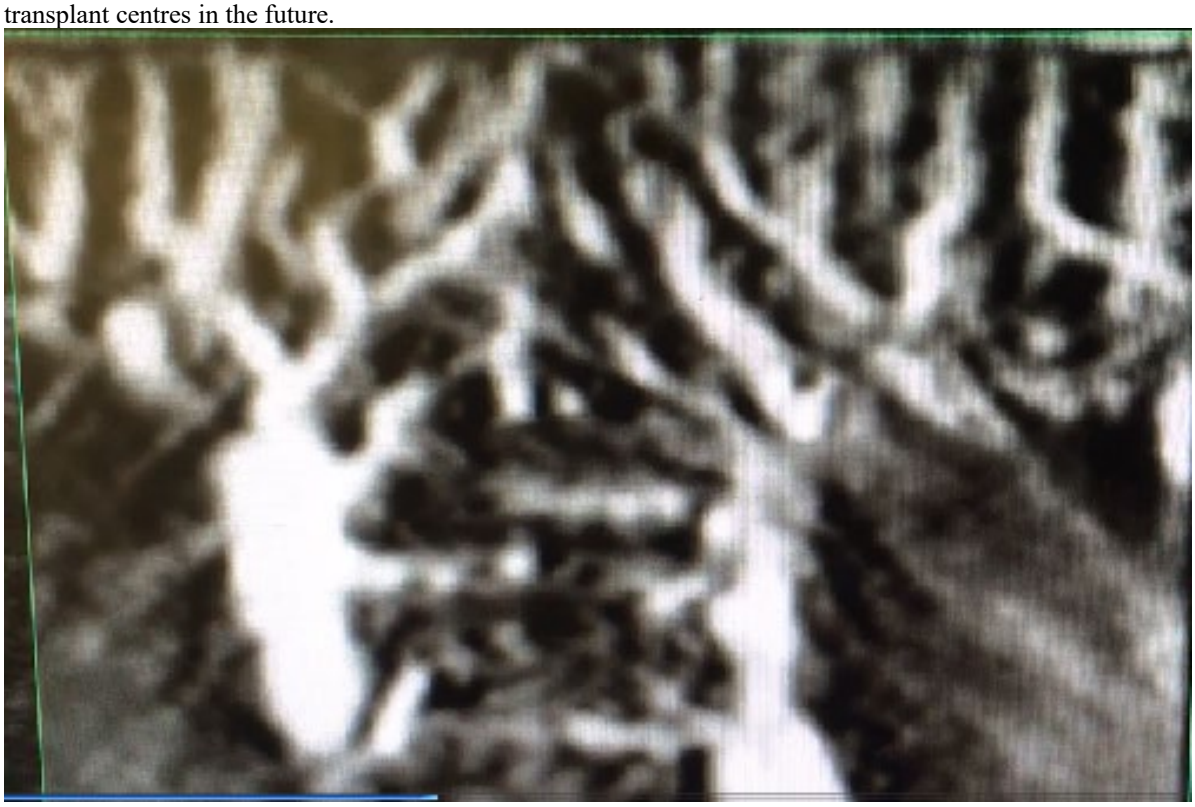
Aims. 1. To provide a protocol for intra-operative ultrasound in renal transplantation. 2. To demonstrate the quality of current imaging and the anatomical/physiological information it provides, upon which clinical decisions are made.
Background. In our centre, 306 consecutive renal grafts have undergone intra-operative duplex scanning since 2012. Improvements in ultrasound machine technology including fully sterilisable transducers, slow motion imaging (SMI) and B-mode subtraction are used to enhance visualisation of graft structure, blood flow and cortical perfusion. Protocol and clinical implications. Following release of clamps, major vessels are imaged to identify flow abnormalities that are unable to be detected clinically. Colour and SMI are used to assess cortical perfusion, and pulse wave Doppler to measure cortical resistive indices (RI). Graft repositioning in real-time is performed to optimise cortical perfusion. Repeat scanning is performed to identify possible alterations in graft perfusion during fascial closure that may require surgical modification. Intra-operative RI provides an index measurement for subsequent imaging. A higher RI is a predictor of delayed graft function, which guides post-operative clinical decisions. Intra-operative scanning is also performed should subsequent re-exploration be required.
Conclusions: With an experienced team and a collegiate approach, intra-operative ultrasound is extremely effective in the assessment of the newly perfused graft. The surgeon and sonographer work together in real-time with a preparedness to intervene immediately on the basis of the ultrasound findings. Intraoperative ultrasound provides critical information for post-operative care. It is anticipated that this technique will be adopted by specialist renal transplant centres in the future.



Renal cortical vasculature shortly after reperfusion imaged with intra-operative ultrasound using SMI with B-Mode Digital Subtraction and without contrast

Abstract No. 139

BRIDGING THE CULTURAL GAP: IMPROVING INDIGENOUS AUSTRALIAN KIDNEY TRANSPLANT ACCESS

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[1]Department of Nephrology, Royal Darwin Hospital

Aims: To determine the impact of employing Aboriginal and Torres Strait Islander Health Practitioners (ATSIHP) and Aboriginal Liaison Officer (ALO) to bridge the cultural gap and complement existing and expanding transplant services in the Top End of Northern Australia.
Methods: Funded by the National Indigenous Transplantation Task Force (NIKTT), one ATSHIHP and then one ALO were employed and provided transplant education to Indigenous Australians on the pathway to transplantation, provided a cultural link between patients and other staff, helped with the journey through to transplantation and post-transplantation education and care. An Indigenous Reference Group was formed to provide guidance and feedback. The outcomes measures were: the number of patients being assessed and active on the waiting list, patients who have health checks before commencing dialysis, provision and continuation of culturally appropriate education and attendance of appointments, patients feelings about their culturally safety, patient and community feedback evaluation on the transplantation pathway and identified areas requiring improvement
Results: The recruitment process identified a significant shortage of ATSIHP with only 1 ATSIHP recruited and then 1 ALO. Patients found the education better than before. Attendance for appointments improved. The Aboriginal staff and patients improved patient education and the service. Patients felt safe and confident with the transplant journey.
Conclusions: The employment of an ATSIHP and ALO is critical as an integral part of the transplant team and bridges the cultural gap to improve Indigenous Australians access to and outcomes of kidney transplantation.

Abstract No. 140

IMPROVING ACCESS TO RENAL TRANSPLANTATION IN REGIONAL WESTERN AUSTRALIA

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Background: Regional patients with ESKD in the Goldfields and Pilbara are disadvantaged for renal transplant wait listing. Using NIKTT funding we developed a visiting multi-disciplinary team (MDT) involving transplant surgeons, physicians, nurse, pharmacist(s), aboriginal liaison officer and social worker to visit the Pilbara and Goldfields regions of Western Australia to provide open access transplant education and assessment.
Aims:

- Improve access to renal transplantation for Aboriginal patients by providing education and assessment within the regions.
- Reduce the time to transplant listing and Increase the proportion of Aboriginal patients listed for transplantation.

Outcomes: From July 2020 to September 2021, our MDT conducted two visits each to the Pilbara and Goldfields, conducting 8 full day clinics, 4 patient and family education workshops and 2 education workshops for health care professionals. 28/37 patients referred attended the clinics. 2/28 were unsuitable for transplant and 26 proceeded with transplant evaluation. 13/28 were waitlisted and by December 2021, 12 received a deceased donor transplant; average time from dialysis start to waitlisting was 38 (range10 – 69) months; time from first NIKTT clinic visit to wait-listing was 7.2 (3-15) months; time from wait-listing to transplant was 3 months (2 days to 12 months) months. In 2021,12/46 FSH recipients (26%) were aboriginal compared with 4/26 (15%) in 2019 and 7/46 (15%) in 2020. Patient survival was 100% but graft loss occurred in 3 patients (2 infection, 1 rejection from non-adherence).
Conclusions: Outreach MDT clinics reduced the time taken to waitlisting and increased the proportion of aboriginal patients receiving kidney transplantation.

Abstract No. 141

TRACKS TO TRANSPLANT: UTILISING PEER TO PEER YARNING TO ENCOURAGE PROGRESS TOWARDS KIDNEY TRANSPLANTATION

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[1]***Renal Unit, Cairns Hospital, Queensland***

Lower transplant uptake among Aboriginal and Torres Strait Islander people has many causative factors, including lack of communication and education regarding kidney transplantation.

Aims: Through patient-to-patient yarning, the processes of kidney transplantation are explained in language understandable to the listener to improve knowledge levels and reduce fears patients may have regarding transplantation.

Methods: Four Aboriginal and/or Torres Strait Islander patient mentors were identified who had experience in the transplant workup process or had received a kidney transplant. Patients on dialysis who were identified as possibly suitable for transplant but had shown reluctance to proceed were then connected via invitation with mentors. The mentors then spent time with the dialysis patients to yarn about their experiences and share knowledge.

Results: The mentors reported back to the project lead that patients were most concerned about the amount of medication and how to manage medications post-transplant. Another area of concern raised was the need to move to a capital city for transplant, what that was like and the costs involved. The dialysis patients appreciated meeting patients who had successfully been through the transplantation process. As a result of the project, more patients have proceeded to the working up phase of renal transplantation and referral for transplantation. **Conclusions:** Through face-to-face yarning and phone follow-up, the mentors have identified areas of patient concern regarding transplant. The dialysis patients have gained increased knowledge and motivation to proceed with transplant, with some going on to be referred for transplant.

Abstract No. 142

MICROBIAL CONTAMINATION OF PERFUSATE DURING LONG-TERM EX-VIVO NORMOTHERMIC MACHINE PERFUSION OF HUMAN LIVERS

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Aims: Normothermic machine perfusion permits the ex-vivo preservation of human livers prior to transplantation. Long-term perfusion for days-to-weeks provides the opportunity for sophisticated pre-transplant assessment of organs but carries the risk of microbial contamination and graft-related infections. The contaminants of perfusate in this setting may influence the antimicrobial prophylaxis strategy and antibiotic choice.

Methods: We modified a liver perfusion machine for long-term use by adding long-term oxygenators and a dialysis filter. Human livers that were not suitable for transplantation were perfused using a red-cell based perfusate under aseptic and normothermic conditions (36°C) with a goal of 14 days. Cephazolin was added to the perfusate for antimicrobial prophylaxis. Perfusate samples were collected for microbial culture every 72 hours using anaerobic and aerobic blood culture bottles.

Results: 18 partial human livers (9 left lateral segment grafts and 9 extended right grafts) were perfused using our perfusion system. The median survival was 7.2 days. In all organs surviving longer than 7 days (10/18), had negative perfusate cultures at 24- and 48-hours. Most grafts (11/18) became culture-positive by the end of perfusion. Microbial contaminants included gram-negative (Pseudomonas sp., Stenotrophomonas maltophilia, Acinetobacter sp.) and gram-positive bacteria (Staphylococcus epidermidis, Enterococcus faecalis, Bacillus sp.) as well as yeast (Candida albicans).

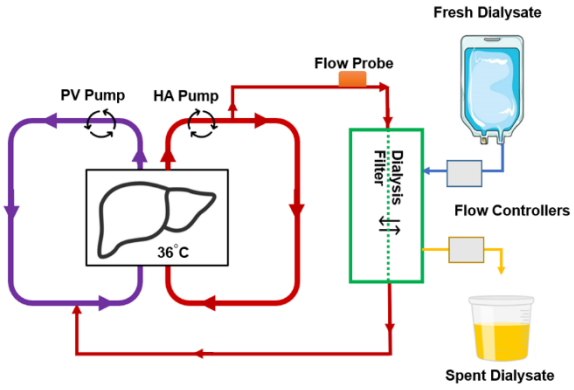
Conclusions: Microbial contamination of perfusate occurs during long-term perfusion of human livers and may impede graft survival and/or suitability for transplant. Broader spectrum antimicrobial prophylaxis may be required, in addition to assessing and reducing the risk of environmental contamination.

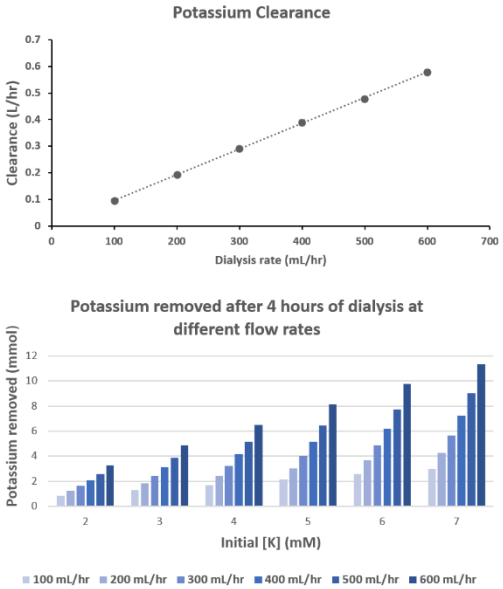
Abstract No. 143

EXTENDING NORMOTHERMIC EX-VIVO LIVER SURVIVAL TIMES WITH AN INTEGRATED DIALYSIS CIRCUIT

HUANG J, LAU N, LY M, KOUTALISTRAS N, LIU K, MCCAUGHAN G, CRAWFORD M, PULITANO C
Centre for Organ Assessment, Repair and Optimisation, Royal Prince Alfred Hospital, Sydney

Aims: The rapid production of metabolic waste products limits the survival of ex-vivo human livers undergoing normothermic machine perfusion. Dialysis has the potential to extend ex-vivo perfusion times by removing water-soluble toxins and maintaining electrolytes within the normal physiological range. However, the effect of an integrated dialysis system on long-term survival has never been investigated. This study aimed to demonstrate the utility of an integrated dialysis circuit for normothermic ex-vivo machine perfusion of human livers.
Methods: A dialysis circuit consisting of a filter and lactate-based dialysate was attached in parallel to a commercially available liver perfusion system. Donated human livers declined for transplantation underwent long-term normothermic machine perfusion using red cell-based perfusate. Dialysis flow rates were adjusted in the range of 100-600 mL/hr. At each dialysis flow rate, matched perfusate and spent dialysate samples were collected and analysed for clearance calculations.
Results: Our integrated dialysis-perfusion system reliability achieved ex-vivo liver survival for andgt;1 week. The dialyser was successful in removing toxins and electrolytes such as urea, potassium, glucose and lactate from the perfusate. Reduction in potassium concentration from 5 to 4 mmol/L in ~1 hour required a dialysis flow rate of 500 mL/hr. Running dialysis at 600 mL/hr for ~1 hour can reduce glucose concentrations from 16 to 12 mmol/L.
Conclusions: An integrated dialysis system effectively clears water soluble toxins. Clearance calculations can guide dialysis flow rate selections for refined electrolyte control and optimal perfusate conditions. Integrated dialysis circuits are thus an essential component of long-term normothermic machine perfusion.





Abstract No. 144

FEASIBILITY OF QUANTIFYING TACROLIMUS CONCENTRATION IN SKIN AND PLASMA OF MICE AND ADULT KIDNEY TRANSPLANT RECIPIENTS

SARTAIN F[1], VIECELLI A[2], VEITCH M[3], FRANKLIN ME[4], WELLS JW[5], CAMPBELL S[2]

[1]Department of Nephrology, Royal Brisbane Hospital, [2]Nephrology and Renal Transplant, Princess Alexandra Hospital, Brisbane, [3]The University of Queensland Diamantina Institute, Faculty of Medicine, University of Queensland, [4]Department of Clinical Pharmacology, Princess Alexandra Hospital, Brisbane, [5]The University of Queensland Diamantina Institute, Faculty of Medicine, The University of Queensland

Background: Kidney transplant recipients (KTR) are at an increased risk of developing skin cancers due to chronic immunosuppression, particularly with calcineurin inhibitors. Effective treatments are needed.

Aims: This research aims to inform the development of a topical tacrolimus antagonist (Q2361) by determining the feasibility of measuring tacrolimus skin concentrations in mice and KTRs.

Methods: Skin and plasma of adult Balb/c mice were taken after 5 days of oral tacrolimus administration to study tacrolimus pharmacokinetics in the skin using liquid chromatography with tandem mass spectrometry. This method was then applied to measure tacrolimus levels in adult KTRs attending a skin clinic for removal of suspicious skin lesions. After patient consent, blood and 2-3 mm punch biopsies of excised skin away from suspicious lesions were collected concurrently to measure and correlate tacrolimus concentrations in plasma and skin.

Results*:* In mice, tacrolimus plasma levels peaked rapidly ~1 hour post last oral dose while skin levels rose more slowly and remained high for at least 6 hours (Figure 1A-B). Tacrolimus skin concentrations were assessed in 15 KTRs. The mean age was 61 years, the average time post-transplant was 7 years (range 0-21years) and 87% were male. The average time post tacrolimus dosing was 6hrs:32mins. Skin tacrolimus concentrations ranged from 7.1ng/g to 71.2ng/g and correlated with plasma concentrations (Figure 1C). **Conclusions:** The concentration of tacrolimus is measurable in the skin of mice and KTRs and may assist in the development of a topical therapy to reduce the cancer promoting effect of tacrolimus in KTR skin.

Figure 1A: Mice blood tacrolimus levels following oral tacrolimus administration

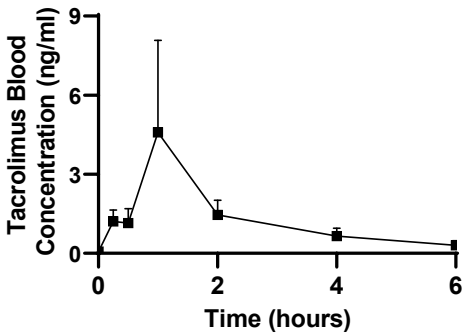


Figure 1B: Mice skin tacrolimus levels following oral tacrolimus administration

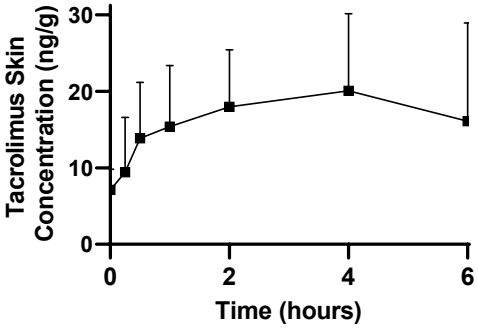


Figure 1C: Tacrolimus concentration in skin compared to plasma

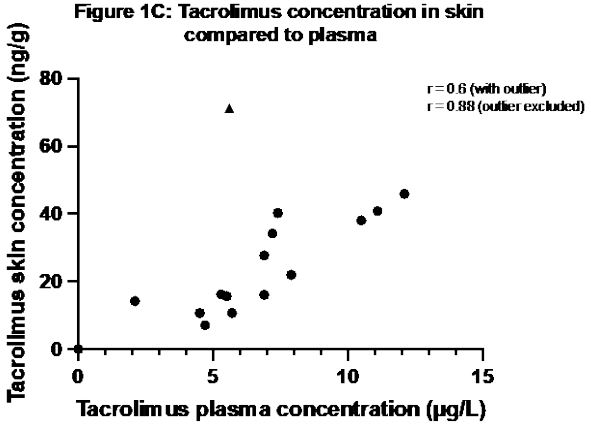


Figure 1A-C: In figure 1A-B T0 is day 5 post oral tacrolimus dosing for the mice. In Figure 1C skin samples were taken from a range of anatomical locations (i.e. face, back, limbs and neck). The outlier in Figure 1C (pictured as a triangle) was from a skin sample taken above an upper lip (tacrolimus skin concentrations 71.2ng/g). Correlations are shown with (r=0.6) and without (r=0.88) outlier.

Abstract No. 145

POST-TRANSPLANT CYCLOPHOSPHAMIDE COMBINED WITH TOCILIZUMAB INCREASES REGULATORY T CELLS AND LIMITS EARLY GVHD DEVELOPMENT

SLIGAR C[1], CUTHBERTSON P[1], MILES N[1], ADHIKARY S[2], ELHAGE A[1], ZHANG G[3], ALEXANDER S[4], SLUYTER R[1], WATSON D[1]

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Background: Post-transplant cyclophosphamide (PTCy) targets donor-reactive T cells to partly prevent graft-versus-host disease (GVHD), a major complication following donor blood stem cell transplantation. Blockade of the interleukin-6 receptor (IL-6R) with tocilizumab (TOC) can increase donor regulatory T cells (Tregs) and has been evaluated in preclinical trials for GVHD with varying success.

Aims: To determine the effects of PTCy combined with TOC on GVHD in a humanised mouse model. **Methods:** NSG mice were injected i.p. with 2x107 human peripheral blood mononuclear cells, then injected i.p. with PTCy (33mg/kg) or saline on Days 3 and 4, with TOC or a control Ab (0.5mg/mouse) twice weekly during the first 4 weeks. Mice were monitored for weight loss, clinical score and survival, and spleens and livers were assessed for engraftment of human leukocytes and T cells subsets.

Results: At 4 weeks, all groups showed similar engraftment of splenic hCD45+ leukocytes (55-60%), however PTCy+TOC mice demonstrated significantly increased splenic hCD4+hCD25+hCD127lo Tregs compared to PTCy (1.6-fold), TOC (1.5-fold) and control Ab (2-fold) mice (Pandlt;0.05 all groups). Furthermore, serum human interferon-gamma was significantly reduced in PTCy+TOC (52% reduction) compared to control Ab (P=0.04), but not PTCy or TOC mice. At 10 weeks, prolonged survival was observed in both PTCy+TOC (MST=48 days) and PTCy (MST=66 days) compared to TOC (MST=38 days) and control Ab (MST=26 days) mice.

Conclusions: Combining PTCy with TOC increases Tregs and reduces clinical signs of early GVHD, but does not improve long-term survival compared to PTCy alone in humanised mice.

Abstract No. 146

SINGLE CELL ALLOREACTIVE TCR REPERTOIRE PROFILING

PAUL-HENG M[1], DENKOVA M[1], SON ET[1], ASHHURST T[2], LEONG M[1], JONES C[3], ZAREIE P[3], PURCELL A[3], LA GRUTA NL[3], MIFSUD N[3], SHARLAND A[1]

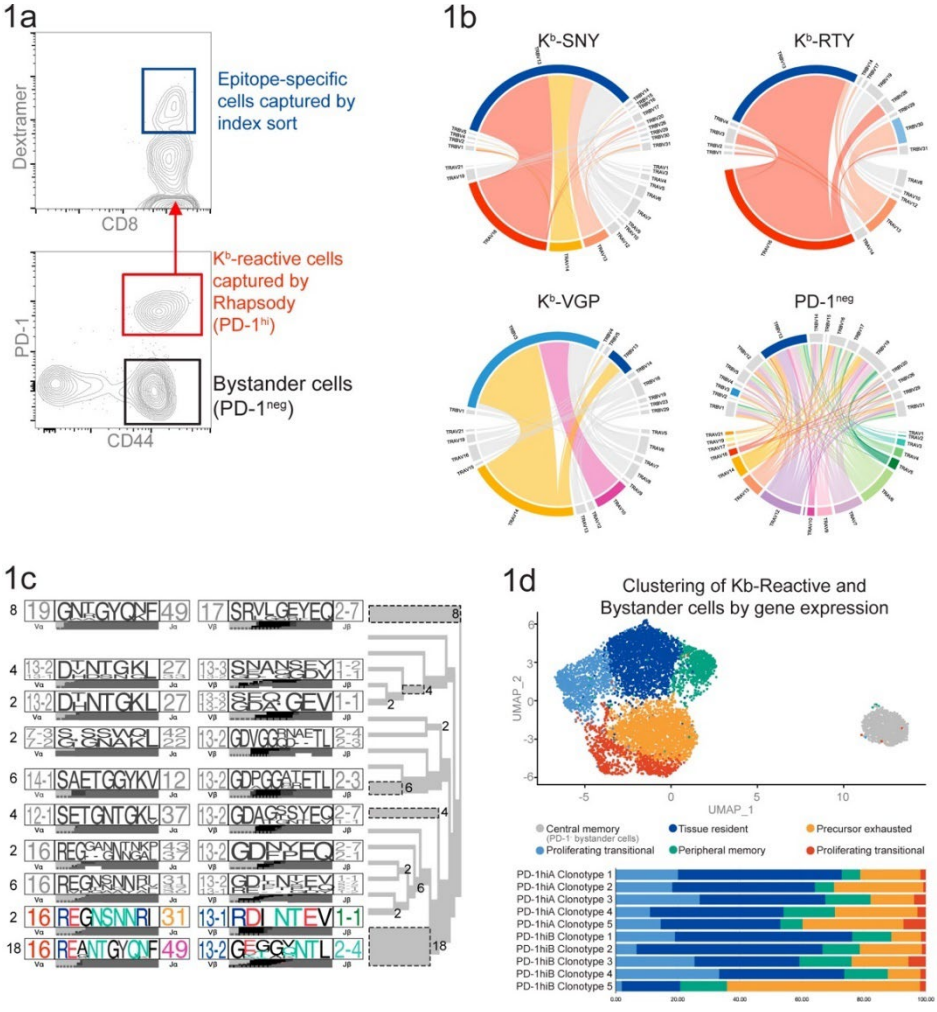
[1]Transplantation Immunobiology Research Group, The University of Sydney, [2]Sydney Cytometry Core Research Facility, The University of Sydney, [3]Monash Biomedicine Discovery Institute, Monash University

Aims: We discovered andgt;40 Kb-peptide epitopes directly recognised by alloreactive CD8 T cells from B10.BR mice (H-2k). Here, we integrated two approaches to profile the alloreactive T cell repertoire at an early stage in tolerance induction (Fig.1a).

Methods: B10.BR were primed with a Kb-expressing skin graft followed by inoculation with AAV-Kb. Sanger sequencing of paired ab TCR from single dextramer-positive cells was performed in parallel with BD Rhapsody library preparation/Illumina sequencing for paired TCR and targeted transcriptome analysis.

Results: Repertoires for 3 dominant epitopes (Kb-SNY, Kb-RTY and Kb-VGP) were determined (Fig.1b). TCR ab diversity was significantly reduced among epitope-specific T cells (scores Kb-SNY 47.3, Kb-RTY 69.5, Kb-VGP 279.5) compared with PD-1neg bystander cells (78730). Alloreactive repertoires were strongly skewed towards usage of particular V-J gene segments and comprised families of related TCRs including both private TCR clones and public meta-clonotypes (Fig.1b-c). One cross-reactive clone recognised both Kb-SNY and Kb-RTY. Major meta-clonotypes were detected in multiple mice. The top 10 clones from each mouse accounted for 32% of all Kb-reactive (PD-1hi) T cells. No clonal expansions were observed in the PD-1neg or Kb self-tolerant populations, with negligible overlap between TCR sequences from PD-1hi cells and these populations. Kb-reactive cells segregated into clusters corresponding to central, resident, or peripheral memory, precursor exhausted and proliferating cells (Fig.1d). Individual clonotypes showed distinctive gene expression patterns following activation.

Conclusions: Directly alloreactive CD8 T cell repertoires comprise families of closely-related clonotypes. Gene expression early during tolerance induction may determine the subsequent fate (deletion/exhaustion) of individual clones.



Abstract No. 147

THE IMMUNE RESPONSE TO SOLID ORGAN TRANSPLANTATION IS NOT CONFINED TO THE GRAFT

PROSSER A[1], HUANG WH[1], LIU L[1], DART S[1], WATSON M[1], DE BOER B[2], GAUDIERI S[3], JEFFREY G[1], DELRIVIERE L[4], KALLIES A[5], LUCAS M[6]

[1]Medical School, University of Western Australia, [2]Department of Anatomical Pathology, PathWest Laboratory Medicine, [3]School of Human Sciences, University of Western Australia, [4]Western Australian Liver and Kidney Transplant Service, Sir Charles Gairdner Hospital, Perth, [5]Department of Microbiology and Immunology, The Peter Doherty Institute for Infection and Immunity, [6]Clinical Immunology, Sir Charles Gairdner Hospital, Perth

Background: Perturbations to immunity after transplantation occur both within and outside the graft. However, the dynamic changes that occur to lymphocytes in the peripheral lymphoid organs after transplantation have not previously been described in detail. Factors unique to transplantation biology distinguish immune responses to solid organ grafts from those mounted against pathogenic antigens, including TCR antigen recognition pathways, the frequency of alloreactive T cells, the graft microenvironment, and donor leukocytes.
Methods: We have performed orthotopic liver and heterotopic heart transplantation in congenic, MHC-matched and -mismatched mice to study the immune response to solid organ transplantation in the spleen, lymph nodes, bone marrow, and blood. High-parameter flow cytometry was performed to track donor and recipient lymphocyte activation, proliferation, and migration for up to one month after transplantation.
Results: Overall, the immune responses to liver and heart transplantation were localised to the bone marrow and spleen, with a greater number and magnitude of changes stimulated in MHC-mismatched recipients. Donor leukocytes are likely to play a role in the stimulation of the alloresponse, though not necessarily via migration to the lymph nodes. Cytotoxic CD8 T cells, memory CD8 and CD4 T cells, and effector Treg cells developed and expanded preferentially in the bone marrow and spleen.
Conclusions: These data provide much-needed insights into the localisation and characterisation of the immune response to transplantation to improve the understanding of how rejection and tolerance responses arise.

Abstract No. 148

THE DEVELOPMENT OF GAD65-CAR T-REGS AS A METHOD OF IMMUNOSUPPRESSION FOR ISLET TRANSPLANT RECIPIENTS

SCAFFIDI J[1], COATES T[2], BARRY S[3], SADLON T[3], BANDARA V[3]

[1]Immunology and Diabetes, University of Adelaide, [2]Centre for Transplant and Renal Research, University of Adelaide, [3]School of Medicine, Faculty of Health Sciences, University of Adelaide

Regulatory T cells (T-regs) have been extensively investigated as an alternative method of immunosuppression in transplantation. Antigen-specific T-regs are more superior to polyclonal T-regs 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 autologous T-regs to prevent rejection in islet transplant patients.
Method: We have generated CAR T regulatory cells specific for the Glutamic Acid Decarboxylase (GAD65), a key autoantigen expressed in islets, using lentiviral transduction. Phenotypic marker expression and proliferation in response to GAD65 was measured in vitro.
Results: We have generated GAD65-specific CAR T regulatory cells (CAR T-regs), with a high (70-90%) transduction efficiency and expansion capacity (over a 14-day period). In addition, GAD65 CAR T cells proliferate in response to native GAD65 protein over a 5-day period, relative to un-transduced and non-specific BSA controls.
Conclusion: We have developed GAD65-CAR T-regs which can be further tested in preclinical studies in T-regs as a method of immunosuppression in islet transplant recipients.

PRESIDENT'S REPORT

Opening Statement

It's a pleasure to give the President's report for 2022. In times of uncertainty as we've had of late, TSANZ has continued to progress with a number of excellent projects undertaken over the last year. We were excited to hold our first virtual Annual Scientific meeting in 2021 and are looking forward to our 40th ASM next month. I am so grateful to all of you who have given your time, energy and commitment to the society enabling these events and initiatives to take place in a world where there are huge extra demands on all of us.

Annual TSANZ Meeting:

We are coming up to our 40th Annual Scientific meeting which will be held from June 19 – 21 in Adelaide. This is our first face to face AGM since 2019 and promises to be an excellent meeting convened by Dr Michael Collins and Dr Sandra Stankovic. The meeting will be preceded by our first Machine Perfusion Workshop on June 17 co-chaired by A/Prof Natasha Rogers and Prof Henry Pleass, the Post Graduate Course on June 18 convened by A/Prof Chien-Li Holmes-Liew and Dr Eric Son and the Masterclass on June 19 convened by A/Prof Chris Drogemuller and Dr Chanel Prestige. I'm so grateful for the huge amount of work and expertise all of our conveners have put into organising these meetings.

We are thrilled to have had the highest number of abstracts ever submitted to the meeting and I am sure you are all as excited as I am to not only attend meetings with great programmes but also to meet up in person again after such a long hiatus. We are delighted to hold the meeting in Adelaide (Tarntanya) and will start with a Welcome to Country and Smoking Ceremony welcoming the attendees to Kaurna Yarta and paying respect to the traditional owners of the Kaurna people.

The meeting has a number of highlights including five inspiring international speakers: Prof Yves Beguin, Prof Jayme Locke, A/Prof Kieran Halloran, Dr Jon Odorico and Prof Anette Melk. We have outstanding plenaries on Pancreas Transplantation, Organ Donation, Cellular Therapy and Transplant Tolerance and Post-Transplant outcomes while our final plenary has a theme of Equity in Transplantation. Once again a highlight will be the President's Prize Symposium in which our best young investigators will present their findings in the areas of basic and clinical science. The meeting includes a TTS Women in Transplantation Session and a variety of concurrent state of the art sessions aimed to give all attendees talks of interest in their area while the final session "The Great Debate" will enlighten us on the topic "You are only as young as your organ…. we should attempt to age match D&R".

The post graduate course and the masterclass cover the breadth of current transplantation and will provide outstanding training for all involved in transplantation while the inaugural Machine Perfusion Workshop is an extremely welcome addition to this year's programme.

We have a great social programme including the Welcome Reception in which the film "Burden of Genius" will be screened and introduced by Professor Robert Jones and the Annual Awards dinner to be held in the Adelaide Town Hall.

We have a most exciting program, and the Society is extremely grateful to its Platinum sponsor Astellas Pharmaceutical and Silver sponsors; Novartis, Organ and Tissue Authority - Donatelife, Pharmacor, XVIVO, Immulab/Immucor and AstraZeneca. We are also grateful to our other sponsors; Alexion, Bio-

Strategy, CSL, Hansa Biopharma, Pfizer, Stark Med, Thermo Fisher, Natera and Trajan Scientific Australia. We would also like to thank Transplant Australia and Kidney Health Australia for sponsoring awards.

TSANZ Projects

Virtual Cross Match: The virtual cross match working group led by A/Prof Ross Francis, Rhonda Holdsworth and Narelle Watson continues to work hard as virtual cross-matching is phased into clinical transplantation. The project is currently in phase 2b in which non-sensitised kidney and kidney/pancreas recipients will cease having a CDC cross-match and will have a VXM assessment only. All other organ and sensitized patients will continue to have CDC and VXM assessments. Phase 3 will commence from July 2022, with VXM processes to be introduced for all transplant recipients. I am so grateful to this group for their extremely hard work in the challenging area of phasing out CDC cross-matching as reagents across the world become increasingly difficult to source.

Enhancing Clinical Best Practice Guidelines and Procedures: We are delighted to commence this new project which will focus on enhancing current processes for managing the *TSANZ Clinical Guidelines for Organ Transplantation from Deceased Donors* and supporting practical implementation. Many thanks to our Clinical Project Manager Emily Larkins who is making great early progress in this project and to OTA for providing funds to this important piece of work aiming to establish robust processes for the ongoing oversight, provision, maintenance and promulgation of the Clinical Guidelines.

Additional projects include the review of Simultaneous Pancreas-Kidney (SPK) Transplantation and Phase 2 of the Deceased Donor Kidney Allocation Algorithm Review: The SPK project is being led by Prof John Kanellis with the aim to review Simultaneous Pancreas-Kidney Transplantation to ensure currency in response to evolving national and international evidence, clinical best practice and evolving allocation models. The Deceased Donor Kidney Allocation Algorithm Review aims to further evolve the deceased donor kidney allocation algorithm in Australia in order to optimise allocation and thereby transplantation outcomes and ensure equity and utility. This project is led by Prof Kate Wyburn.

I would like to thank the Organ and Tissue Authority for the significant support and funding contributing to these important projects.

National Indigenous Kidney Transplantation Taskforce (NIKTT)

The NIKTT project chaired by Prof Stephen McDonald and A/Prof Jaqui Hughes has again made great progress aiming to understand and resolve the inequities affecting indigenous kidney patients through their progression to wait listing and kidney transplantation. This project is in its final year. In March 2022 the NIKTT published the *Cultural Bias Indigenous Kidney care and Kidney Transplantation Report* and the *Cultural Bias Initiatives to Improve Kidney Transplantation for Aboriginal and Torres Strait Islander People*. These reports have helped to identify, understand and address underlying reasons for the gap in transplantation rates for Aboriginal and Torres Strait Island people related to cultural bias and have identified effective initiatives for future improvements. The report identified 14 individual recommendations to address cultural bias and has prioritised 5 of these recommendations for immediate implementation, including: 1) establishing Indigenous Reference Groups in all renal settings; 2) increasing Aboriginal and Torres Strait Islander health workforce in renal settings; 3) funding sustainable kidney patient navigator or peer support roles; 4) creating and evaluating renal-specific ongoing cultural safety training for all staff in transplant units and other kidney health settings; and 5) designing and implementing tailored models of care for Aboriginal and Torres Strait Islander kidney patients seeking transplantation. I am so grateful for the support of the Commonwealth to fund the work and the exceptional input of many people who have supported this important work with special mention of Katie Cundale who is the Senior Project Officer and Kelli Owen who is the National Community Engagement Coordinator.

I would like to thank the people in particular who have worked so hard for the society in the last year. In particular, many thanks to Dr Lucy Sullivan and A/Prof Wai Lim the chairs of the Scientific Program and Education Committee (SPEC) who have worked tirelessly to put together all of the educational programmes we have. They have done a great job with the regular Grand Round webinars sponsored by Astellas that have been initiated in the last year in addition to pulling together all the elements of the meeting. Many thanks to the members of SPEC; Dr Darren Lee, Prof Henry Pleass, A/Prof William Mulley and Dr Jeanette Villanueva. I would also like to thank the chairs of the advisory committees that serve the TSANZ; Dr Angeline Leet (Cardiac), Prof. Henry Pleass (Co-Chair, DSDC), Shona Haigh (Co-Chair DSDC), Prof Robert Jones (Liver & Intestinal), Prof Greg Snell (Lung), Dr Nicholas Larkins (Paediatric), Dr David Goodman (Pancreas & Islet) and Prof Kate Wyburn (Renal) and Dr Sharon Ford (Vascular Composite Allograft).

I would like to thank the TSANZ council who have worked so hard over the last year. In particular many thanks to Prof Kate Wyburn (President Elect), A/Prof Fiona Mackie (Secretary) and A/Prof Nikky Isbel (Treasurer) who are all members of the executive group of council. I am grateful for all the extra work and meetings you have all given up time for to make the many decisions necessary to make TSANZ work well. Many thanks also to the council members; Prof Kate Wyburn, A/Prof Fiona Mackie, A/Prof Nikky Isbel, Dr Tanya McWilliams, Mr Paul Robertson, A/Prof Phil Clayton, Dr Jerome Laurence, A/Prof Kavitha Muthiah, Dr Lucy Sullivan and Prof Angela Webster . I hope we are able to do an occasional face to face meeting in the next year now the world is opening up.

Finally I would like to thank our outstanding administrative support. Nieves Piaggio, our Executive Officer has been tireless in her work for the society. She has once again sorted Job Keeper and other government subsidies to help keep us afloat. Her organisation of the daily workings of TSANZ are crucial to us being a functioning society. I would also like to thank Roslyn Davies for her amazing work in particular on the new website platform and with running the Grand Rounds. Kim Rawson is our wonderful project officer. Once again she has done an outstanding job managing a number of complex tasks including projects with OTA, NIKTT, the Rapid Response Taskforce and the Advisory Committees. I am truly grateful for the huge amount of work by our admin team. The society would not be able to run without you all.

I hope I am able to catch up with many of you at the meeting and look forward to continuing to work with you all to further transplantation science and practice in Australia and New Zealand.
Ngā manaakitanga (with best wishes)

Professor Helen Pilmore

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The Annual General Meeting of the Transplantation Society of Australia and New Zealand held on ***Monday 15th March 2021*** *via Zoom video conference during the virtual 39th Annual Scientific Meeting.*

Present: 55 members of the Society were present at the meeting which was chaired by the President, Professor Toby Coates, who welcomed everyone to the meeting.

Also in attendance: Mrs Nieves Piaggio, Executive Officer and Mrs Roslyn Davies, Administrative Officer and Mrs Kim Rawson, Senior Project Officer.

1. **APOLOGIES**
   Andrew Jabbour, Nick Cross

2. **CONFIRMATION OF THE MINUTES**
   The minutes of the Annual General Meeting held on 30 July 2019 were passed as a true record.

   Moved: Helen Pilmore
   Seconded: StephenAlexander

3. **BUSINESS ARISING FROM THE MINUTES**
   Constitutional review to be discussed in the secretary's report.

4. **PRESIDENT'S REPORT**
   Professor Toby Coates started by thanking colleagues that have supported TSANZ throughout the pandemic, in particular, Professor Steve Chadban as co-chair of the COVID-19 National Transplantation and Donation Rapid Response Taskforce as well as A/Prof Helen Opdam for their leadership and support. Another positive initiative in the past twelve months in the absence of significant transplant meetings worldwide has been the TSANZ Grand Rounds which have provided educational updates around a variety of relevant transplant topics and has been extremely well attended by the zoom format. He also thanked the administration team, for helping arrange the very first virtual ASM as well as Nieves Piaggio for her work in securing the job keeper allowance for the staff. He then went on to thank A/Prof Kate Wyburn for all of her work on renal allocation algorithms, A/Prof Ross Francis for leading the Virtual Crossmatch working group as well as all of the advisory committees. Stephen McDonald was praised for all of the work he continues to do as Chair of the National Indigenous Kidney Transplantation Taskforce (NIKTT).

   He went on to thank the convenors: Phil Clayton and Eu Ling Neo (ASM), Chien-Li Holmes Liew and Andrea Viecelli (PGC), Sanda Stankovic and Tracey Ying (Masterclass).

   He then thanked the outgoing Council members A/Prof Natasha Rogers (Secretary), A/Prof Bronwyn Levvey (Treasurer), A/Prof Andrew Jabbour, Dr Nick Cross (NZ), A/Prof Kelli MacDonald and Dr Christine Russell.

   As outgoing President, he welcomed A/Prof Helen Pilmore (President) and A/Prof Kate Wyburn (President-elect), Dr Nicole Isbel – Incoming Treasurer and Public Officer and A/Prof Fiona Mackie - incoming Secretary and Public Officer and wished them all the best.

He then welcomed the other new councillors to the TSANZ Council: Dr
Tanya McWilliams - New Zealand Representative
Dr Jerome Laurence;
Dr Kavitha Muthiah;
Dr Lucy Sullivan; and
Professor Angela Webster

5. **TREASURER'S REPORT – presented by the outgoing Treasurer A/Prof Bronwyn Levvey** Bronwyn confirmed that the Society remains financially stable following the ASM being postponed from March 2020 to a virtual platform in March 2021. She advised of the assistance that the administration staff received from job keeper support as well as an increase of sponsorship for this year's virtual ASM which assisted with retaining profits.
She then referred the membership to the Financial Report of 31st December 2019 and proposed that it be accepted.

Moved: Stephen Alexander
Seconded: Phil Clayton

Bronwyn then provided the membership with the Financial Report of the 31st December 2020 and proposed that it be accepted.

Moved: Henry Pleass
Seconded: Helen Pilmore

Bronwyn advised that during the COVID-19 pandemic the council was reluctant to move any proportion of investment funds from the four major banks, despite decreasing returns on the funds, opting for security and stability in a fluctuating financial market. The incoming Council members will be required to make a decision on what to do with these funds.

6. SECRETARY'S REPORT – presented by the outgoing Secretary A/Prof Natasha Rogers Natasha Rogers, the Honorary Secretary, advised that the number of members were low (552), even though student rates were reduced to $20 per year. The majority of members are full members. However, there is an equal gender balance. All members need to encourage clinical and research students to join with such exception value.Natasha then went through the reasons why the TSANZ constitution needed to be reviewed. Basically, to ensure compliance with legislative requirements as the constitution was based on the Associations Incorporation Act 1984 and relevant process driven updates e.g. allow for the electronic ballots at Council elections and for Annual General Meetings (AGM) to be held virtually. She pointed out that TSANZ had spoken with a law firm who were willing to undertake this work pro bono and asked members that a review of the constitution be accepted.

Moved: Helen Pilmore
Seconded: Peter Cowan

7. ADVISORY COMMITTEES AND WORKING GROUPS REPORT – presented by the President-elect A/Prof Helen Pilmore
Helen Pilmore advised members that the Advisory Committee's and Working Groups have met via video conference in the past 12 months and have continued working hard during the pandemic

with the Chairs of each Advisory Committee also being involved in TLRG and the Covid-19 National Transplantation and Donation Rapid Response Taskforce.

8. SCIENTIFIC PROGRAM & EDUCATION COMMITTEE REPORT (SPEC) – presented by Dr Lucy Sullivan and A/Prof Wai Lim

Lucy Sullivan thanked organisers Eu Ling Neo and Phil Clayton (ASM), Chien-Li Holmes Liew and Andrea Viecelli (PGC) and Sanda Stankovic and Tracey Ying (Masterclass), especially for being able to make the adaptation from face-to-face to the program being online.

They then confirmed that ASM 2022 will be held at the Adelaide Convention Centre from 18-21 June 2022.

9. GENERAL BUSINESS

Nikky Isbel asked, given that attendance at the masterclass was so high, whether it should continue to be online. Lucy Sullivan advised that this is a broader discussion to be had by SPEC. Stephen McDonald suggested that there be a blend of both online and face-to-face.

There being no further business the meeting closed at 6.30pm.

Helen Pilmore
TSANZ President

Fiona Mackie
TSANZ Honorary Secretary