AMERICAN SOCIETY OF TRANSPLANTATION

CEOT

CUTTING EDGE OF TRANSPLANTATION

RESOLVING THE ORGAN SHORTAGE

PRACTICE | POLICY | POLITICS

PROGRAM AND ABSTRACTS

Name: _____

FEBRUARY 25-27, 2016 • ARIZONA BILTMORE • PHOENIX, ARIZONA

For more information, visit www.myAST.org/CEOT

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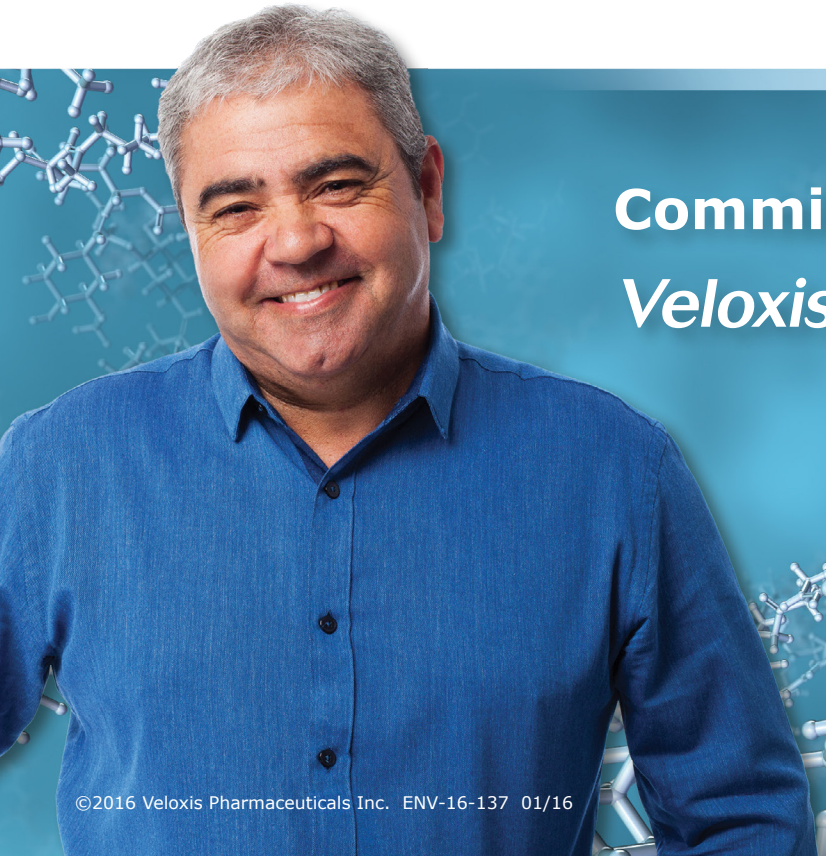

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Monday-Friday, 8 AM-8 PM EST

Delayed Graft Function: Underlying Causes and Consequences

Breakfast Symposium

Friday, February 26, 2016 | 7:00–8:00 AM

Gold Room

Breakfast will be served from 6:45–7:00 AM

OVERVIEW:
An educational program for transplant surgeons and other professionals attending the Cutting Edge of Transplantation (CEOT) congress sponsored by the American Society of Transplantation (AST)

6:45–7:00 AM
Breakfast

7:00–7:05 AM
Welcome and Introductions
Judith Boice, PhD, Alexion Pharmaceuticals

7:05–7:25 AM
The New Transplant Landscape and DGF: Unintended Consequences
Lloyd Ratner, MD, MPH, Columbia University

7:25–7:45 AM
Complement as a Mediator of DGF
Steven Sacks, PhD, Kings College London

7:45–8:00 AM
Question and Answer Session
Speakers

8:00 AM
Program Adjournment

There are no CME/CNE credits associated with this program

ALEXION®

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Bristol-Myers Squibb is honored to be a part of the Transplant Community.
We are proud to support the American Society of Transplantation and the CEOT Annual Meeting.

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AMERICAN SOCIETY OF TRANSPLANTATION

AST's Cutting Edge of Transplantation

February 25-27, 2016
Phoenix, Arizona

General Information

Registration Desk

Thursday, Feb. 25	11:00 am – 7:00 pm
Friday, Feb. 26	6:30 am – 3:45 pm
Saturday, Feb. 27	6:30am – 5:00 pm

Exhibit Hall (Posters, Industry Displays)

Thursday, Feb. 25	4:45 pm – 6:00 pm
Friday, Feb. 26	10:30 am – 3:00 pm
Saturday, Feb. 27	10:15 am – 5:00 pm

Industry Displays

Be sure to visit the following companies in the exhibit hall during breaks and receptions:

Bristol-Myers Squibb
Novartis Pharmaceuticals Corporation
Sanofi
Veloxis Pharmaceuticals

Evening Events

Reception and Posters, Thursday 4:45 pm – 6:00 pm

Join your colleagues for a warm welcome to the Cutting Edge of Transplantation meeting. View the posters and visit industry video display stations, and enjoy ample food and drinks with AST.

Meals

Breakfast is provided by AST Friday and Saturday at 7:00 am at the satellite symposia. Lunch will be provided by AST during the luncheon workshops on Friday and Saturday. Breaks and evening refreshments will also be provided. Please visit the hotel concierge or the AST registration desk for dining suggestions for dinner.

Name Badge

All attendees must wear the AST-provided name badge at all times to gain access to CEOT events and sessions.

Guests

All guests must be registered and wear the AST-provided guest name badge at all times to gain access to the evening reception on Thursday. All other sessions and events are educational in nature and we request that guests do not attend.

Program Planning Committee

Anil Chandraker, MD, FAST, **2016 Co-chair**
Brigham and Women's Hospital

Kenneth Newell, MD, PhD, FAST, **2016 Co-chair**
Emory University School of Medicine

James S. Allan, MD, MBA, FAST
Massachusetts General Hospital

Richard Formica, MD, FAST
Yale University School of Medicine

Daniel R. Salomon, MD
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Robert S. Gaston, MD, FAST
University of Alabama at Birmingham

David P. Foley, MD, FACS
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John Gill, MD, MS, FAST
The University of British Columbia

Jon Kobashigawa, MD, FAST
Cedars-Sinai Heart Institute

Jacqueline G. O'Leary, MD, MPH
Baylor University

Emilio Poggio, MD
Cleveland Clinic

Invited Faculty and Moderators

Michael Acker, MD
University of Pennsylvania

James Allan, MD, MBA, FAST
Massachusetts General Hospital

Kenneth Andreoni, MD
University of Florida

Francisco Arabia, MD
Cedars-Sinai Heart Institute

Abbas Ardehali, MD
David Geffen School of Medicine at UCLA

David Baran, MD
Newark Beth Israel Medical Center

Carl Berg, MD
Duke University

Adam Bingaman, MD, PhD
Methodist Specialty and Transplant Hospital, San Antonio

Anil Chandraker, MD, FRCP, FAST
Brigham and Women's Hospital

Kenneth Chavin, MD, PhD
Medical University of South Carolina

Kevin Cmunt
Gift of Hope Organ and Tissue Donor Network

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Harvard Law School

Monica Colvin, MD
University of Michigan

Teresa DeMarco, MD
University of Calfornia, San Francisco

Leah Edwards, PhD
UNOS

Fardad Esmailian, MD
Cedars-Sinai Heart Institute

Sandy Feng, MD, PhD
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Stuart Flechner, MD, FACS
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John Forsythe, MD
European Society for Organ Transplantation

John Friedewald, MD
Northwestern University

Robert Gaston, MD, FAST
University of Alabama at Birmingham

John Gill, MD, MS, FAST
The University of British Columbia

Michael Givertz, MD
Brigham and Women's Hospital, Harvard Medical School

Gonzo Gonzalez-Stawinski, MD
Baylor-Scott & White

Igor D. Gregoric, MD
University of Texas Health Science Center Houston

Eileen Hsich, MD
Cleveland Clinic

Valluvan Jeevanandam, MD
University of Chicago Medicine

Ina Jochmans, MD, PhD
University Hospitals Leuven

Maryl Johnson, MD, FAST
University of Wisconsin, Madison

Ulrich Jorde, MD
Montefiore Medical Center

Daniel Kaul, MD
University of Michigan

Kiran Khush, MD, MAS
Stanford University

James Kirklin, MD
University of Alabama at Birmingham

Jon Kobashigawa, MD, FAST
Cedars-Sinai Heart Institute

Evan Kransdorf, MD, PhD
Mayo Clinic Arizona

Matthew J. Kuehnert, MD
Centers for Disease Control and Prevention

Deepali Kumar
University Health Network

George Loss, MD, PhD
Ochsner Medical Center

Darren Malinoski, MD, FACS
Oregon Health & Science University

Arthur Matas, MD
University of Minnesota

Mandeep Mehra, MD
Brigham and Women's Hospital

Larry Melton, MD, PhD, FAST
Hackensack University Medical Center

Gwen McNatt, RN, PhD, CNN, FNP, BC
Northwestern Memorial Hospital

Dan Meyer, MD
University of Texas Southwestern Medical Center

Tom Mone, MS
OneLegacy

David Mulligan, MD, FAST
Yale University

David Nelson, MD, FAST
Integris Baptist Medical Center

Kenneth Newell, MD, PhD, FAST
Emory University

Jacqueline O'Leary, MD, MPH
Baylor University

Jignesh Patel, MD, PhD
Cedars-Sinai Heart Institute

Thomas Pearson, MD, DPhil
Emory University

Sean Pinney, MD
Icahn School of Medicine at Mount Sinai

Emilio Poggio, MD
Cleveland Clinic

Elizabeth Pomfret, MD, PhD, FACS
Lahey Hospital & Medical Center

Luciano Potena, MD, PhD
University of Bologna

Steven Potter, MD, FACS
East Texas Medical Center

Luke Preczewski
University of California, Davis Medical Center

Timothy Pruett, MD
University of Minnesota

Lloyd Ratner, MD, MPH
Columbia University

Liz Robbins Callahan, JD
UNOS

Heather Ross, MD, MHSc
Peter Munk Cardiac Centre, University of Toronto

Alvin Roth, PhD
Stanford University

Daniel Salomon, MD
The Scripps Research Institute

Dorry Segev, MD, PhD, FAST
Johns Hopkins University

Markus Selzner, MD
Toronto General Hospital

Brian Shepard, CEO
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Florida Hosptial Transplant Institute

Randall Starling, MD, MPH, FACC, FESC
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University of Pittsburgh Medical Center

James Trotter, MD
Baylor University Medical Center

J. David Vega, MD
Emory University

Christopher Watson, MD
University of Cambridge

Russell Wiesner, MD
Mayo Clinic of Rochester

Alexander Wiseman, MD, FAST
University of Colorado, Denver

Kevin Yoder
United States House of Representatives

Resolving the Organ Shortage: Practice, Policy, Politics

All general sessions take place in Mesa/Flagstaff.
Sessions in the heart track take place in Grand Canyon.
Other session and event locations are noted within the program.

Thursday, February 25

2:30 pm	**Welcome Remarks** *Anil Chandraker, MD, FAST, Brigham and Women's Hospital* and *Kenneth Newell, MD, PhD, FAST, Emory University*
2:45 pm – 4:45 pm	**Session 1: Optimizing the Use of Marginal Organs*** Moderators: *James Allan, MD, MBA, FAST, Massachusetts General Hospital* and *Thomas Pearson, MD, DPhil, Emory University*
2:45 pm	Administrative Strategies to Encourage Centers to Use Marginal Organs *Carl Berg, MD, Duke University*
3:15 pm	Interventions in the Deceased Organ Donor to Improve Organ Quality *Sandy Feng, MD, PhD, University of California, San Francisco*
3:45 pm	The Organ Repair Center: Optimal Strategies to Repair Organs *Ex Vivo* *Markus Selzner, MD, Toronto General Research Institute*
4:15 pm	Best Practices at the Center Level to Safely Use Marginal Organs *George Loss, MD, PhD, Ochsner Medical Center*
4:45 pm – 6:00 pm	**Poster Presentations and Welcome Reception** Casa Grande
6:00 pm – 7:00 pm	**Session 2: Keynote Presentation†** Moderators: *Anil Chandraker, MD, FAST, Brigham and Women's Hospital* and *Kenneth Newell, MD, PhD, FAST, Emory University*
6:00 pm	Considerations Driving the Changes to Organ Allocation and Distribution *Brian Shepard, Chief Executive Officer, UNOS*
6:30 pm	Panel Discussion

**Continuing education credit offered. See separate packet.*
†No continuing education credit offered.

Friday, February 26

7:00 am – 8:00 am **Satellite Symposium presented by Alexion Pharmaceuticals†**
This is not an official function of the CEOT meeting and is not endorsed by the AST. Breakfast is provided by AST.
Gold Room

Delayed Graft Function: Underlying Causes and Consequences

- Welcome and Introductions
  Judith Boice, PhD, Alexion Pharmaceuticals
- The New Transplant Landscape and DGF: Unintended Consequences
  Lloyd Ratner, MD, MPH, Columbia University
- Complement and Other Mediators of DGF
  Steven Sacks, PhD, Kings College London

8:00 am – 8:15 am **Break**

8:15 am – 10:30 am **Session 3*:** Choose one of two sessions

Option 1: The New Era of Kidney Allocation
Moderators: *John Gill, MD, FAST, The University of British Columbia* and
Alexander Wiseman, MD, FAST, University of Colorado, Denver

8:15 am Changes to Kidney Allocation: Gains and Losses
Richard Formica, MD, FAST, Yale University School of Medicine

8:45 am KAS: Unintended Consequences and Future Changes
John Friedewald, MD, Northwestern University

9:15 am Utilization of High KDPI Kidneys
Emilio Poggio, MD, Cleveland Clinic

9:45 am One Year Post-KAS: A Tale of Two Transplant Centers
Small program - *Steve Potter, MD, FACS, East Texas Medical Center RHS*
Large program - *Lloyd Ratner, MD, MPH, Columbia University*

10:15 am Closing Discussion

Option 2: Increasing the Donor Heart Pool
Moderators: *Maryl Johnson, MD, FAST, University of Wisconsin, Madison* and
Mandeep Mehra, MD, Brigham and Women's Hospital

Introductory Remarks
Jon Kobashigawa, MD, FAST, Cedars-Sinai Heart Institute

8:15 am Means to Expand Heart Donation
Tom Mone, MS, OneLegacy

**Continuing education credit offered. See separate packet.*
†No continuing education credit offered.

	8:35 am	Mechanisms of Immune Activation with Brain Death: Can This Be Modified? *Evan Kransdorf, MD, PhD, Mayo Clinic Arizona*
	8:55 am	Brain Dead Donor Heart Management: Maintenance of Hemodynamics with What Drugs? *Darren Malinoski, MD, FACS, Oregon Health & Science University*
	9:15 am	The Value of Thyroid Hormone, Corticosteroids, Hypothermia and Other Means to Maintain/Improve Donor Heart Function *Sean Pinney, MD, Icahn School of Medicine at Mount Sinai*
	9:35 am	Extended Criteria Donor Hearts: Defining Criteria and Outcomes *Igor D. Gregoric, MD, University of Texas Health Science Center Houston*
	9:55 am	*Ex Vivo* Heart Perfusion and DCD Heart Donation *Abbas Ardehali, MD, Ronald Reagan UCLA Medical Center*
	10:15 am	Panel Discussion
10:30 am – 11:00 am		**Break**
11:00 am – 1:00 pm		**Session 4, Part 1: Removing Disincentives and Exploring Controversies of Incentives*** Moderators: *Robert Gaston, MD, FAST, University of Alabama at Birmingham* and *Larry Melton, MD, PhD, FAST, Hackensack University Medical Center*
11:00 am		World and Historical Perspectives *John Gill, MD, MS, FAST, The University of British Columbia*
11:30 am		Undue Incentives and Repugnant Transactions: One Economist's Perspective *Alvin Roth, PhD, Stanford University* *Nobel Laureate*
12:00 pm		Bioethical Perspectives on Incentivizing Organ Donation and the Impact of NOTA on Pilot Projects *I. Glenn Cohen, JD, Harvard Law School*
12:30 pm		What Is an Incentive and a Critical Appraisal of Possible Pilot Trials of Incentives in Organ Donation? *Robert Gaston, MD, FAST, University of Alabama at Birmingham*
1:00 pm – 1:15 pm		**Pick Up Lunch and Proceed to Workshop**
1:15 pm – 3:15 pm		**Session 4, Part 2: Luncheon Workshop†** **Discussing the Spectrum of Disincentives and Incentives: Where Do You Stand**? *Robert Gaston, MD, FAST, University of Alabama at Birmingham and* *Larry Melton, MD, PhD, FAST, Hackensack University Medical Center* *Daniel Salomon, MD, Scripps Research Institute* A structured discussion of the issues related to the removal of disincentives and the implementation of incentives, with the goal of guiding AST's direction in the future.

**Continuing education credit offered. See separate packet.*
†No continuing education credit offered.

3:45 pm – 7:45 pm **Networking Activities**

Registration was required in advance. Onsite registration is not available.
"Peak" Your Interest *on the Mountain* - Hiking
Float Your Ideas *on the River* - Kayaking
Cycle through Your Thoughts *on a Trail* - Biking
Swing Into Action *on the Green* - Golfing

Saturday, February 27

7:00 am – 8:00 am **Satellite Symposium supported by an educational grant from Bristol-Myers Squibb Company†**
This is not an official function of the CEOT meeting.
Breakfast is provided by AST.
Gold Room

Overcoming Barriers to Long-term Kidney Allograft Survival

- An Overview of Factors Affecting Long-term Survival Following Kidney Transplantation
  Timothy Pruett, MD, University of Minnesota
- Non-adherence: Why Is It Still a Problem?
  Lisa Potter, PharmD
- Long-term Graft Survival: It's All About Anti-Donor Antibodies
  Peter Nickerson, MD
- Co-stimulation Blockade-based Strategies to Minimize Calcineurin Inhibitor Exposure
  Andrew Adams, MD, PhD

8:00 am – 8:15 am **Break**

8:15 am – 9:15 am **Session 5: Keynote Presentation†**
Moderators: Anil Chandraker, MD, FAST, Brigham and Women's Hospital and *Kenneth Newell, MD, PhD, FAST, Emory University*

8:15 am A Congressional Perspective on Organ Transplantation and the Gift of Life
The Honorable Kevin Yoder
United States House of Representatives

8:45 am Panel Discussion

**Continuing education credit offered. See separate packet.*
†No continuing education credit offered.

9:15 am – 11:15 am **Session 6*:** Choose one of two sessions

Option 1: Liver Allocation
Moderators: *Jacqueline O'Leary, MD, MPH, Baylor University* and
David Foley, MD, FACS, University of Wisconsin School of Medicine and Public Health

9:15 am	Benefits of Share 35 and Redistricting *David Mulligan, MD, FAST, Yale University*
9:45 am	Concerns of Share 35 and Redistricting *James Trotter, MD, Baylor University*
10:15 am	Can MELD Be Improved? Implications of HCV Therapy and CKD *Russell Wiesner, MD, Mayo Clinic, Rochester*
10:45 am	Dual Organ Allocation Implications, Older NASH Patients, More CKD *Richard Formica, MD, FAST, Yale University*

Option 2: Donor Heart Selection
Moderators: *Teresa DeMarco, MD, University of California, San Francisco* and
David Nelson, MD, FAST, Integris Baptist Medical Center

9:15 am	Donor Heart Risk Factors *David Baran, MD, Newark Beth Israel Medical Center*
9:32 am	Recipient Heart Risk Factors *Monica Colvin, MD, University of Michigan*
9:49 am	Intraoperative Risk Factors Associated with Heart Transplant Surgery and Mechanical Circulatory Support Patients: Special Considerations *Michael Acker, MD, University of Pennsylvania*
10:06 am	Immunologic Risk Factors: Approach to the Sensitized Patient *Jignesh Patel, MD, PhD, Cedars-Sinai Heart Institute*
10:23 am	Donor/Recipient Risk Scores: Review of Published Approaches from Europe & the US *Michael Givertz, MD, Brigham and Women's Hospital*
10:40 am	Developing a Risk Score in Heart Transplantation *Kiran Khush, MD, MAS, Stanford University*
10:57 am	Panel Discussion

11:15 am – 11:45 am **Break**

**Continuing education credit offered. See separate packet.*
†No continuing education credit offered.

11:45 am – 12:45 pm **Session 7: Update on Cardiac Transplantation***
Moderators: *Maryl Johnson, MD, FAST, University of Wisconsin, Madison* and *Jeffrey Teuteberg, MD, University of Pittsburgh Medical Center*

11:45 am Approach to the Donor Heart Shortage
Jon Kobashigawa, MD, FAST, Cedars-Sinai Heart Institute

12:15 pm Issues with the New Donor Heart Allocation Proposal
Dan Meyer, MD, University of Texas Southwestern Medical Center

12:15 pm – 12:45 pm **Pick Up Lunch and Proceed to Session**

12:45 pm – 3:00 pm **Session 8: ESOT Luncheon Session***
How are Organs Allocated in Europe/Eurotransplant?
Moderators: *John Forsythe, MD, FRCS, FRCS, FEBS, RCP, European Society for Organ Transplantation* and *John Gill, MD, FAST, The University of British Columbia*

12:45 pm Introductory Remarks

1:00 pm Did the Last System Work? And Plans for the New Kidney Allocation in the UK
Christopher Watson, MD, University of Cambridge

1:30 pm Working with Eurotransplant to Optimize Organ Allocation
Ina Jochmans, MD, PhD, University Hospitals Leuven

2:00 pm Cardiothoracic Allocation in Europe
Luciano Potena, MD, PhD, University of Bologna

2:30 pm Discussion: US Concepts vs. EU Concepts

3:00 pm – 3:15 pm **Break**

3:15 pm – 5:15 pm **Session 9: Breakout Sessions I-V*:** Choose one of five sessions

Breakout Session I: Long-term Risks to Living Kidney Donors
Mesa/Flagstaff
Facilitator: John Gill, MD, MS, FAST, University of British Columbia

- Introduction
  John Gill, MD, MS, FAST, University of British Columbia
- Sentinel Events: Death and ESRD
  Dorry Segev, MD, PhD, FAST, Johns Hopkins University
- Non-sentinel Events: CKD, HTN, Diabetes, Depression
  Arthur Matas, MD, University of Minnesota
- Communication of Risk
  Dorry Segev and Arthur Matas

**Continuing education credit offered. See separate packet.*
†No continuing education credit offered.

Breakout Session II: Aligning Financial Incentives in New Systems of Allocation, Paired-Exchange, and Expanded Donation
FLW Salon B
Facilitator: Luke Preczewski, University of California Davis

- Kidney Bean Counting: Overcoming the Financial and Administrative Burden of Paired-Donor Exchanges
  Gwen McNatt, RN, PhD, CNN, FNP-BC, Northwestern Memorial Hospital
- Blood and Treasure: The High Costs and Even Greater Benefits of Transplanting Challenging Kidneys
  Luke Preczewski, University of California Davis
- Paying for Performance: The Perverse Incentives in Expanding the Deceased Donor Pool
  Kevin Cmunt, Gift of Hope Organ and Tissue Donor Network
- Panel and Audience Discussion: How Can We Better Align Incentives in Support of Expanding the Donor Pool

Breakout Session III: Strategies to Expand the Liver Donor Pool
FLW Salon C
Facilitators: David Foley, MD, University of Wisconsin and *Jaqueline O'Leary, MD, MPH, Baylor University*

- Optimizing Living Donor Liver Transplant: Risks and Benefits
  Elizabeth Pomfret, MD, PhD, Lahey Clinic
- Novel Strategies to Improve Function of Steatotic Donor Livers
  Kenneth Chavin, MD, PhD, Medical University of South Carolina
- Increasing Use of DCD Livers: Are We Getting Better?
  David Foley, MD, FACS, University of Wisconsin

Breakout Session IV: Getting the Message Across: Increased Infectious Risk Donors
FLW Salon D
Facilitator: Deepali Kumar, MD, University Health Network

- Improving Utilization of Organs from Increased Risk Donors: What We've Got Here Is a Failure to Communicate
  Matthew Kuehnert, MD, Centers for Disease Control and Prevention
- Organ Utilization/Risk Perception by Providers and Patients
  Timothy Pruett, MD, University of Minnesota
- Risks of Other Donor-Derived Infections (nonHIV, nonHCV)
  Daniel Kaul, MD, University of Michigan

Breakout Session V: Discussion of the New UNOS Heart Allocation Proposal
Grand Canyon
Moderators: *Randall Starling, MD, Cleveland Clinic* and *Francisco Arabia, MD, Cedars-Sinai Heart Institute*

- Overview of New Donor Heart Allocation Tiers
  Dan Meyer, MD, University of Texas Southwestern Medical Center
- Reassessing the Urgency of LVAD Patients Awaiting Transplantation
  Ulrich Jorde, MD, Montefiore Medical Center
- Consider Options for Improved Zonal or Geographic Sharing
  David Vega, MD, Emory University

- Defining and Prioritizing Highly Sensitized Candidates
  Heather Ross, MD, MHSc, Toronto General Hospital
- Under-represented Populations
  Eileen Hsich, MD, Cleveland Clinic
- Panel Discussion
  - *Monica Colvin, MD, University of Michigan*
  - *Dan Meyer, MD, University of Texas Southwestern Medical Center*
  - *Leah Edwards, PhD, UNOS*
  - *Liz Robbins Callahan, JD, UNOS*
  - *Randall Starling, MD, MPH, Cleveland Clinic*
  - *Scott Silvestry, MD, Florida Hospital Transplant Institute*

5:15 pm – 6:00 pm **Break**

6:00 pm – 7:45 pm **Session 10*:** Choose one of two sessions

Option 1: Where Are We Going with Kidney Paired Donation?
Moderators: *Richard Formica, MD, FAST, Yale University* and *Kenneth Newell, MD, PhD, FAST, Emory University*

6:00 pm How Are We Measuring Sensitization?
Anat Tambur, DMD, PhD, FAST, Northwestern University

6:20 pm Single Center Programs Work Best
Adam Bingaman, MD, PhD, Methodist Specialty and Transplant Hospital, San Antonio

6:40 pm A Nationally-run Private Program Works Best
Stuart Flechner, MD, Cleveland Clinic

7:00 pm UNOS Should Oversee KPD
Kenneth Andreoni, MD, University of Florida

7:20 pm Concluding Panel Discussion

Option 2: Case Studies: Real-life Donor Heart Offers
Moderators: *Jon Kobashigawa, MD, FAST, Cedars-Sinai Heart Institute* and *Luciano Potena, MD, PhD University of Bologna*

6:00 pm **Expert Panel**
Fardad Esmailian, MD, Cedars-Sinai Heart Institute
Gonzalo Gonzalez-Stawinski, MD, Baylor University
Valluvan Jeevanandam, MD, University of Chicago
James Kirklin, MD, University of Alabama

7:45 pm – 8:00 pm **Closing Remarks†**
Anil Chandraker, MD, FAST, Brigham and Women's Hospital
and Kenneth Newell, MD, PhD, FAST, Emory University

**Continuing education credit offered. See separate packet.*
†No continuing education credit offered.

Young Innovator Award

This award is given to emerging professionals in transplantation with the top-scoring abstracts, as determined by the CEOT Program Committee.

Congratulations to the 2016 CEOT Young Innovator Award winners:

Joel Adler
Massachusetts General Hospital

Xingxing Cheng
Stanford University

Nissreen Elfadawy
Case Western Medical Reserve University

Natalia Jasiak
University of Illinois at Chicago

Monica Konerman
University of Michigan

Madhukar Patel
University of California Irvine, School of Medicine

James Salazar
University of California, San Francisco

Mitchell Sally
VA Portland Healthcare System

Zaid Taimeh
University of Minnesota School of Medicine

Congratulations to the 2016 Transplant Administrators COP Travel Grant Recipient:

Nissreen Elfadawy
Case Western Medical Reserve University

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At the time of printing

The following companies provided sponsorship for this educational activity:

Alexion Pharmaceuticals

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The Heart Track is generously supported with funding from
Cedars-Sinai Heart Institute.

Supporter Information

Alexion
Alexion is a global biopharmaceutical company focused on developing and delivering life-transforming therapies for patients with devastating and rare disorders. Alexion's complement franchise includes Soliris® (eculizumab), the first and only approved complement inhibitor to treat patients with paroxysmal nocturnal hemoglobinuria (PNH) and atypical hemolytic uremic syndrome (aHUS). As the global leader in complement inhibition, Alexion is strengthening and broadening its portfolio of complement inhibitors, including evaluating potential indications for eculizumab in additional severe and ultra-rare disorders. Alexion's metabolic franchise includes Strensiq® (asfotase alfa) for the treatment of hypophosphatasia (HPP) and Kanuma™ (sebelipase alfa) for the treatment of lysosomal acid lipase deficiency (LAL-D).

Astellas Pharma US, Inc.
Astellas Pharma US, Inc., located in Northbrook, Illinois, is a US affiliate of Tokyo-based Astellas Pharma Inc. Astellas is a pharmaceutical company dedicated to improving the health of people around the world through the provision of innovative and reliable pharmaceutical products. The organization is committed to becoming a global category leader in focused areas by combining outstanding R&D and marketing capabilities. For more information about Astellas Pharma US, Inc., please visit our website at www.Astellas.us.

Bristol-Myers Squibb
Bristol-Myers Squibb is a global biopharmaceutical company whose mission is to discover, develop and deliver innovative medicines that help patients prevail over serious diseases.
For more information about Bristol-Myers Squibb, visit www.bms.com or follow us on Twitter at http://twitter.com/bmsnews.

CareDX
CareDx, Inc., based in Brisbane, California, is a molecular diagnostics company focused on the discovery, development and commercialization of clinically differentiated, high-value, diagnostic surveillance solutions for transplant patients. The company has commercialized AlloMap®, a gene expression test that aids clinicians in identifying heart transplant patients with stable graft function who have a low probability of moderate/severe acute cellular rejection. CareDx is also pursuing the development of additional products for transplant monitoring using a variety of technologies, including AlloSure™, its next-generation sequencing–based test to detect donor-derived cell-free DNA after transplantation. For more information, please visit: www.CareDx.com.

Novartis Pharmaceuticals Corporation
Novartis Pharmaceuticals Corporation has remained committed to the field of transplantation for more than 30 years to address individual patient needs with a range of immunosuppressive agents and innovative products in development. Novartis aims to continue to work with the transplant community to improve long-term graft and patient survival. Please visit the Novartis exhibit where our representatives will be available to discuss our products.

Sanofi
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AST's Cutting Edge of Transplantation

Poster Abstracts #1-42

Poster Session
Thursday, February 25, 2016
4:45 pm – 6:00 pm
Casa Grande

ABSTRACT # 1

Health Literacy, Knowledge and Patient Satisfaction Prior to Kidney Transplantation

Holly Mansell[1], Nicola Rosaasen[2], ahmed shoker[1], Rahul Mainra[1], Jeff Taylor[1], Dave Blackburn[1]
1. University of Saskatchewan, Saskatoon, SK, Canada.
2. Saskatoon Health Region, Saskatoon, SK, Canada.

Background: Poor health literacy is associated with negative health outcomes in kidney transplant recipients, and knowledge of transplantation remains suboptimal in this population. A baseline analysis was conducted to inform the development of an intervention to improve education for patients on the kidney transplant waitlist.
Objective: To characterize the health literacy, kidney transplant knowledge, medication beliefs and education satisfaction in a cohort of patients aiting for a kidney transplant.

Methods: All patients on the kidney waitlist in one Canadian province were invited to participate in this cross sectional study. A research assistant administered a questionnaire consisting of the short form test of functional health literacy assessment (S-TOFHLA) and numeracy, the Beliefs of Medicines Questionnaire (BMQ), the Knowledge of Kidney Transplant Questionnaire (KKTQ), and questions regarding satisfaction with transplant education. Descriptive and univariate statistics were calculated between demographic variables and the assessments to identify associations and correlations.

Results: Of 106 potential participants, 41 (38.7%) participated the study. The mean health literacy score was 32.6 ± 4.51, while the mean numeracy score was 14 ± 2.43. 95% and 86% were defined as having adequate health literacy and numeracy, respectively. The mean score on the KKTQ was 79%, and the majority (97.4%) had strong beliefs in the necessity of medication and little concern about adverse effects (73.8%). Participants who had higher literacy scores had increased knowledge (r=0.52; P=0.001), an increased understanding of why antirejection pills are necessary (r=0.38; P=0.019), and felt more confident about taking post-transplant medications (r=0.317; P=0.049). Nearly a third (30.7%) and a quarter (22.5%) were unsatisfied about their education about medication, and transplant expectations, respectively.

Conclusions: Health literacy, and transplant knowledge, and BMQ scores were high in a cohort of pre-transplant patients, yet patient satisfaction regarding educational content remained suboptimal. Future educational interventions will aim to improve satisfaction.

Disclosure: Holly Mansell: No | Nicola Rosaasen: No | ahmed shoker: No | Rahul Mainra: No | Jeff Taylor: No | Dave Blackburn: No
KEYWORDS: kidney transplantation, immunosuppression.

ABSTRACT # 2

Kidney Transplantation following Tumour Excision for Malignancy; an early experience at a Regional Transplant Centre

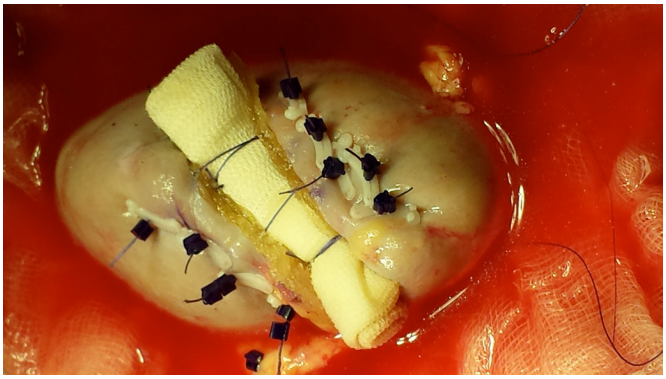
Rachael Coates[1], Afridi Faryal[1], Naeem Soomro[2], David Rix[2], David Talbot[1]
1. HPB and Transplant Surgery, Freeman Hospital, Newcastle Upon Tyne, United Kingdom.
2. Urology, Freeman Hospital, Newcastle Upon Tyne, United Kingdom.

Background: T1a renal cell carcinoma have an annual incidence of 4500. Although Partial Nephrectomy is the current standard for the treatment of these tumours, radical nephrectomy is still being performed with the kidney being discarded. These discarded organs are a potential source of organs for transplantation particularly in high risk recipients with limited chances of qualifying for a deceased donor transplant. This stems from reports of accident and intentional kidneys with RCC transplanted with low recurrence rates. This series reports our initial experience of using kidneys with tumours after partial nephrectomy and tumour resection.

Methods: Donors identified from staging CT following independent decision to undergo radical nephrectomy. Elderly high risk and poor HLA match recipients (n=4) identified from local transplant waiting list.
Technique:
Standard technique is followed in which tumour is excised under direct vision with or without US guidance. Calyces are then oversewn and subsequently surgicel and/or tachosil is sewn into the defect. After preparation, kidneys are transplanted using standard transplant techniques

Results: Mean recipient age was 72. There was one early graft loss from renal vein thrombosis, one urinary leak treated conservatively and one case of AV malformation managed with angio-embolisation. No tumour recurrence is seen to date.

Conclusions: Using kidneys after partial nephrectomy for RCC has the potential for improving quality and quantity of life in marginal recipients otherwise unlikely to receive a transplant. There has been no tumour recurrence in this series so far however longer followup is required.



Disclosure: Rachael Coates: No | Afridi Faryal: No | Naeem Soomro: No | David Rix: No | David Talbot: No
KEYWORDS: kidney transplantation, kidney graft survival.

ABSTRACT # 3
ABOi Live Donor Renal Transplants; Early losses, Learning Curve and Experience from a Regional Transplant Centre
Afridi Faryal[1], Rachael Coates[1], Alison Brown[2], Chera Arunachalam[2], Baines Laura[2], Neil Sheerin[2], David Talbot[1]
1. HPB and Transplant Surgery, Freeman Hospital, Newcastle Upon Tyne, United Kingdom.
2. Freeman Hospital, Newcastle Upon Tyne, United Kingdom.

Background: Organ shortage and newer techniques of effective antibody removal has led to popularisation of ABOi renal transplantation. This series looks at outcomes for consecutive ABOi renal transplants in our regional transplant centre.

Methods: Patients (n=41) who received an ABOi live donor kidney transplant between 2009 and 2014 are included. Data relating to patient demographics, antibody titres (pre and post transplant), HLA incompatibility, antibody levels, immuno-suppression regimen including induction and antibody removal procedures was obtained from a prospectively maintained database and analysed using SPSS v21. Graft function was studied as the primary outcome measure with graft losses, mortality and morbidity studied as secondary outcomes.

Results: Graft function remains good in all patients with a mean creatinine of 127 at 24 months (Range 49-297) and 147 (n=23) at 36 months (Range 47-333). There were two early graft losses in this series, one mortality with a functioning graft, two episodes of significant morbidity (MAHA) and 2 episodes of rejection treated conservatively.

Conclusions: ABOi transplants at our centre saw period of rapid losses after initial excellent outcomes which led to alteration in immunosuppression protocol. The centre reports excellent outcomes with dialysis free survival for most of our patients.

Renal Function

3 month	6 month	12 month	24 month	36 month (n=29)
Mean Creatinine				
114.6	115.8	125	127	146.7
Range				
41-185	31-249	33-410	49-297	47-333

Disclosure: Afridi Faryal: No | Rachael Coates: No | Alison Brown: No | Chera Arunachalam: No | Baines Laura: No | Neil Sheerin: No | David Talbot: No
KEYWORDS: living donor transplantation, allograft loss.

ABSTRACT # 4
Glycine is graft protective and improves kidney function after liver transplantation: Data from the multicenter HEGPOL-Trial
Peter Schemmer[1], Arash Nickkholgh[1], Georgios Polychronidis[1], Steffen P. Luntz[2], Ertan Mayatepek[3], Markus W. Büchler[1], Ernst Klar[4]
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2. Coordination Center for Clinical Trials (KKS), University of Heidelberg, Heidelberg, Germany.
3. Department of General Pediatrics, Heinrich-Heine-University, Düsseldorf, Düsseldorf, Germany.
4. Department of Surgery, University of Rostock, Rostock, Germany.

Background: In experimental Liver transplantation (LTx), glycine, a non-essential amino acid, has been shown to prevent the activation of Kupffer cells and to reduce ischemia/reperfusion injury (IRI) in the liver. Based on both experimental and preliminary clinical data, this study was designed to further evaluate the early effect(s) of glycine after liver transplantation.

Methods: A randomized placebo-controlled multicenter double-blinded clinical trial with two parallel study arms was performed. A total of 130 patients undergoing primary whole-liver transplantation were randomized and received 250 ml of either 4.4 % glycine solution (n=66) or injectable water (n=64) intravenously (i.v.) during the anhepatic phase and once a day during the first 7 consecutive postoperative days (POD 1-7). Primary endpoints were peak levels of aspartat-amino-transaminase (AST) / alanine-aminotransaminase (ALT) as surrogates for the progression of liver related IRI, as well as graft and patient survival. Furthermore, the effect of glycine on cyclosporine A-induced nephrotoxicity is evaluated.

Results: The intention to treat analysis as well as the per protocol analysis showed no difference in primary or secondary endpoints between the two study arms. A post-hoc subgroup analysis comparing patients with very high plasma glycine concentrations during the anhepatic phase of LTx (>7000 ng/ml, n=29) and those with lower concentrations (<7000 ng/ml; n=68) was performed.
A relative but not statistically significant reduction of ALT levels during the first 24 hrs and on the first day after LTx, as well as an improvement of patients' overall survival was related with higher plasma glycine levels. Comparison of the post-reperfusion biopsy results showed a significant reduction in both mild and moderate IRI in patients with very high plasma glycine concentrations. The most important advantage of the glycine treatment was the improvement of eGFR under cyclosporine treatment, not only in patients within the target trough levels, but also in patients with trough levels much higher than target.

Conclusions: Although the per protocol analysis could not verify the hypothesized effects of glycine, very high plasma concentrations of glycine achieved after its i.v. administration at the anhepatic phase and early after liver transplantation proved not only to be safe, but also hepatoprotective and nephroprotective. Trial Registration: HEGPOL; ISRCTN69350312.

Disclosure: Peter Schemmer: No | Arash Nickkholgh: No | Georgios Polychronidis: No | Steffen Luntz: No | Ertan Mayatepek: No | Markus Büchler: No | Ernst Klar: No
KEYWORDS: ischemia/reperfusion injury, liver transplantation.

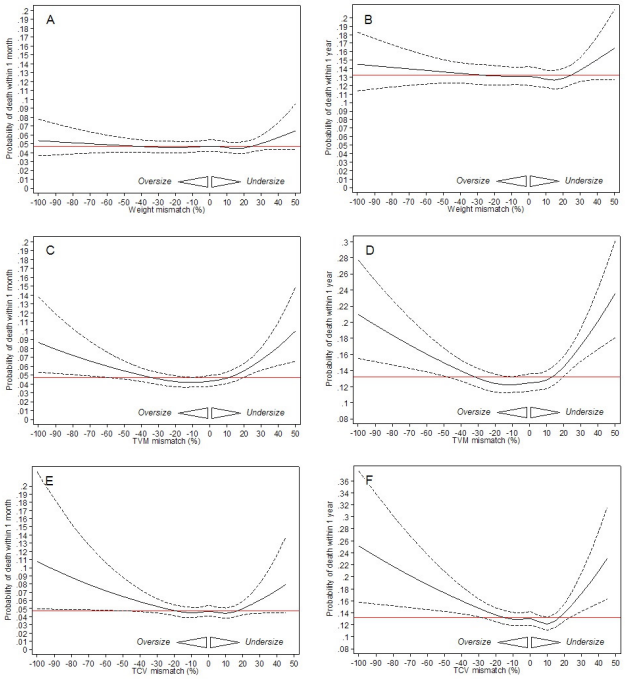
ABSTRACT # 5
Matching Heart Size of Donors and Recipients Using Total Ventricular Mass Rather Than Body Weight Portends Improved Survival After Heart Transplantation
Ziad Taimeh[1], Rebecca Cogswell[1], Sue Duval[1], Cindy Martin[1], Monica Colvin[2], Thenappan Thenappan[1], Sirtaz Adatya[3], Peter Eckman[4]
1. Cardiovascular Medicine, Lillehei Heart Institute, University of Minnesota School of Medicine, Minneapolis, MN, United States.
2. Cardiovascular Medicine, University of Michigan School of Medicine, Ann Arbor, MI, United States.
3. Cardiovascular Medicine, University of Chicago School of Medicine, Chicago, IL, United States.
4. Minneapolis Heart Institute, Minneapolis, MN, United States.

Background: Donor-recipient size matching in heart transplantation is currently weight-based. We hypothesized that matching donors and recipients based on formulas to predict heart size would be superior to weight-based matching for predicting post-transplant survival.

Methods: Predicted total ventricular mass (TVM) and total cardiac volume (TCV) for 37,265 donor-recipient pairs were calculated from the United Network for Organ Sharing database utilizing previously published models based on age, sex, height and weight. % mismatch by TVM-, TCV-, and weight-based methods were calculated for each pair. Restricted cubic-spline logistic regression was used to determine which method provided superior discrimination between survivors and non-survivors 1-month and 1-year post-transplant. Multivariate Cox regression was used to assess whether falling outside the identified "ideal" matching range by each method was associated with a worsened survival.

Results: Of the 3 matching methods, TVM was able to identify a range of mismatch within which post-transplant survival was improved over the mean survival of the cohort at large. Falling outside this range by TVM (10% undersized to 30% oversized) was associated with an increased rate of death (HR 1.10, 95% CI [1.06 - 1.15]). Matching by TCV- or weight-based methods were not associated with post-transplant survival. TVM remained a significant predictor of mortality in recipients with pre-transplant pulmonary hypertension.

Conclusions: Matching recipient and donor hearts based on predicted TVM was superior to weight-based matching and identified a range within which recipients had improved survival. Matching by TVM rather than weight may improve post-transplant survival.



Adjusted restricted cubic splines with 95 % confidence intervals. Probability of death vs. % mismatch by each heart size matching parameter. Horizontal red lines represent the average mortality for the cohort. Oversize or undersize refer to donor.

IMAGE CAPTION:
Adjusted restricted cubic splines with 95 % confidence intervals. Probability of death vs. % mismatch by each heart size matching parameter. Horizontal red lines represent the average mortality for the cohort. Oversize or undersize refer to donor.

Disclosure: Ziad Taimeh: No | Rebecca Cogswell: No | Sue Duval: No | Cindy Martin: No | Monica Colvin: No | Thenappan Thenappan: No | Sirtaz Adatya: No | Peter Eckman: No
KEYWORDS: heart transplantation, organ allocation.

ABSTRACT # 6

Incidence and Outcomes of Hyponatremia in Early Post Lung Transplantation

Ekamol Tantisattamo[1], Attasit Chokechanachaisakul[2], Opas Traitanon[3], Aneesha Shetty[4], Bing T. Ho[4], John J. Friedewald[4], Sangeeta M. Bhorade[5], Alexander Haynes[5], Amber Nieland[5], Lorenzo Gallon[4]
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2. Comprehensive Transplant Center, Division of Organ Transplantation, Department of Surgery, Northwestern University Feinberg School of Medicine, Chicago, IL, United States.
3. Department of Medicine-Nephrology, Thammasart University Hospital, Pathumthani, Thailand.
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5. Division of Pulmonary and Critical Care, Department of Medicine, Northwestern University Feinberg School of Medicine, Chicago, IL, United States.

Background: Outcomes of hyponatremia during immediate post-lung transplantation are unclear. The aim of this study is to describe the frequency of hyponatremia and outcomes associated with hyponatremia during the early postoperative period.

Methods: All lung transplant recipients at Northwestern Memorial Hospital since the first case performed in July 2014 until the end of August 2015 were reviewed. The severity of hyponatremia was defined as mild, moderate, and severe with serum Na of <135, <130, and <125 mEq/L, respectively.

Results: A total of 19 lung transplant recipients were identified. Age at the time of transplantation was 61.16±1.75 (SEM) years and 68% was female. COPD is account to almost half of the indication for transplantation (47%). Mean duration of follow-up from the time of lung transplantation to the most recent outpatient visit was 6.82±1.04 months (range 0.73 to 12.73 months). Serum creatinine at the time of transplantation and at hospital discharge was 0.80±0.04 and 0.9±0.13 mg/dL, respectively. The majority of patients developed postoperative hyponatremia (79%) with mild hyponatremia (Table 1). Slightly more than half of the patients had acute rejection; however, hyponatremia is not correlated with higher incidence of acute rejection. Eleven patients with postoperative acute kidney injury (AKI) had >2 times longer length of hospitalization (24.27±3.76 vs. 12.0±2.1 days; p=0.0072) but were not associated with increased postoperative hyponatremia (82% vs. 75%; p=1.000). At the time of transplant, 11% of the patients had hyponatremia but the incidence was up to 42% at the time of discharge (Table1). Around one-third of the patients had persisent hyponatremia during 1 month follow-up but almost all returned to be normonatremic at the most recent outpatient follow-up visit.

Conclusions: Lung transplant recipients commonly develop hyponatremia during the immediate postoperative period. The incidence of hyponatremia remains high up to 1 month post transplantation and resolves after the mean duration of 6 months. AKI may predict longer length of hospital stay. This information could provide prognostic value and potential implications for preventive and therapeutic strategies for post lung transplant hyponatremia in such a high risk population.

Table 1: The incidence of different degree of hyponatremia and hypernatremia at different time after lung transplantation

Degree of hyponatremia
At transplant
3 days

7 days
At discharge
30 days
The most recent follow-up
Normal
17 (89%)
10 (53%)
13 (68%)
11 (58%)
11 (61%)
18 (95%)
Mild
1 (5%)
6 (32%)
3 (17%)
7 (37%)
6 (33%)
1 (5%)
Moderate
0 (0%)
0 (0%)
2 (10%)
1 (5%)
1 (6%)
0 (0%)
Severe
1 (5%)
1 (5%)
0 (0%)
0 (0%)
0 (0%)
0 (0%)
Hypernatremia
0 (0%)
2 (10%)
1 (5%)
0 (0%)
0 (0%)
0 (0%)

Disclosure: Ekamol Tantisattamo: No | Attasit Chokechanachaisakul: No | Opas Traitanon: No | Aneesha Shetty: No | Bing Ho: No | John Friedewald: No | Sangeeta Bhorade: No | Alexander Haynes: No | Amber Nieland: No | Lorenzo Gallon: No
KEYWORDS: lung transplantation, kidney injury, post transplant monitoring, pulmonary disease/lung transplantation.

ABSTRACT # 7
Safe Utilization of Public Health Service (PHS) Increased Risk Donor Organs
Linda Irwin[1], Jay A. Fishman[1], Nahel Elias[1]
1. Transplant Center, MGH, Boston, MA, United States.

Background: The Organ Procurement and Transplantation Network and the United Network for Organ Sharing mandated that the 2013 "PHS Guideline for Reducing Human Immunodeficiency Virus (HIV), Hepatitis B (HBV) and Hepatitis C Virus (HCV) Through Organ Transplantation" be used to evaluate living and deceased donors. In 2015 over 35% of deceased donor organs in UNOS Region 1 were PHS Increased Risk for Infectious Disease Transmission donors. These donors tend to be young, first time heroin users (IVDA). Advanced microbiologic testing and highly effective treatment options have increased opportunities to use such organs. Transplant programs must obtain informed consent in advance and offer follow-up testing for HIV, HCV and HBV. Our Center developed a strategy to identify such recipients, to ensure appropriate follow-up testing, and to identify any disease transmission events.

Methods: The MGH Transplant Center identified all recipients transplanted with PHS increased risk donor organs from 1/1/11 thru 12/31/14 and conducted a review to assure that all recipients had follow-up serologic testing and to identify any cases of serological conversion. The MGH Transplant Infectious Program developed a protocol to manage such recipients including immediate pre-transplant HIV, HBV and HCV serologic and viral load testing; and screening at 1-3 months and 6-12 months post transplant. The Transplant Center's database was modified to "flag" such recipients.

Results: MGH idenified **165 deceased donor organs transplanted that met the definition of "increased risk" (combining both UNOS and PHS definitions) from 1/1/11 thru 11/12/15**. These included heart, lung, liver, and kidney recipients. There were **3 living donor organs transplanted that met the definition of "increased risk" -- total of 168 transplants**.
Of patients tested post-transplant, **3 hepatitis B core antibody conversions (2 liver recipients, one lung/kidney) were observed at 1-3 months post-transplant**: **All 3 patients had subsequent negative HBVsAg testing** ***and had received antibody exposure from blood products or immunoglobulin infusion (pseudo-conversion).***

Conclusions: Utilization of PHS increased risk donor organs has increased the donor organ pool and has necessitated a rigorous database for tracking of recipients and accessory clinical workflows to assure appropriate follow-up serological testing. Requirements at our Center include protocol labs are sent on the day of transplant, and at 1-3 months and 6-12 months after transplantation.
No transmission events have been identified (HIV, HCV, HBV) associated with the use of 168 PHS Increased Risk for Transmission of Infectious Disease donors.

Disclosure: Linda Irwin: No | Jay Fishman: No | Nahel Elias: No
KEYWORDS: infectious diseases, Donor evaluation, HIV, hepatitis C virus.

ABSTRACT # 8
The Framing of Family Veto in Organ Donation in Canadian Media
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1. University Health Network, Toronto, ON, Canada.
2. Canadian National Transplant Research Program,

Edmonton, AB, Canada.
3. University of Alberta, Edmonton, AB, Canada.

Background: Organ transplantation relies on public support for donation and transplantation, making an analysis of public discourse around organ procurement essential. Given the role of popular culture in reflecting public sentiment and impacting policy development, it is necessary to understand how the media *frames* organ donation issues. Salience and selection are both critical factors within *framing* as a theory of media effects. Frames are routinely used in news stories to condense complex issues by emphasizing some aspects while obscuring or omitting others. This study investigates the portrayal of family veto over organ donation in Canadian news media. Family veto occurs when a family overrides the deceased's prior capable, expressed wishes to donate e.g. signed an official organ donor registry.

Methods: Using the Canadian Newsstand Complete database, we identified articles published in English newspapers addressing family veto between 2000 – 2014. The database review was guided by a search strategy which yielded 642 articles with the final data set consisting of 123 articles. An initial in-depth analysis to identify coding categories was conducted and all analytic categories were defined in a structured coding framework. Content analysis, using both quantitative and qualitative methods, identified the issues surrounding family veto that featured most prominently in the print media discourse.

Results: Family veto was predominantly framed as something "that should not be allowed" in 84 (68%) of the articles, with family veto characterized as "terribly wrong". Several articles addressed reasons for family veto, with "custom" of the hospital as the primary justification. Family veto was represented as a stumbling block in our present system, with the majority of publications calling for change. 82% of the articles offered recommendations to address concerns surrounding family veto, including: proposals for a 'presumed consent' system, the need for organ donation awareness campaigns, and legislative change to ensure donor's decisions are respected. Varying interpretations of organ donation legislation occurred in the media discourse. A large proportion of the articles (n=77; 63%) stated or implied that existing legislation permits family veto.

Conclusions: Family veto in organ donation was primarily framed in a negative or opposing manner in the Canadian English language popular press. There was a lack of clarity on the legal framework for organ donation within the media. Further research initiatives to explore proposed recommendations and potential changes in practice appear to be warranted.

Disclosure: Samantha Anthony: No | Maeghan Toews: No | Timothy Caulfield: No | Linda Wright: No
KEYWORDS: Ethics, deceased donor organs, organ and tissue procurement, public policy.

ABSTRACT # 9

The Two Sides of Longevity Matching Under KAS: One's Working, the Other Needs Work

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2. Yale , New Haven, CT, United States.
3. Northwestern, Chicago, IL, United States.

Background: The OPTN Kidney Transplantation Committee incorporated longevity matching (LM) into the kidney allocation system (KAS) with the goals of reducing both (1) unrealized graft years and (2) returns to the WL due to early graft failure, as well as the hope of increasing utilization of shorter longevity kidneys in suitable patients. We examined the distribution of kidney transplants (tx) by recipient Estimated Post-Transplant Survival (EPTS) and the Kidney Donor Profile Index (KDPI) to quantify the early impact of KAS on LM.

Methods: We used OPTN data to compare the distribution of solitary deceased donor kidney tx by approximated EPTS and KDPI for the 18 months pre-KAS (6/1/13 to 12/3/14) vs months 7-9 post-KAS (6/1/15 to 8/31/15, chosen to avoid the less stable early post-KAS period). Tx outcomes from a broader cohort (1995-2014) were used to estimate recipient and kidney half-lives (Kaplan-Meier) by EPTS and KDPI. Severe mismatches were classified into two types: (1) kidney expected to long outlive recipient, (2) recipient expected to long outlive kidney (Fig 1a).

Results: Tx of KDPI 0-20% kidneys to EPTS 0-20% recipients increased from 5.1% to 14.5% of tx post-KAS (+9.4%, Fig 1b), while Top 20% kidney tx declined sharply for adults with higher EPTS scores. Post-KAS, 5.6% fewer Type 1 mismatches and 0.3% fewer Type 2 mismatches occurred. Tx of high KDPI kidneys to well-matched recipients (e.g., EPTS>60%) changed little. Pediatrics are receiving slightly higher-longevity kidneys post-KAS.

Conclusions: These results suggest the "Top 20 to Top 20" element of KAS will reduce unrealized graft years (fewer Type 1 mismatches) but may have less impact on reducing returns to the WL due to early graft failure (Type 2). Utilization of lower longevity kidneys among well-matched patients has not increased, as discard rates remain high. Changes in listing and acceptance practices for marginal but transplantable kidneys, and efforts to reduce risk aversion among transplant centers, may help. KAS 2.0 could address the other side of LM by prioritizing high EPTS score patients (e.g., >60%) ahead of less well-matched patients for high KDPI kidneys, to increase the likelihood of acceptance and restore access to older patients who have seen a post-KAS decline.

Figure 1a: EPTS by KDPI matrix highlighting severe longevity mismatches among deceased donor kidney transplants

Recipient EPTS (expected recipient longevity*)	Deceased Donor KDPI (expected kidney longevity**) 0-20% (~15 years)	21-40 (~13 years)	41-60 (~12 years)	61-80 (~11 years)	81-100 (~8 years)
Pediatric (>25 years)			Mismatch	Mismatch	Mismatch
0-20% (~21 years)				Mismatch	Mismatch
21-40% (~15 years)					Mismatch
41-60% (~11 years)	Mismatch				
61-80% (~9 years)	Mismatch	Mismatch			
81-100% (~7 years)	Mismatch	Mismatch	Mismatch		

Mismatch type (2): High risk of early graft failure, return to W/L

Mismatch type (1): High risk of DWFG, unrealized graft years

Figure 1b: Heat map of pre vs. post-KAS differences in % of deceased donor kidney transplants by recipient EPTS and donor KDPI

Recipient EPTS (expected recipient longevity*)	Deceased Donor KDPI 0 20% (~15 years)	21 40 (~13 years)	41 60 (~12 years)	61 80 (~11 years)	81 100 (~8 years)
Pediatric (>25 years)	0.2%	0.4%	-0.3%	0.0%	0.0%
0-20% (~21 years)	9.4%	-1.8%	-1.1%	-0.9%	-0.3%
21-40% (~15 years)	-2.3%	-0.5%	0.4%	0.8%	-0.5%
41-60% (~11 years)	-1.7%	-0.4%	0.2%	0.3%	-0.7%
61-80% (~9 years)	-1.2%	-0.4%	0.4%	0.0%	0.3%
81-100% (~7 years)	-1.8%	1.1%	0.9%	0.0%	-0.4%

sharp ↑ / modest ↑ / no change ↔ / modest ↓ / sharp ↓

** Median recipient survival after solitary deceased donor kidney transplant, per Kaplan-Meier method.*

*** Average of two Kaplan-Meier half-life estimates: (a) death-censored, (b) all-cause graft failure.*

Mean recipient age (years) by EPTS group: peds (11), 0-20% (35), 21-40% (49), 41-60% (55), 61-80% (60), 81-100% (66)

Disclosure: Darren Stewart: No | Richard Formica: No | John Friedewald: No
KEYWORDS: kidney allocation, allograft loss, kidney graft survival, deceased donor organs.

ABSTRACT # 10

Donor Cocaine Use as a Contraindication for Heart Transplantation?

Tamar Aintablian[1], Jignesh Patel[1], Michelle Kittleson[1], Jon A. Kobashigawa[1]
1. Heart Institute, Cedars-Sinai Medical Center, Los Angeles, CA, United States.

Background: Donor cocaine use has been a relative contraindication for use in patients awaiting heart transplantation. The concern is that cocaine use may increase the likelihood of underlying coronary artery disease and/or coronary spasm which may damage the donor heart. There is also concern for endothelial cell dysfunction in patients with cocaine abuse, which may also lead to an increased development of cardiac allograft vasculopathy (CAV) after transplant. Therefore, we decided to assess heart transplant recipients whose donor had active cocaine use or a history of cocaine use.

Methods: Between 2010 and 2014 we evaluated 56 heart transplant patients who had received donors with an active and/or history of cocaine use. Active cocaine use was defined as use of cocaine within the preceding 3 months of organ donation. A group of patients without a history of cocaine use from the same period of time was set as a control. Endpoints of this study included 1-year survival, freedom from CAV as defined by stenosis ≥ 30% by angiography, freedom from Non-Fatal Major Adverse Cardiac Events (NF-MACE: myocardial infarction, new congestive heart failure, percutaneous coronary intervention, implantable cardioverter defibrillator/pacemaker implant, stroke), and freedom from any treated rejection.

Results: The patients with active cocaine use had similar 1-year outcomes compared to the patients with history of cocaine use and the control group of patients without a history of cocaine use. (see table)

Conclusions: Donor hearts with active cocaine use or a history of cocaine use does not appear to be a contraindication for heart transplantation. Longer follow-up may be needed to confirm these early observations.

Endpoints	Donors with No History of Cocaine Use (n=233)	Donors with a History of Cocaine Use (n=37)	Donors with Active Cocaine Use (≤ 3-Months of Organ Donation) (n=19)	P-Value
1-Year Survival	87.6%	97.0%	94.7%	0.210
1-Year Freedom from CAV	95.5%	91.5%	100.0%	0.503
1-Year Freedom from NF-MACE	87.4%	88.8%	94.7%	0.731
1-Year Freedom from Any Treated Rejection	85.0%	83.1%	100.0%	0.249

P=NS

Disclosure: Tamar Aintablian: No | Jignesh Patel: Yes;Alexion Pharmaceuticals:Grant:Research | Michelle Kittleson: No | Jon Kobashigawa: Yes;CareDx:Honoraria:Research;Novartis:Grant:Research;TransMedics, Inc.:Grant:Research
KEYWORDS: heart transplantation, Donor evaluation, risk factors.

ABSTRACT # 11

Hospital Readmissions after Heart Transplant: Incidence, Causes, and Cost Analysis

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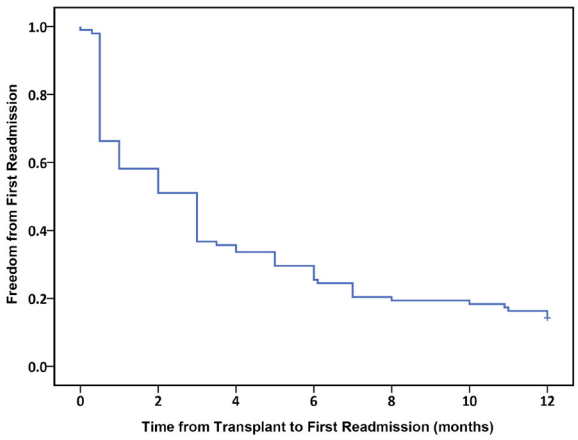
Background: Complications that require hospital readmission frequently occur long after heart transplantation (HT). We identified the rate and etiology of unplanned readmissions and their impact on patient survival.

Methods: We reviewed 132 patients undergoing HT at our institution from 01/2004 to 05/2014. Six patients who expired

during the index hospitalization were excluded from the analysis.

Results: Of the sample (*n*=126) 97 (77%) patients were readmitted 321 times (3.3 times/patient) as of end of follow-up. Median follow-up period was 57 (23-106) months. Median time to first readmission was 59 (10-185) days. Fifty two readmissions (28%) were within 30 days and 184 (57%) were within the first year post-discharge. Freedom from first readmission was observed for 66% of patients at 1 month, 51% at 3 months, 29% at 6 months and 18% at 12 months (Figure). Median hospital length of stay at readmission was 3 (2, 6) days. Age, surgery time and previous ventricular assist device support were found to be risk factors for readmission (p<0.05). Readmission etiology included infections (18%), GI events (14%), cardiovascular (13%), rejection (10%), respiratory (9%), renal (7%), hematologic (6%), neurologic (5%) and other (18%). Readmissions due to infections included respiratory (44%), GI (17%), wound infection (17%), CMV (7%). Cardiovascular events included arrhythmias (33%), cardiac allograft vascular disease (20%), hypotension (18%), heart failure (10%), MI (8%), bleeding (5%), other (6%). There was no significant difference in 5-year survival between readmitted and non-readmitted patients (p=0.68). Time to readmission and readmission frequency did not impact patient survival (p>0.05). Infections had the highest median direct hospital cost associated with readmissions ($8,332 [$4,442-$25,158]), followed by respiratory complications ($6,810 [$3,928-$11,058]) and cardiac events ($6,330 [$4,111-$8,611]).

Conclusions: The first year after discharge remains a high risk period for readmissions in transplanted patients. Infections and GI complications were the leading causes of readmission. Readmissions did not negatively impact long-term survival of transplanted patients.



Disclosure: Entela Lushaj: No | Takushi Kohmoto: No | Lucian Lozonschi: No | Satoru Osaki: No | Abbasali Badami: No | Susan Ulschmid: No | Shahab Akhter: No
KEYWORDS: heart transplantation, long-term outcomes.

ABSTRACT # 12
Dendritic cells deficient in inflammasome adaptor protein ASC demonstrate activation defects
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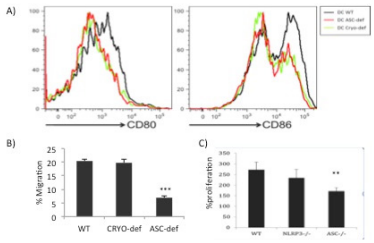
Background: Donor dendritic cell (DC) activation is a prerequisite for rejection of transplanted allografts. Intracellular innate immune receptor inflammasome assembly is induced in interstitial DCs of donor organs by PAMPs and DAMPs. Once the donor organ is transplanted, activated donor DCs travel to recipient LNs activating host T cells, leading to allograft rejection. Inflammasome assembly requires the adapter protein ASC for oligomerization. The assembled inflammasome then induces secretion of proinflammatory cytokines, upregulation of chemokine and cytokine receptors and migration of DCs from the allograft to the host lymphatic tissue. Our study evaluated the role of the inflammasome adaptor protein ASC in DC activation, migration and ability to activate naïve allogeneic T cells.

Methods: DCs were isolated from WT vs inflammasome deficient (NLRP3-def and ASC-def) mice (all H-2b). The WT vs. inflammasome deficient DCs were stimulated with LPS and examined for CD80 and CD86 expression. LPS stimulated DCs were seeded in transwell chambers and tested for migration in response to CCL21. The ability of WT vs. inflammasome deficient DCs to stimulate allogeneic T cells (H2d) was detected using a standard mixed lymphocyte response assay.

Results: DCs from ASC-def, but not WT or NLRP3-def mice did not upregulate CD80 or CD86 in response to LPS (Figure 1A). There was significantly reduced chemokine-induced migration of ASC-/- DCs, compared to WT or NLRP-/- DCs (Figure 1B). DCs from WT and NLRP3-/- mice induced robust proliferation of allogeneic T cells, but those isolated from ASC-/- mice had significantly reduced proliferation (Figure 1C).

Conclusions: Blockade of the inflammasome co receptor molecule ASC, but not the inflammasome protein NLRP3 resulted in significantly reduced DC activation, migration and ability to stimulate proliferation of allogeneic T cells. Our data suggest that the inflammasome adaptor protein ASC is a potential target for amelioration of donor DC activation induced by donor allograft ischemia. Ongoing work in our laboratory is evaluating the role of the inflammasome components in several models of allograft rejection.



Disclosure: Andrew Scheinok: No | Alana Shigeoka: No | Reza Elhaimehr: No | Dianne McKay: No
KEYWORDS: acute allograft rejection, acute rejection, innate immunity, dendritic cells.

ABSTRACT # 13

Understanding the Concerns Underlying Family Override of Consent for Deceased Donation: Newspaper Representations in the United States

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Background: In many jurisdictions around the world, families of potential deceased organ donors are able to decide against donation even when their loved one was a registered donor. One concern behind this practice is the fear that the media may be sympathetic to families whose wishes are not respected, and negative media reporting could damage the public trust underlying organ donation systems. This study seeks to examine this concern by analyzing the portrayal of this issue in major newspapers in the United States, where there has been significant practice change in terms of enforcing individuals' consent to donation since the 2006 revision to the Uniform Anatomical Gift Act (UAGA).

Methods: The data set includes English language print news articles available on the Factiva database, published in U.S. newspapers included in Factiva's list of "Major News and Business Sources". Articles were collected from January 1, 1995 to November 2, 2015, allowing for comparison of this issue prior and subsequent to the 2006 UAGA revision. Search terms used to generate the data set include variations of "family override" and "first-person consent", in conjunction with variations of "organ donation". Irrelevant articles were excluded, resulting in a final data set of 73 print news articles. We are developing a coding frame to perform a content analysis of the articles in the data set which will examine common themes among the articles and include questions pertaining to whether the issue of family override is being portrayed in positive, neutral or negative terms, and whether specific stories of actual families in this situations are being reported on.

Results: Preliminary results indicate that very few stories discuss actual instances where organ donation has occurred despite family objection. Many articles also discussed changes to the law regarding individual consent for donation and this discussion appears to largely be framed in positive or neutral terms. This suggests that in the U.S., despite changes in practice to enforce individuals' consent, newspaper reporting on this issue has not overwhelmingly sympathized with or focused on individual family stories, which may provide reason to question the concern about negative media reporting.

Conclusions: As many jurisdictions are grappling with the issue of family override of consent for deceased donation, our results will be informative in terms of understanding whether concerns over potential media backlash can be expected as a result of practice change to enforce an individual's consent in the face of family objection.

Disclosure: Maeghan Toews: No | Timothy Caulfield: No | Samantha Anthony: No | Linda Wright: No
KEYWORDS: Consent, public policy, Bioethics, deceased donor organs.

ABSTRACT # 14

Do highly sensitized recipients benefit from the immunological advantages of zero mismatched (0MM) deceased donors (DD) kidney allografts?

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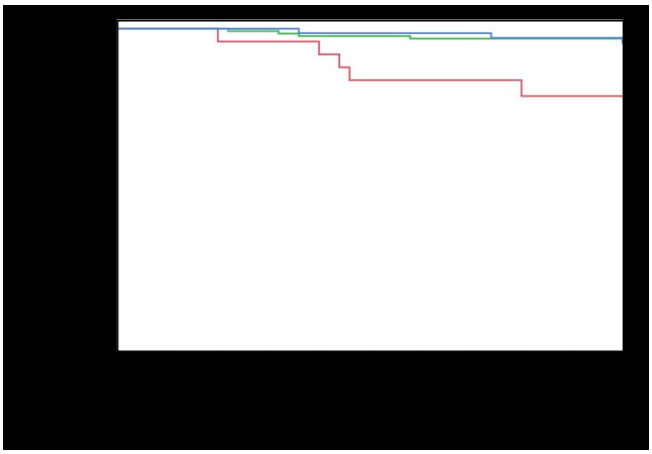
Background: HLA 0MM DD transplants have superior outcomes compared with outcomes for grafts with ≥1 HLA mismatches, but when past reports analyzed 0MM outcomes in DD, they pooled together recipients with low and high panel reactive antibodies (PRA). Recent studies have questioned the benefit of 0MM transplants in highly sensitized recipients due to their immunological disadvantages. The aim of this study was to investigate the outcome of 0MM transplants in the highly sensitized recipients

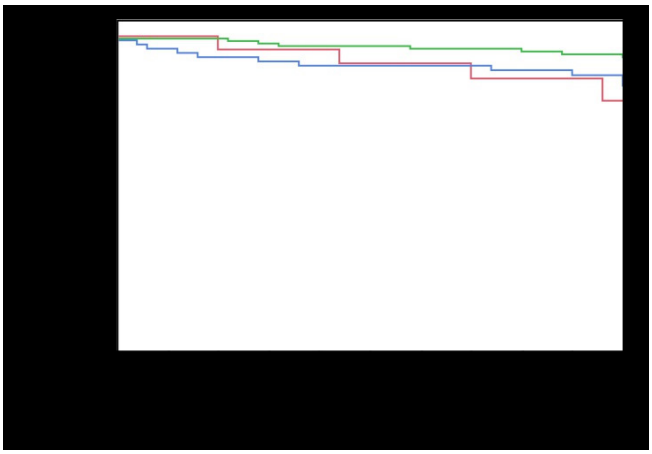
Methods: Data were retrospectively analyzed from 253 recipients who received HLA-A, -B, -DR 0MM deceased-donor (DD) kidney only transplant in our Institute (1990 – 2012). The study population was classified into 3 groups according to the pre transplant cPRA; I) cPRA 0 (57%), II) 1-79 (32%), and III) ≥ 80(11%). The clinical end points

compared were the incidence of biopsy proven acute graft rejection (BPAR), graft loss, and patient death. KM graphs and Cox models were used for statistical analysis.

Results: The 3 groups were comparable in terms of age, gender, and race. Mean follow up was 7.1 (± 4.4) years. History of previous kidney transplant was noticed in 18.8, 25.9, and 35.6% resp (p=0.4). 5 years BPAR rate was 12.5, 12.5, and 17.8% resp (Log rank 0.05). 5 years graft survival was 75.6, 70.3, and 85.7% resp- (Log Rank 0.4). Patient survival was 62, 70, and 75% resp (Log Rank 0.7). 5 years SCr was 2, 2.5, 2.1 resp (p = 0.9).

Conclusions: Highly sensitized recipients showed a trend toward higher incidence of BPAR, however, patient and graft survival as well graft function were not worse compared to non and low sensitized recipients. Highly sensitized recipients do benefit from the 0MM DD grafts, however prospective national data studies are warranted.





Disclosure: NISSREEN ELFADAWY: No | Stuart Flechner: No | Jesse Schold: No
KEYWORDS: sensitised transplant recipient, acute allograft rejection, HLA matching, allograft loss.

ABSTRACT # 15
Long-Term Survival Outcomes in Belatacept (Bela)-Treated vs. Cyclosporine (CsA)-Treated Patients: Final Results From BENEFIT-EXT
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8. Medizinische Hochschule, Hannover, Germany.
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11. Bristol-Myers Squibb, Lawrenceville, NJ, United States.
12. Bristol-Myers Squibb, Braine-l'Alleud, Belgium.

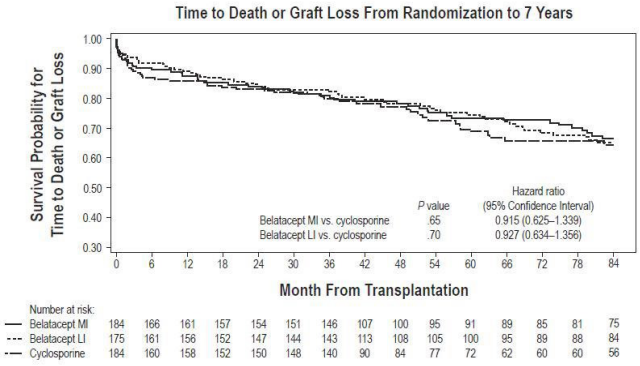
Background: In prior analyses of BENEFIT-EXT, renal function was improved in kidney transplant recipients receiving bela-based vs. CsA-based immunosuppression. We report final 7-year results from BENEFIT-EXT.

Methods: Recipients of extended criteria donor kidneys were randomized to receive bela more intense (MI), bela less intense (LI), or CsA immunosuppression. Outcomes were assessed for all randomized, transplanted patients at 7 years post-transplant. Time to death or death-censored graft loss was compared using Cox regression. The presence of de novo donor-specific antibodies (DN DSAs) was determined centrally. GFR was estimated from months 1–84 using a repeated measures model.

Results: In total, 128/184 bela MI-treated, 138/175 bela LI-treated, and 108/184 CsA-treated patients were evaluable for death/graft loss at 7 years post-transplant. Hazard ratios comparing time to death/graft loss were 0.915 for bela MI vs. CsA (*P*=.65) and 0.927 for bela LI vs. CsA (*P*=.70) (Fig.). Cumulative DN DSA event rates at year 7 were 6.21%, 4.48%, and 22.87% for bela MI, bela LI, and CsA, respectively. Serious adverse event rates were similar (87%, bela MI; 89%, bela LI; 84%, CsA). Estimated mean GFR increased slightly over 7 years for both bela regimens but declined for CsA (estimated mean GFR at year 7: bela MI, 53.9; bela LI, 54.2; CsA, 35.3 mL/min/1.73 m^2). GFR slopes diverged significantly between bela and CsA over time. The interaction of the treatment vs. time effect deriving from the GFR repeated measures model significantly favored each bela-based regimen vs. CsA (*P*<.001).

Conclusions: At 7 years post-transplant in BENEFIT-EXT, bela was associated with similar death/graft loss, improved

renal function, and reduced DN DSA incidence vs. CsA. The safety profile of bela was consistent with previous reports.



Disclosure: Sander Florman: Yes;BMS:Grant:Research | Robert Bray: No | Howard Gebel: No | Dirk Kuypers: No | Christian Larsen: No | Jose Medina Pestana: No | Maria del Carmen Rial: Yes;BMS:Grant:Research | Lionel Rostaing: Yes;Novartis, Astellas, Veloxis, Fresenius, LFB (Self):Other:Other | Thomas Wekerle: Yes;BMS (self):Honoraria:Research;BMS (self):Grant:Research | Gerrit Grannas: No | Herwig-Ulf Meier-Kriesche: Yes;BMS (self):Salary:Employment | Martin Polinsky: Yes;BMS:Salary:Employment | Robert Townsend: Yes;BMS (self):Salary:Employment | Stephane Munier: Yes;BMS (self):Salary:Employment | Josep Grinyó: No | Antoine Durrbach: Yes;BMS (self):Salary:Employment;BMS (self):Ownership Interest:Employment
KEYWORDS: expanded criteria donors, immunosuppression, kidney transplantation.

ABSTRACT # 16

Comparison of renal transplant outcomes in elderly recipients based on cadaveric versus living donor transplant.

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Background: Studies have shown a survival benefit with kidney transplantation in elderly patients over continuing renal replacement therapy. In all age groups, recipients of living versus cadaveric kidney transplants show improved outcomes. However, there is limited data assessing kidney graft and patient outcomes when stratified by cadaveric versus living donor source in the elderly population.

Methods: A retrospective cohort study was performed in elderly patients (age 65 or older) who received either a living or cadaveric renal transplant between January 2001 and January 2015 at a single transplant center. Baseline characteristics and renal transplant outcomes were analyzed between the 2 groups using either a Chi-square test or Student's t-test where appropriate. Analysis of one-year post-transplant outcomes included the following: renal function [serum creatinine and glomerular filtration rate (GFR) based on the MDRD equation], rejection, and graft and patient survival. Additionally, graft and patient survival at 3- and 5-years were analyzed.

Results: A total of 156 elderly renal transplant recipients met inclusion criteria. Mean age at the time of transplant was approximately 69 years in both groups ($P = 0.782$). Aside for a significantly higher proportion of living donors that were Caucasian compared to cadaveric donors (32.9% vs 15.7%; $P = 0.014$), there were no major differences in demographic characteristics. Recipients of cadaveric donors had a statistically significant higher serum creatinine and numerically lower GFR at 1-year when compared to recipients of living donor kidney transplants (**Table 1**). One-year patient survival was significantly lower in recipients of cadaveric compared to living donor kidneys (90.1% vs 97.7%; $P = 0.045$). Although survival at 3-years and 5-years was numerically lower in the cadaveric compared to the living donor group, it did not meet statistical significance. Graft survival was comparable between the 2 groups at 1-, 3-, and 5-years.

Conclusions: In the elderly population, the best outcomes in terms of graft function and patient survival at 1-year occurred in patients who received a living donor versus a cadaveric renal transplant. However, the difference in patient survival was less pronounced at 3- and 5-years.

Table 1. Outcomes in elderly renal transplant patients stratified by donor source

Outcome	Cadaveric (N = 71)	Living (N = 85)	P
Serum creatinine at 1-year, Mean± SD	1.72 (0.13)	1.34 (0.06)	0.011
Glomerular filtration rate at 1-year, Mean± SD	53.32 (3.49)	60.89 (2.60)	0.084
Rejection at 1-year, n (%)	8 (11.27)	12 (14.12)	0.596
Graft survival at 1-year, n (%)	67 (94.37)	84 (98.82)	0.112
Patient survival at 1-year, n (%)	64 (90.14)	83 (97.65)	0.045
Graft survival at 3-years, n (%)	66 (92.96)	81 (95.29)	0.533

Patient survival at 3-years, n (%)
60 (84.51)
76 (89.41)
0.362
Graft survival at 5-years, n (%)
65 (91.55)
80 (94.12)
0.533
Patient survival at 5-years, n (%)
56 (78.87)
70 (82.35)
0.582
Delayed or slow graft function, n (%)
12 (16.90)
0 (.)
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Disclosure: Natalia Jasiak: No | James Thielke: No | David Wu: No | Salma Salah: No | Niveen Hilal: No | Enrico Benedetti: No | Patricia West-Thielke: No
KEYWORDS: kidney graft survival, kidney graft function, organ allocation.

ABSTRACT # 17

Antibody response to blood group A-antigen is T-cell dependent

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2. University of Alberta, Alberta Transplant Institute, Edmonton, AB, Canada.
3. Pediatrics, University of Alberta, Edmonton, AB, Canada.

Background: ABO-incompatible heart transplantation (ABOi HTx) is safe during infancy and allows increased access to donors. B-cell tolerance develops to donor A/B antigen(s) (Ag) following ABOi HTx, but mechanisms of tolerance are not well-defined. Using recently developed A-transgenic (A-Tg) mice (B6 background) expressing human A-Ag on vascular endothelium and erythrocytes (RBC), we investigated the role of CD4+ T-cells in anti-A antibody (Ab) production.

Methods: Wild-type C57BL/6 mice (WT) were injected i.p. x3, 1 week apart with human blood group A RBC (hu-A) with (n=3) and without (n=6) CD4-depleting mAb (GK1.5), or A-Tg RBC (n=12) and adjuvant. Anti-A Ab in serum was measured by hemagglutination and ELISA (both IgG and IgM). Four weeks later, A-Tg RBC-injected mice were injected i.p. with hu-A-RBC; anti-A was measured again. To study the effect of human RBC-antigens, human group O (hu-O) and A-Tg RBC were mixed, injected i.p. x3, 1 week apart (n=5), then anti-A IgM titer was measured.

Results: Injection of hu-A RBC induced abundant anti-A Ab production (median titer 1:512). Following CD4+ T cell depletion, hu-A RBC injection failed to elicit anti-A Ab (titer <1:4). Despite comparable A-Ag expression, A-Tg RBC did not induce anti-A Ab (median titer ≤1:2), however, injection of hu-A RBC 4 weeks after A-Tg RBC injection elicited abundant anti-A Ab (median titer 1:256). Co-injection of A-Tg and hu-O RBC did not induce anti-A Ab (titer ≤1:2).

Conclusions: Administration of A-Ag alone (A-Tg RBC) did not stimulate an anti-A Ab response. This cannot be interpreted as tolerance because subsequent administration of hu-A RBC elicited anti-A Ab. In contrast, hu-A RBC (A-Ag plus foreign glycoproteins/glycolipids) induced a strong anti-A Ab response that was T cell-dependent. The lack of an anti-A response following co-injection of A-Tg RBC and hu-O RBC is consistent with a requirement for a chemical linkage of foreign protein/lipid with A-antigen. Contrary to accepted understanding, this study indicates that A/B Ags alone do not stimulate B cell responses without CD4+ T cell participation.

Disclosure: Ibrahim Adam: No | Bruce Motyka: No | Jean Pearcey: No | KeSheng Tao: No | Lori West: No
KEYWORDS: B cell tolerance, blood group incompatibility, pediatric heart transplantation.

ABSTRACT # 18

Renal Artery Angioplasty and/or Stenting in Transplant Renal Artery Stenosis: A Seven Year Experience from A Single Kidney Transplant Center

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5. Comprehensive Transplant Center, Division of Nephrology and Hypertension, Department of Medicine, Northwestern University Feinberg School of Medicine, Chicago, IL, United States.
6. Department of Medicine-Nephrology, Thammasart University Hospital, Pathumthani, Thailand.

Background: The efficacy of renal artery angioplasty±renal-artery stenting for transplant renal artery stenosis (TRAS) is unknown. We aim to identify possible risk factors of TRAS and outcomes after renal artery angioplasty±stenting.

Methods: From all of 1,905 kidney transplantations performed between January 1, 2008 and June 30, 2015 at

Northwestern Memorial Hospital, the patients with angiography-proven TRAS were identified. The recipients' serum creatinine (SCr), blood pressure (BP) and corresponding donors' data were reviewed.

Results: A total of 19 renal transplant recipients were diagnosed with TRAS. Age at the time of diagnosis was 50.29±3.51 (SEM) years. The majority of patients were Caucasian (37%) and African American (32%) and 84% were male. The most common causes leading to work up for TRAS was new-onset or uncontrolled hypertension and rising SCr. One third of the patients had diabetes mellitus. TRAS was diagnosed around 9.31±3.41 months posttransplant. Mean duration of follow up from the time when TRAS diagnosed to the most recent followed-up visit was 26.51±3.61 months (range 0.24 to 76.2). Mean SBP after transplant renal artery angioplasty±stenting were significantly lower than SBP measured 24 hours before the procedure (137.95±6.03vs.157.32±4.27mmHg, p=0.0032). However, mean DBP were not different (84.11±3.26vs.74.22±2.83mmHg, p=0.1300) and same as SCr (2.36±0.55 and 1.68±0.13 mg/dL, p=0.2367) (Figure1). There were no significant improvement in SBP, DBP, and SCr measured at pre-angioplasty and at the time of the most recent followed-up visit. The stenosis was most commonly at the ostium of the transplant renal artery (89%). Only 1 patient (5%) had arterial dissection during the procedure.

Conclusions: Renal artery angioplasty±stenting may not improve BP and renal allograft function in the longterm follow-up such the same as non-transplant patients. High prevalence of diabetes and ostial stenosis in TRAS may suggest both atherosclerotic vascular disease and surgical-related vascular injury as the main pathogenesis of TRAS.

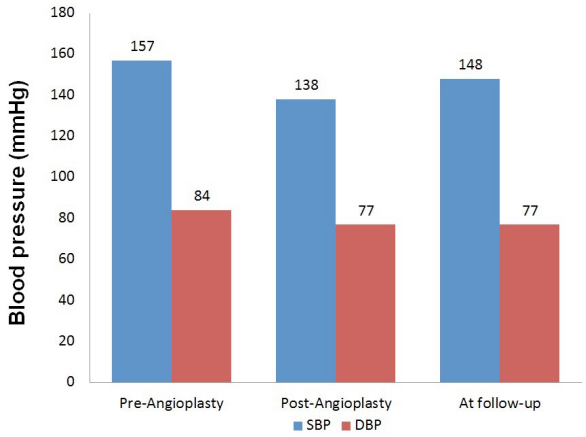

Figure 1: Systolic and diastolic blood pressure before and after renal artery balloon angioplasty ± renal artery stenting as well as at the most recent follow-up visit

Disclosure: Ekamol Tantisattamo: No | Attasit Chokechanachaisakul: No | Siwadon Pitukweerakul: No | Praveen Ratanasrimetha: No | Aneesha Shetty: No | Opas Traitanon: No | Lorenzo Gallon: No

KEYWORDS: renal transplant function, kidney transplantation, kidney graft function, kidney graft survival.

ABSTRACT # 19

Comparison of persufflated and static cold storage of ex vivo porcine kidney viability and function

Catherine Min[1], Leah Styen[2], Bradley Weegman[3], Alexandra Hoeger[2], Liberty Kirkeide[3], Abhishek Pandey[4], Fatima Zahra Aly[5], Robert Harland[2], Jean-Philippe Galons[6], Klearchos K. Papas[2]

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Background: The organ shortage crisis lead to the use of organs from death after cardiac death donors (DCD). DCD organs are exposed to oxygen deprivation and prone to delayed graft function post-transplant. The use of compromised, poorer quality organs demands further optimizing storage methods and vigorous non-invasive quality assessments prior to transplantation. Conventional methods of organ preservation such as static cold storage and hypothermic machine perfusion do not adequately oxygenate the core of large organs. Using persufflation to deliver electrochemically derived humidified, gaseous oxygen to the organ is a promising technique for improving organ preservation due to its ability to oxygenate the organ alleviates ischemic stress.

Methods: In our DCD model, one kidney from each porcine donor was persufflated while the other served as a static cold storage control. Magnetic resonance imaging of gadolinium (Gd)-perfusion sequences and whole organ oxygen consumption rate (WOOCR) were taken for organ quality assessment. T1 maps were taken before and after Gd contrast imaging to calculate renal perfusion rates. Hypothermic perfusion loop was set up to take WOOCR measurements with flow rate of 80ml/min and oxygenated with 40% oxygen. Fiberoptic oxygen sensors were placed upstream of the arterial cannula and downstream of the venous cannula to measure oxygen partial pressure across the kidney. Biopsies were taken after 24 hours of treatment for histology and stained with hematoxylin and eosin.

Results: Preliminary data on Gd-perfusion curves show the persufflated kidney with a descending cortical slope of -2.49 (n=1) while the cold storage kidney had a slope of -1.73 (n=1), indicating a faster clearance rate of Gd in the cortex of the persufflated kidney. WOOCR data for persufflated kidneys were 110.3 ± 51.8 nmol/min*kg (n=6) and the static cold storage was at 78.1 ± 52.1 nmol/min*kg (n=6), suggesting more viable tissue in the persufflated organs. In both kidneys,

histological data showed a relatively healthy cortex and then a gradual increase in cell vacuolization, degeneration of cell and apoptosis toward the medulla.

Conclusions: These results indicated that providing oxygen to the organ after ischemic stress can improve viability and perhaps function when compared to its static cold storage counterpart. The current studies are ongoing and aim to further investigate the effects of oxygen supplementation and an effective combination of organ quality assessments.

Disclosure: Catherine Min: No | Leah Styen: No | Bradley Weegman: No | Alexandra Hoeger: No | Liberty Kirkeide: No | Abhishek Pandey: No | Fatima Zahra Aly: No | Robert Harland: No | Jean-Philippe Galons: No | Klearchos Papas: Yes;Giner:Other:Advisory Committee
KEYWORDS: biomedical imaging, deceased donor organs, kidney preservation, organ protection and preservation.

ABSTRACT # 20

Ex-vivo normothermic perfusion (EVNP) for assessment of high risk deceased donor kidneys for transplantation

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Background: Despite the organ shortage, many procured deceased donor kidneys are deemed too high risk for failure and discarded. EVNP may be useful in assessing high risk kidneys. We have begun to utilize EVNP to assess and develop criteria by which high risk discarded kidneys can be deemed transplantable.

Methods: From June 2014 to October 2015, 9 kidneys were imported to our center after being turned down by all local and regional centers. We conditionally accepted these organs but after further assessment considered them too high risk due to marginal hypothermic perfusion parameters or biopsy results. These kidneys were placed on EVNP for 3-12 hours, with oxygenated packed red blood cells and nutrition. Assessment was based on appearance, hemodynamic parameters, and urine output (UO).

Results: Reasons for discard were marginal pump parameters (n=6) and biopsy results (n=3). On EVNP, 6 kidneys perfused well, made urine, and in retrospect were deemed transplantable with low risk for failure. Two kidneys appeared viable, had minimal UO, and in retrospect were possibly transplantable with moderate risk for failure. One perfused poorly, with no UO, and was considered non-transplantable. We used unpaired t-test to compare donor factors and perfusion parameters between low and moderate risk kidneys as shown in the table.

Conclusions: Many discarded kidneys can be more completely assessed using EVNP and considered for transplantation. Further studies possibly focusing on organ blood flow and function while on EVNP may be important to determine which organs can be transplanted with low risk for failure.

Donor factors	Low risk group, n=6 (mean ± standard error of the mean - SEM)	Moderate risk group, n=2 (mean ± SEM)	p-value
Age (years)	56.17 ± 3.48	51.00 ± 13.00	0.76
Kidney donor profile index - KDPI (%)	80.33 ± 5.35	73.50 ± 20.50	0.80
Terminal creatinine (mg/dL)	1.42 ± 0.27	2.45 ± 1.90	0.68
Cold ischemia time (hour)	44.00 ± 4.90	50.93 ± 12.96	0.69
Final hypothermic flow (ml/minutes)	73.33 ± 4.13	73.50 ± 7.50	0.99
Final hypothermic renal resistive index - RRI	0.39 ± 0.04	0.43 ± 0.06	0.64
Final EVNP flow (ml/minutes)	353.30 ± 33.83	250.00 ± 30.00	0.09
Final EVNP RRI	0.21 ± 0.03	0.29 ± 0.03	0.15
Urine output (ml/hr)	125.80 ± 43.14	2.25 ± 1.75	0.04

Disclosure: Sandra Kabagambe: No | Ivonne Palma: No | Ivania Palma: No | Yulia Smolin : No | Tristan Boyer : No | Junichiro Sageshima: No | Chandrasekar Santhanakrishnan: No | Christoph Troppmann: No | John McVicar: No | Richard Perez: No
KEYWORDS: deceased donor organs, organ protection and preservation, renal ischemia reperfusion injury, kidney graft function.

ABSTRACT # 21

Delayed Graft Function (DGF) Does Not Accelerate Progression of Fibrosis during the First Year after Kidney Transplant

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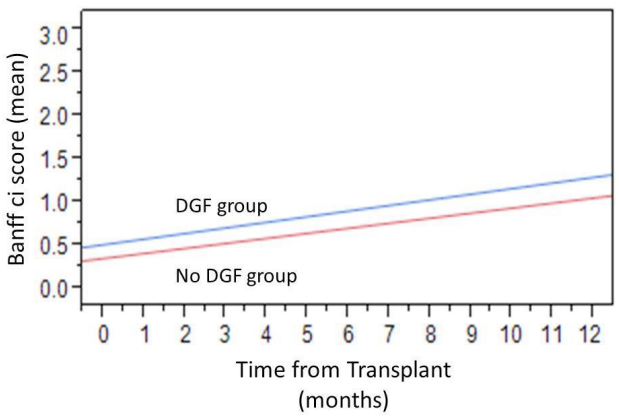
Background: Our aim was to study the impact of DGF on the progression of interstitial fibrosis during the first year after transplant.

Methods: We included all deceased donor kidney transplants done at our center from 7/2003 to 4/2015. We excluded combined organ transplants and recipients who lost the allograft during the first 30 days (n=16). We defined DGF as a less than a 30% drop in creatinine from day 0 to 3 or the need for dialysis within 7 days. Surveillance biopsies (Bx) are done at reperfusion and at 1, 4 and 12 months post-transplant. We used a linear mixed model to analyze differences in the slope for the progression of fibrosis (mean of Banff ci score 0-3 as continuous variable) between 0 and 12 months and a logistic regression analysis to adjust for variables associated with fibrosis at 12 months. Continuous data is shown as mean±1 standard deviation.

Results: 1054 transplants were included: 604 (57%) in the DGF group and 450 in the control group. Recipient age (55.7±12.8) was not different. The DGF group was more likely to be male, diabetic and on dialysis pretransplant. Donor age was higher, more likely to be a DCD and had a higher KDPI score in the DGF group. 3-year death censored graft survival was 93.3% for DGF group and 95.3% for control group (p=0.18). The eGFR (by CKD-EPI) at 12 months was lower in the DGF group (56.8± 20.6 vs 61.2± 21.1 (p=0.004)). The cumulative rejection rate at 12 months was 16.6% in the DGF group and 17.6% in the control group (p=0.62). The RR of Banff ci>1 for the DGF group on the 12 month Bx (adjusted for time 0 ci and the donor KDPI) was 1.23 (95% CI 0.79-1.93, p=0.35).

The mean for the Banff ci score (0-3 as continuous variable) for biopsies done at reperfusion and at months 1, 3 and 12 months post-transplant were plotted. There was no significant difference in the slopes between the DGF and control group (p=0.549) (figure).

Conclusions: DGF after deceased donor kidney transplantation does not accelerate the progression of interstitial fibrosis during the first post-transplant year.



Effect of DGF on the Progression of Interstitial Fibrosis over First Post-Transplant Year.

Disclosure: Raymond Heilman: No | Ibrahim Qaqish: No | Maxwell Smith: No | Hasan Khamash: No | Bruce Kaplan: No | Kunam Reddy: No
KEYWORDS: renal ischemia reperfusion injury, delayed graft function (DGF), interstitial fibrosis.

ABSTRACT # 22

ABO-incompatible Living Kidney Transplantation: Evolution of Outcomes and Immunosuppressive Management

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Background: ABO incompatible living related kidney transplantation (ABO-ILKT) has been performed to broaden the range of donor types used for living related kidney transplantation (LKT). Recently, ABO-ILKT has steadily become more widespread. However, the optimal immunosuppressive regimen for ABO-ILKT remains uncertain. We aimed to determine the longitudinal changes in the outcomes from ABO-ILKT compared with those from ABO compatible living related kidney transplantation (ABO-CLKT) over the last 25 years.

Methods: Of 1195 patients who underwent LKT at our institute between 1989 and 2013, 1032—including 247 ABO-ILKT and 785 ABO-CLKT cases—were evaluated for graft survival, patient survival, infectious adverse events, and renal function. The patients were divided into four groups according to the transplantation era and ABO-compatibility.

Results: In the past decade, ABO-ILKT and ABO-CLKT recipients yielded almost equivalent outcomes with respect to the 9-year graft survival rates, which were 86.9% and 92.0%, respectively, (hazard ratio [HR] 1.38, 95% confidence interval [CI] 0.59–3.22, p = 0.455). The graft survival rate for ABO-

ILKT conducted between 2005 and 2013 was better than that for ABO-ILKT conducted between 1998 and 2004 (HR 0.30, 95% CI 0.13–0.72, p = 0.007). ABO-ILKT recipients showed substantial improvements in the graft survival rate over time. Graft survival was almost identical over the past decade, regardless of ABO-incompatibility.

Conclusions: Today, ABO-ILKT is an acceptable treatment for patients with end-stage renal disease (ESRD) to broaden the range of donor types used for LKT.

Disclosure: Tomokazu Shimizu: No | Masayoshi Okumi: No | Hideki Ishida: No | Kazunari Tanabe: No
KEYWORDS: kidney transplantation, blood type incompatible transplantation, immunosuppression.

ABSTRACT # 23

Lost utility in treating renal failure in end-stage liver disease with simultaneous liver-kidney transplantation

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Background: The number of simultaneous liver-kidney transplants (SLKT) for end-stage liver disease (ESLD) with renal failure is rising. The overall utility of kidneys used in this setting has not been quantified. We hypothesize:
1) Kidneys allocated as SLKT have shorter graft survival than do kidneys allocated as kidney (Ki) or kidney-pancreas (KP) transplants.
2) Each kidney, if allocated as Ki/KP, would offer a high benefit as measured by life-year-from-transplant (LYFT).

Methods: Deceased donor kidney pairs from 1/1/1995 through 12/3/2014, in which one kidney is utilized in SLKT and the other in kidney (Ki) or kidney-pancreas (KP) transplantation, were identified in Scientific Registry of Transplant Recipients. Excluded were pediatric recipients, other multi-organ transplants, SLKT for metabolic disorders or amyloidosis, and SLKT with pre-transplant dialysis duration >90 days.
The primary outcome was 10-year mean graft survival by transplant type, estimated from flexible parametric models restricted to 10-year follow-ups adjusted for donor and recipient characteristics. Graft survival was partitioned into graft failure and death using a competing risk framework. Expected LYFT per kidney was calculated as a weighted average based on Wolfe *et al*.'s projections and baseline characteristics of our matched Ki/KP cohort.

Results: We matched 3299 SLKT cases to 2617 Ki and 682 KP cases. Kidneys allocated to KP/SLKT pairs were of higher quality than kidneys allocated to Ki/SLKT pairs (median KDRI 0.75 vs 0.88, p<0.001). Compared to Ki and KP recipients, SLKT recipients were more likely to be male, white, older, have a private insurer, and not be on dialysis at time transplant (<0.001).
Median graft survival exceeds 9 years in all transplant groups. SLKT resulted in 1.24 (95% C.I. 0.79-1.69) and 0.46 (95% C.I. -0.61-1.52) fewer years per graft compared to Ki and KP. Graft loss was driven by death in SLKT and by graft failure in Ki/KP. The median expected LYFT per kidney used in SLKT was 5.99 if allocated to a Ki and 9.31 if allocated to a KP candidate.

Conclusions: In the decade post-transplant, kidneys allocated to SLKT for renal failure in ESLD experience a modestly reduced survival compared to those allocated to Ki, though survival is excellent overall. The potential LYFT to be gained per kidney for Ki/KP candidates is substantial. Further studies are therefore needed to quantify the benefit of SLKT over liver transplant alone.

Disclosure: Xingxing Cheng: No | Margaret Stedman: No | W Kim: No | Jane Tan: No
KEYWORDS: kidney allocation, liver transplantation, public policy, long-term outcomes.

ABSTRACT # 24

Comparison of ex-vivo hypothermic (EVHP) versus normothermic perfusion (EVNP) of high-risk deceased donors kidneys.

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Background: Current hypothermic preservation is inadequate to assess high-risk kidneys pre-transplant resulting in many discarded kidneys. EVNP has been used to better assess and possibly improve organ function prior to transplantation. We have developed a system to compare EVHP to EVNP in preservation of high risk deceased donor kidneys.

Methods: Paired discarded high risk-kidneys from the 4 deceased donors (8 total kidneys) were placed on an ex vivo cardiopulmonary bypass circuit at 4°C with standard Kidney Preservation Solution (EVHP). After, one hour of perfusion one kidney from each pair continued on EVHP while the paired kidney was placed on EVNP at 37° with oxygenated packed red blood cells and nutrition. After a 3 hour perfusion period, both groups were perfused at 37° with type specific whole blood to simulate early clinical allograft reperfusion. During whole blood perfusion kidneys were assessed by hemodynamic parameters, urine output, blood gases, creatinine, lactate and urine neutrophil gelatinase-associated lipocalin (NGAL). Results were compared between groups using a paired t-test.

Results: The mean donor age was 58 years and average

Kidney Donor Profile Index (KDPI) was 84%. The mean static cold ischemia time prior to perfusion was 72.5 hours. Unexpectedly, during whole blood perfusion kidneys that were preserved with EVHP had higher blood flow and lower resistance than EVNP preserved kidneys (p=0.0049 and p=0.2091). Urine output also was higher in the EVHP kidneys (p=0.0121). Urine NGAL levels were lower in the group that received the EVNP group but did not achieve statistical significance. There were no differences between the groups when comparing blood gases, lactate or creatinine levels.

Conclusions: EVNP can be used as a tool for additional assessment of high-risk deceased donor kidneys. Further studies will be necessary to demonstrate whether EVNP provides additional benefit by improving function of high risk kidneys prior to transplantation.

Disclosure: Ivonne Palma: No | Sandra Kabagambe: No | Jakub Woloszyn: No | Yulia Smolin : No | Rick Yoshikawa: No | Junichiro Sageshima: No | Chandrasekar Santhanakrishnan: No | Richard Perez: No
KEYWORDS: ischemia/reperfusion injury, kidney preservation.

ABSTRACT # 25
LACTATE LEVELS AS PREDICTORS OF ORGAN TRANSPLANTATION RATES IN DONORS AFTER NEUROLOGIC DETERMINATION OF DEATH
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Background: Efforts have been made to increase the number and quality of organs from donors after neurologic determination of death (DNDDs). Many organ procurement organizations (OPOs) have implemented a checklist of critical care end points, or donor management goals (DMGs), to standardize the care of potential organ donors. Previous studies have demonstrated that meeting the DMG Bundle is associated with more organs transplanted per donor (OTPD), but improvements are still needed. Peripheral biomarkers, such as lactate levels, are often used to assess the adequacy of resuscitation in critically ill patients, but they are not currently part of the DMG Bundle, are recorded only sporadically, and their utility in guiding donor management has not been examined. Our objective was to determine associations between blood lactate levels and organ transplantation rates.

Methods: A prospective observational study was conducted on 1351 DNDDs managed by 10 OPOs. Critical care data and treatments were measured at three standard time points: (1) after authorization for donation was obtained; (2) 12-18 hours after authorization; and (3) prior to organ recovery. The primary outcome measure was achieving ≥4 OTPD. Secondary outcomes were individual organ transplantation rates. Univariate analyses were conducted to determine the association between lactate levels and organ transplantation rates. Results were adjusted for known predictors of OTPD using logistic regression analyses to determine independent predictors of ≥4 OTPD.

Results: Mean OTPD was 3.4±1.8 and 45% had ≥ 4 OTPD. Percent of DNDDs with values measured varied from 62-81% at the three time points. 2,008 of 2,966 (68%) levels were normal (<2 mmol/L). Mean lactate levels were 2.5 ± 3.1 mmol/L overall, and 2,008/2,966 (67.7%) lactate levels were <2 mmol/L. On univariate analysis, lower mean lactate levels were associated with a greater likelihood of ≥4 OTPD. Lactate levels < 2 mmol/L at every time point were associated with ≥4 OTPD, as were the total number of lactate levels <2 mmol/L . After adjusting for known predictors, lower mean lactate levels remained independent predictors of ≥4 OTPD, and a terminal lactate <2 mmol/L was independently associated with ≥4 OTPD (Table). Lower mean lactate levels were found in DNDDs whose hearts (2.6 vs. 3.1), lungs (2.4 vs. 3.1), and livers (2.7 vs. 3.6) were transplanted.

Conclusions: Lower lactate levels in DNDDs are associated with more OTPD. However, they are inconsistently used to guide donor management. Clinical guidelines should include targeting lactate levels <2 mmol/L.

Disclosure: Mitchell Sally: No | Xiang Gao: No | Jamison Nielsen: No | Salvador De La Cruz: No | Tahnee Groat: No | Darren Malinoski: No
KEYWORDS: Donor evaluation, organ and tissue procurement, biomarker.

ABSTRACT # 26
Pre-Orthotopic Liver Transplant Transthoracic Echocardiogram Findings and 6 Month Post-Transplant Outcomes: A Case-Control Analysis
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2. Johns Hopkins Hospital, Baltimore, MD, United States.
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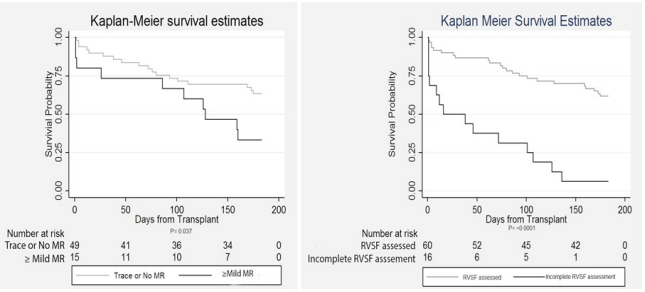
Background: The optimal cardiopulmonary (CP) risk stratification of liver transplant (LT) candidates is not well established. Transthoracic echocardiography (TTE) has been the primary modality to assess cardiac function prior to LT. The aim of this study was to evaluate the association of pre-LT TTE findings and 6 month post-LT outcomes.

Methods: We assessed adult patients who underwent LT from 2000-2011, comparing those who died within 6 months of LT (cases; n=38) with age- and gender-matched patients who survived >6 months (controls; n=38). Cases were further categorized based on cause of death (COD) defined as either a primary CP process (n=20) or non-CP process (n=18). Demographic, clinical characteristics, and pre-LT TTE data

were analyzed using logistic regression, and survival analysis was performed using Kaplan Meier curves.

Results: There was a higher odds of death within 6 months of LT with ≥mild mitral regurgitation (MR) (OR 3.44, p=0.03) or an incomplete assessment of right ventricular systolic function (RVSF) (OR 24, p=0.004). On subgroup analysis, these findings only persisted in patients with a CP COD. Patients with CP COD were older (61 vs. 54.5, p= 0.04), had longer intervals between TTE and LT (122 vs. 29 days, p= 0.05), less complete assessments of RVSF (p=0.009), lower RV fractional area change (p=0.04) and RV visualization insufficient to estimate tricuspid annular plane systolic excursion (TAPSE) (p=0.05) compared to patients with non-CP COD.

Conclusions: In conclusion, multiple TTE parameters were associated with patients who died within 6 months of LT, and in particular patients with a CP COD. Our findings suggest that pre-LT TTE findings can convey useful CP risk stratification information and emphasizes the importance of adequately assessing these parameters prior to LT.



characteristics of patients who died vs. survived 6 months post transplant

Died vs. Survived
(N=76)
OR (95% CI)
CP death vs. Survived
(N=40)
OR (95% CI
Non-CP death vs. Survived
(N=36)
OR (95% CI)
Clinical Characteristics

BMI at transplant
1.00 (0.92-1.10)
0.95 (0.84-1.08)
1.09 (0.96-1.25)
History of Diabetes
0.50 (0.18-1.41)
0.40 (0.12-1.42)
0.67 (0.08-5.67)
Pre-transplant hemodialysis
0.67 (0.08-5.67)
1.59 (0.32-7.96)
0.44 (0.56-3.44)
Transplant Characteristics

Reason for Transplant
Chronic HCV
0.63 (0.35-1.12)
0.64 (0.27-1.49)
0.62 (0.31-1.27)
Alcoholic cirrhosis
1.58 (0.52-6.87)
4.71 (0.28- 80.0)
0.53 (0.04-7.33)
NASH or cryptogenic cirrhosis
1.9 (0.52-6.87)
1.57 (0.33-7.55)
None
Other
2.53 (0.89-7.24)
2.61 (0.33-20.58)
2.51 (0.75-8.35)
MELD at transplant (per point increase)
1.04 (0.99-1.08)
1.07 (1.01-1.13)
P=0.01
1.02 (0.95-1.09)
Pre-Transplant ECHO Characteristics

Time between TTE and transplant (days)
1.00 (0.99-1.00)
1.00 (0.99-1.00)
0.99 (0.99-1.00)
Left ventricular ejection fraction
0.95 (0.88-1.02)
0.95 (0.87-1.04)
0.96 (0.82-1.13)
Diastolic dysfunction
0.55 (0.15-2.05)
0.5 (0.04-6.94)
0.56 (0.11-2.85)
Incomplete assessment of right ventricular systolic function
24.1 (2.67-217.71)
P=0.004
28.5 (2.38-341.19)
P=0.008
Unable to converge
Reduced right ventricular systolic function
1.07 (0.24-4.71)
1.78 (0.22-9.42)
Unable to converge
≥ Mild Mitral regurgitation
3.44 (1.12-10.55)
P=0.03
5.83 (1.23-27.63)
P=0.03
2.0 (0.37-10.78)
RVSP ≥ 40 (mmHg)
3.89 (0.91-16.62)
P=0.06
1.94 (0.34-10.94)
Unable to converge

Disclosure: Monica Konerman: No | Jennifer Price: No | Catherine Campbell: No | Swathi Eluri: No | Ahmet Gurakar: No | James Hamilton: No | Zhiping Li: No
KEYWORDS: chronic liver disease, liver transplantation, risk factors.

ABSTRACT # 27
Choosing Your Poison- Fewer Marginal Kidneys; More PHS High Risk Kidneys

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Background: With the change in kidney allocation rules in December 2014, the number of kidneys available for patients who consented to receive a marginal kidney dropped when the definition changed from ECD to high KDPI (≥0.85). In order to compensate for this loss in kidneys available to our patients, our center made a programmatic decision to increase acceptance of selected PHS high risk kidneys which were NAT test negative for Hepatitis C and HIV.

Methods: PHS High Risk donors with the exception of current IV drug users and donors unable to be accurately tested due to hemodilution were accepted for transplant with the written consent of the recipients. We evaluated all deceased donor kidney transplant recipients between January 1, 2014 and October 2015. Dual kidney and multiorgan recipients were excluded from analysis. Changes in the profile of our deceased donor pool were noted.

Results: All recipients of high risk kidneys underwent periodic testing for hepatitis C and HIV and none converted. As expected, the number of ECD or high KDPI transplants has fallen with the new allocation system, but we have compensated for this loss of kidneys by selectively accepting PHS high risk kidneys as seen in table 1. An added advantage of this strategy is the high quality of the high risk kidneys as seen in table 2.

Conclusions: With waiting times routinely exceeding 8 years in our region and new UNOS allocation rules that limit access to some of our patients, our center decided to increase acceptance of PHS high risk kidneys. Patients accepting these kidneys are exchanging the substantial risk of receiving a kidney of lower quality for the minimal risk of contracting an infectious disease.

Changes in Our Deceased Donor Pool

Year	# Increased Risk	# ECD or KDPI> .85	# DD Txp
Q4 2011	2 (7%)	6 (20%)	30
2012	12 (7%)	48 (29%)	164
2013	16 (12%)	34 (26%)	130
2014	30 (19%)	38 (24%)	160
Q1-3 2015	26 (21%)	17 (14%)	125

KDPI profile of transplanted kidneys

Since January 2014	PHS low risk	PHS high risk
Transplants	231	58
Mean KDPI	51	24

Disclosure: William Bry: No | Kimi Ueda: No | V Ram Peddi: No
KEYWORDS: deceased donor organs, organ allocation.

ABSTRACT # 28
Ex Situ Perfusion of a Human Limb for 24 Hours
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1. Transplant Surgery, University of Michigan, Ann Arbor, MI, United States.
2. Gift of Life Michigan, Ann Arbor, MI, United States.
3. Orthopedic Surgery, University of Michigan, Ann Arbor, MI, United States.

Background: Vascularized composite tissue allografts and hand transplant have become a clinical reality. In current practice, limb allografts are flushed and cold stored (4°C) until surgery. This process, however, creates a time restraint as the procured tissue has to be revascularized within 4-6 hours to prevent reperfusion injury that compromises neurologic function. This time restraint also imposes a single center approach and limits the potential pool of suitable donors. In previous studies, we demonstrated successful survival of swine forelimb allografts up to 24 hours using a novel ex-situ perfusion system. In this study, we tested the viability of a human forearm allograft using a similar system.

Methods: Under an IRB-approved protocol, a right forearm was procured from a 64 year-old brain-dead adult male with no history of vascular disease. Surgery was performed under tourniquet control. Following elbow disarticulation, the brachial artery was cannulated. The limb was flushed with 10,000U of heparin and connected to a custom, temperature controlled (30-33°C) ex-situ perfusion system composed of a commercially available roller pump and oxygenator. The perfusate was plasma-based with packed red blood cells added to achieve a concentration of 4-6 g/dL. The circuit was not anticoagulated. Perfusion parameters were monitored continuously for 24 hours while blood gases were performed hourly; compartment pressures and nerve stimulation were performed every 4 hours.

Results: Tourniquet time to completion of procurement was

17 minutes, with a total ischemia time of 55 minutes. Blood loss during the surgery was minimal. Average arterial systolic pressure was 95±6 mmHg. Perfusion flow was 350±52 mL/hr, which was 6-8% of the estimated cardiac output based on donor height and weight. Vascular resistance was 137±50 mmHg/mL/min. Perfusate composition had an average pH of 7.40±0.9, pCO2 41±4 mmHg, pO2 339±46 mmHg, and hemoglobin 4.3±0.5 g/dL. Lactate gradually increased to a maximum of 16.0 mmol/L, while serum potassium remained within a normal range (3.9±1.5 mmol/L). Activated clotting times were greater than 1000 seconds. Compartment pressures ranged from 1-5 mmHg. Nerve stimulation remained intact through the duration of perfusion.

Conclusions: A human hand allograft was viable after 24 hours of ex situ perfusion. This approach is promising modality of preservation, with the potential to extend the narrow time frame for revascularization and moving one step closer to hand allograft banking. This technology may also have application with traumatic extremity amputations.

Disclosure: Nicole Werner: No | Fares Alghanem: No | Stephanie Rakestraw: No | Bruce Nicely: No | Amy Olszewski : No | Steven Rudich: No | Alvaro Rojas: No | John Magee: No | Kagan Ozer: No
KEYWORDS: composite tissue transplantation, procurement and preservation, allograft monitoring.

ABSTRACT # 29
ABO INCOMPATIBLE LIVER GRAFT IS A RELIABLE CHOICE IN TERMS OF THE LONG-TERM SURVIVAL
Naoki Kawagishi[1]
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Background: The introduction of novel immunosuppressive regimens and apheresis has yielded excellent short-term results in ABO-incompatible LDLT. We present data regarding long-term results including complications of our series.

Methods: We experienced 13 cases of ABO-incompatible LDLT out of 166 cases from 1991 up to 2015. Namely, 6 infants, 5 children and 2 adults. An IgM or IgG titer of more than 16 was an indication for preoperative apheresis. Plasma exchange or double filtration plasmapheresis was performed for 3 consecutive days before Tx and the patients were administered azathiopurine or MMF 3 days before Tx followed by tacrolimus or cyclosporine, as well as methylprednisolone. Five patients were treated with rituximab and 2 patients had infusion therapy with prostaglandin E1 and methylprednisolone.

Results: Seven patients were subjected to preoperative apheresis. One patient who suffered rapidly progressing rejection died due to liver failure. Twelve out of the 13 cases have survived from the surgery, and they were followed from 4.2 years to 21.4 years (mean 12.5 years). Eight patients experienced acute rejection and of them, 6 patients experienced steroid-resistant rejection that was treated with deoxyspergualin and apheresis. Three patients who were administered rituximab did not suffer severe rejection nor adverse effects. Nine late complications were occurred in 6 cases from 0.5 to 11.5 years, but 6 cases had no long-term complications. The long-term complications included biliary stenosis in 3 cases, PTLD in 2 cases, NODAT in 1 case, portal occlusion in 1 case, intestinal bleeding in 1 case, recurrence of HBV in 1 case. One case was dead due to HCC recurrence, but other 11 cases are in good conditions at present.

Conclusions: Although the high incidence of late complications after ABO-incompatible LDLT, the patients' long-term survival were secured.

Disclosure: Naoki Kawagishi: No
KEYWORDS: blood group incompatibility, living donor transplantation, long-term outcomes, chronic allograft dysfunction.

ABSTRACT # 30
Proteome Analysis of Renoprotection Mediated by a Novel Cyclic Helix B Peptide in Acute Kidney Injury
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3. Huashan Hospital, Fudan University, Shanghai, China.

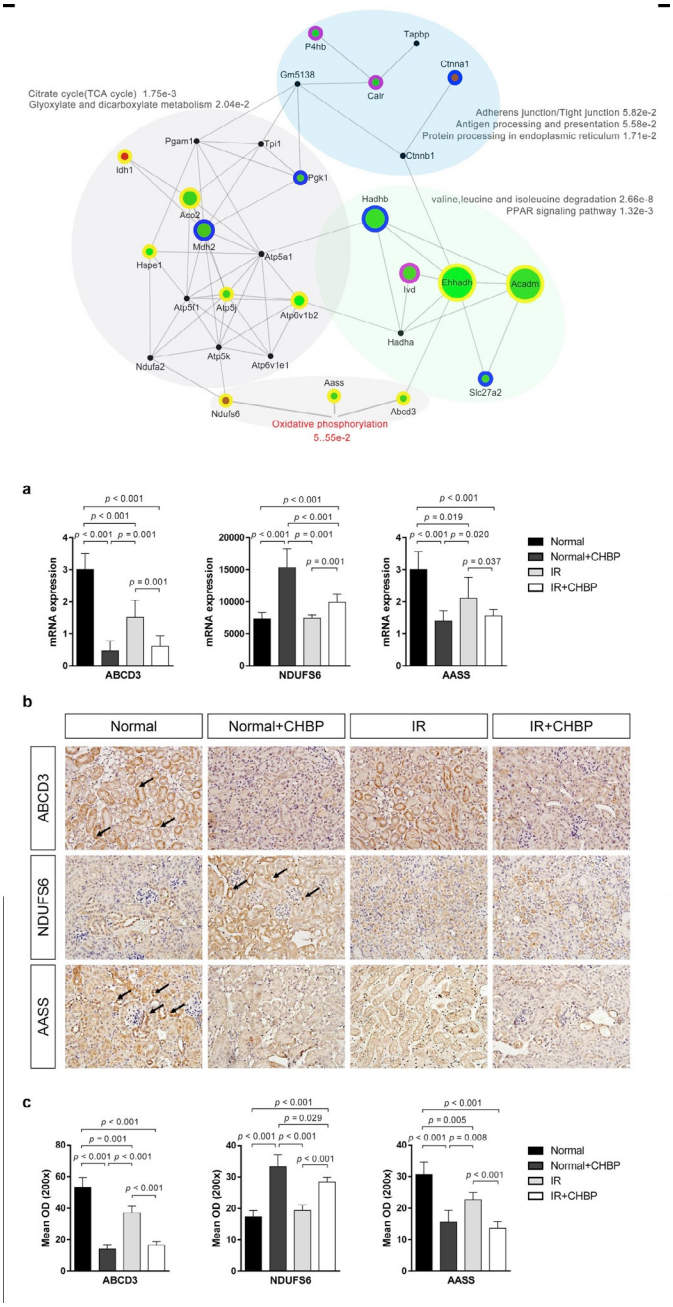
Background: We developed a novel, erythropoietin-derived, non-erythropoiesis, cyclic helix B peptide (CHBP) that displays potent renoprotection against acute kidney injury (AKI). To determine the mechanism of CHBP-mediated protection, we investigated the proteomic profile of mice treated with CHBP in a kidney ischemia-reperfusion (IR) injury model.

Methods: The isobaric tags for relative and absolute quantitation (iTRAQ)-labeled samples were analyzed using a QSTAR XL LC/MS system.

Results: In total, 38 differentially expressed proteins (DEPs) were shared by all experimental groups, while 3 DEPs were detected specifically in the IR + CHBP group. Eight significant pathways were identified, and oxidative phosphorylation was shown to be the most important pathway in CHBP-mediated renoprotection. The significant DEPs in the oxidative phosphorylation pathway elicited by CHBP are NADH-ubiquinone oxidoreductase Fe-S protein 6 (NDUFS6), alpha-aminoadipic semialdehyde synthase (AASS) and ATP-binding cassette sub-family D member 3 (ABCD3). The DEPs mentioned above were verified by RT-qPCR and immunostaining in mouse kidneys. We tested 6 DEPs in

human biopsy samples from kidney transplant recipients. The trend of differential expression was consistent with that in the murine model.

Conclusions: In conclusion, this study helps to elucidate the pharmacological mechanisms of CHBP before clinical translation.



Different functional modules and significant pathways involved in CHBP-mediated IR kidney protection.Verification of NDUFS6, ABCD3 and AASS expression in mouse kidneys. Genes: spots, with the sizes of the spots indicating the importance of the genes. Spot color: red, upregulated; green, downregulated. Spot border color: purple, proteins differentially expressed in only the IR + CHBP group; yellow, proteins differentially expressed in both the IR + CHBP and normal + CHBP groups; blue, proteins differentially expressed in only the normal + CHBP group.

Disclosure: Cheng Yang: No | Tongyu Zhu: No | Shangfeng Liu: No | Ruiming Romg: No
KEYWORDS: kidney injury, ischemia/reperfusion injury, proteomics.

ABSTRACT # 31

Cyclic Helix B Peptide Inhibits Ischemia Reperfusion-induced Renal Fibrosis via the PI3K/Akt/FoxO3a Pathwa

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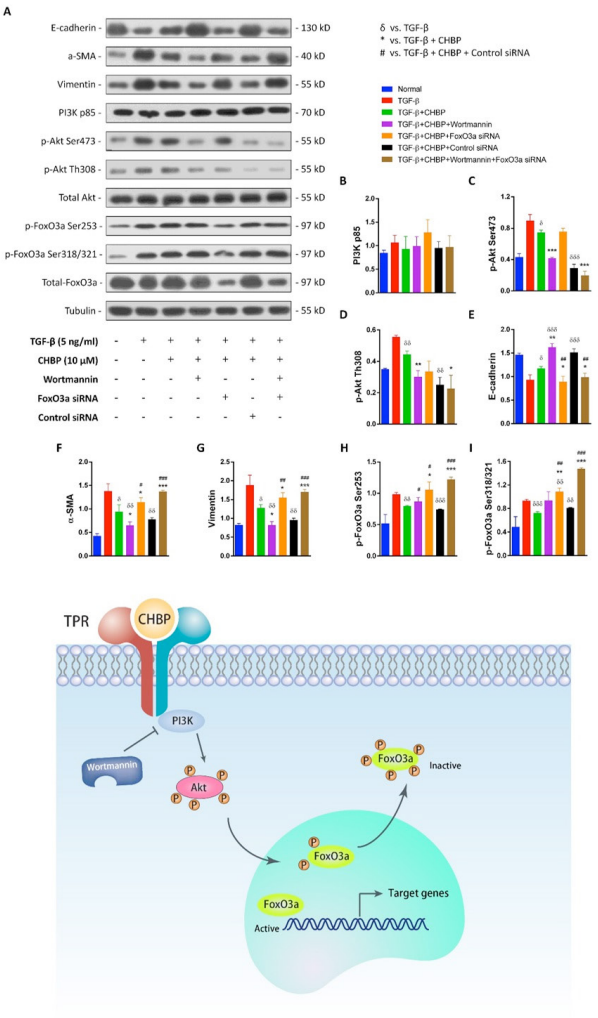
Background: Renal fibrosis is a main cause of end-stage renal disease. Clinically, there is no beneficial treatment that can effectively reverse the progressive loss of renal function. We recently synthesized a novel proteolysis-resistant cyclic helix B peptide (CHBP) that exhibits promising renoprotective effects.

Methods: In this study, we evaluated the effect of CHBP on renal fibrosis in an *in vivo* ischemia reperfusion injury (IRI) model and *in vitro* TGF-β-stimulated tubular epithelial cells (TCMK-1 and HK-2) model. In the IRI *in vivo* model, mice were randomly divided into sham (sham operation), IR and IR+CHBP groups (n = 6). CHBP (8 nmol/kg) was administered intraperitoneally at the onset of reperfusion, and renal fibrosis was evaluated at 12 weeks post-reperfusion.

Results: Our results showed that CHBP markedly attenuated the IRI-induced deposition of collagen I and vimentin. In the *in vitro* model, CHBP reversed the TGF-β-induced down-regulation of E-cadherin and up-regulation of α-SMA and vimentin. Furthermore, CHBP inhibited the phosphorylation of Akt and Forkhead box O 3a (FoxO3a), whose anti-fibrotic effect could be reversed by the 3-phosphoinositide-dependent kinase-1 (PI3K) inhibitor wortmannin as well as FoxO3a siRNA.

Conclusions: These findings demonstrate that CHBP attenuates renal fibrosis and the epithelial-mesenchymal transition of tubular cells, possibly through suppression of the PI3K/Akt pathway and thereby the inhibition FoxO3a activity.



Signaling pathways involved in the inhibition of EMT by CHBP. CHBP stimulates the PI3K/Akt signaling pathway to phosphorylate FoxO3a, leading to cytoplasmic sequestration of the transcription factor and inactivation of transcriptional activity. The absence of FoxO3a transcriptional activity results in decreased EMT-associated gene expression. Wortmannin can also inhibit PI3K activity.

Disclosure: Cheng Yang: No | Ruiming Romg: No | Tongyu Zhu: No
KEYWORDS: kidney injury, ischemia/reperfusion injury, fibroblasts, pharmacology/toxicology.

ABSTRACT # 32
Geographic Variation in Racial Disparity Reduction in Kidney Transplant Rates with the New Kidney Allocation System

Rachel E. Patzer[1, 2], Taylor Melanson[4], Mohua E. Basu[1], Laura E. Plantinga[5, 3], Laura E. McPherson[2], Sumit Mohan[6], David Howard[4], Jennifer C. Gander[1], Stephen Pastan[3, 5]
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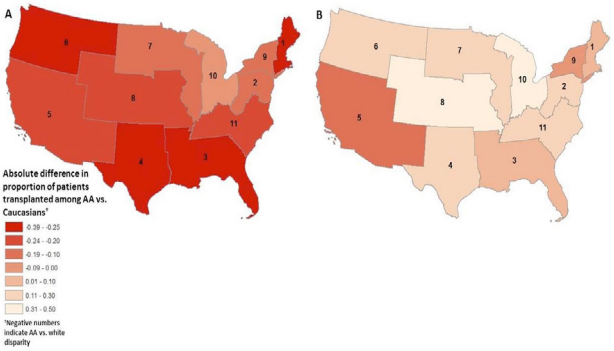
6. Department of Medicine, Columbia, New York, NY, United States.

Background: Prior to the new kidney allocation system (KAS) implemented 12/4/2014, significant African American (AA) vs. white racial disparities existed in access to kidney transplantation (KTx) among waitlisted patients. While preliminary results show that the proportion of AA transplanted patients has increased, it is unknown whether this increase has eliminated racial disparities. In addition, it is unknown whether this disparity reduction is consistent across geographic region.

Methods: We examined data from 173,639 KTx waitlisting events from the United Network for Organ Sharing (UNOS) standard analytic file from June 2013-June 2015, and divided the cohort into those waitlisted pre- and post-KAS eras. We calculated the proportion of waitlisted patients who received a deceased donor KTx by race as the number of transplants per 100 waitlisted patients; the difference in the proportion of transplants by race (AA vs. white) was mapped by UNOS region using ArcGIS.

Results: Prior to Dec. 4, 2014, a smaller proportion of KTx patients were AAs vs. white (31.5% vs. 42.2%) and all 11 UNOS regions had a racial disparity in KTx; following KAS, the proportion of transplanted patients who were AAs increased to 37.7%. All UNOS regions had a racial disparity reduction in transplant rate from pre- to post-KAS but disparity reduction was not consistent across UNOS region (Figure). Following KAS, regions 5 and 9 still had a racial disparity, where white patients were transplanted at a higher rate than AAs.

Conclusions: Following implementation of KAS, racial disparities were significantly reduced among AA vs. Caucasians, although disparity reduction varied by geographic region. Longer term follow-up is needed to determine whether greater equality in KTx access is sustained.



Absolute Difference in Proportion of Patients Transplanted among AA vs. Whites, by UNOS Region: Pre-KAS (A) and Post-KAS (B)

Disclosure: Rachel Patzer: No | Taylor Melanson: No | Mohua Basu: No | Laura Plantinga: No | Laura McPherson: No | Sumit Mohan: No | David Howard: No | Jennifer Gander: No | Stephen Pastan: No
KEYWORDS: kidney allocation, racial and ethnic disparities, public policy, kidney transplantation.

ABSTRACT # 33
AMD3100 (PLERIXAFOR) AS A SINGLE-DOSE STEM CELL MOBILIZING AGENT IN VASCULARIZED COMPOSITE TISSUE ALLOGRAFT (VCA) TRANSPLANTATION IN A CANINE HAPLOIDENTICAL MODEL

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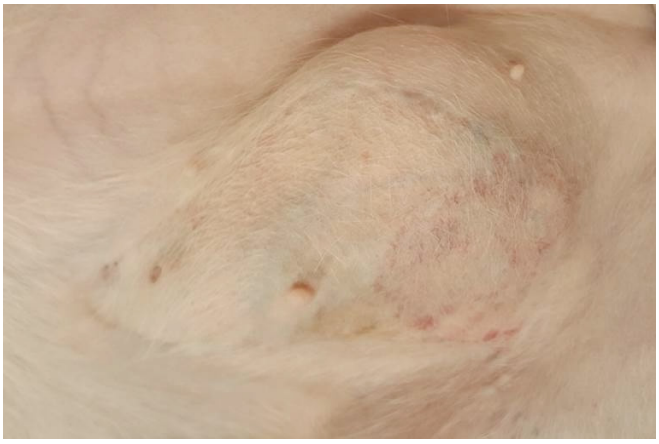
2. Clinical Research Division, Fred Hutchinson Cancer Research Center, Seattle, WA, United States.
3. Medicine, University of Washington Medical Center, Seattle, WA, United States.

Background: Vascularized Composite Allograft (VCA) transplantation is a clinical reality but limited by the toxicities of chronic immunosuppression and acute and chronic rejection. Current clinical tolerance protocols rely on recipient conditioning and donor cell mobilization that limits the application to living donor transplants. We sought to design a clinically relevant protocol applicable to cadaveric organs. We modified our existing non-myeloablative stem cell canine VCA transplant model to use AMD3100 (Plerixafor) as a single-dose agent for cell mobilization.

Methods: 5 DLA-haploidentical, related canine recipients received conditioning with 350cGy TBI, AMD3100-mobilized donor stem cells (4mg/kg/SQ x 1 dose 6-8 hours prior to COBE apheresis) with simultaneous heterotopic myocutaneous rectus abdominal VCA transplantation followed by a short course of immunosuppression (MMF: 84 days/CSP: 133 days; including taper). CD34+ hematopoietic progenitor cells were quantified via flow cytometry. Peripheral blood chimerism was evaluated by PCR techniques weekly. VCA graft survival was followed clinically and confirmed histologically.

Results: All 5 canines tolerated the conditioning regimen. 4 were followed long-term. Stem cell engraftment and donor chimerism were seen in all dogs. Median COBE apheresis cell counts of 6.12x10^8 cells/kg and CD34+ cell counts of 5.27x10^7 cells/kg were obtained. No acute rejection of the VCA nor evidence of GVHD was seen. An unexpected finding of persistent thrombocytopenia resolved on loss of donor cell chimerism.

Conclusions: This study demonstrates proof of principle for AMD3100 as a single-dose stem cell mobilizing agent for a clinically relevant tolerance protocol. Use of AMD3100 led to stem cell engraftment in all animals transplanted with no evidence of acute rejection in the VCA. Current application of AMD3100 is limited by thrombocytopenia but we are currently modifying the protocol to address this.



H775 VCA POD 101

AMD3100 (Plerixafor) Summary

DOG
WEIGHT
COBE PRODUCT
OTHER PRODUCT
COBE/KG
CD34+ CELLS
H704
10.4kg
9.43x10^9 cells
9.07x10^8 cells/kg
9.16x10^7 (10.1%)
H775
8.1kg
5.89x10^9 cells

11.6x10^8 cells/kg
14.5x10^7 (12.5%)
H776
15kg
1.41x10^9 cells
MINI-LEUK: 0.68x10^9 cells

TOTAL: 2.09x10^9 cells
1.39x10^8 cells/kg
0.47x10^7 (3.4%)
H733
15kg
10.17x10^9 cells

6.78x10^8 cells/kg
0.81x10^7 (1.2%)
H781
10kg
2.23x10^9 cells

2.23x10^8 cells/kg
1.43x10^7 (6.4%)

MEDIAN:
11.7kg
5.96x10^9 cells

6.12x10^8 cells/kg
5.27x10^7 (6.72%)

Disclosure: Bruce Swearingen: No | Scott Graves: No | Rainer Storb: No | David Mathes: No
KEYWORDS: composite tissue transplantation, stem cells, allograft monitoring.

ABSTRACT # 34
Usage of HCV+ donors in the U.S.
James Salazar[1], John P. Roberts[1], Michael L. Volk[2], Neil Mehta[1], Jennifer C. Lai[1]

1. University of California, San Francisco, San Francisco, CA, United States.
2. Loma Linda, Loma Linda, CA, United States.

Background: HCV+ donors (HCVD+) represent an effective strategy to increase liver donor availability to HCV-infected recipients (HCVR+). However, many HCV+ transplant candidates are now receiving treatment with direct acting antivirals (DAA) that lower the risk of post-transplant HCV recurrence but could make the patient ineligible for HCVD+ livers. To better understand the potential opportunity cost of DAA treatment in the HCVR+ population we aim to characterize the usage of HCVD+ livers in the US.

Methods: We analyzed data from the United Network for Organ Sharing (UNOS) registry on all US liver transplant (LT) wait-list candidates, recipients, and donors from 7/1/10-6/30/14. Only donor livers that were ultimately transplanted during the study period were analyzed. Usage was characterized by UNOS Region where transplanted.

Results: There were 60,398 LT candidates: 38% were HCV+. Over the same period, there were 24,465 deceased donor liver transplant (DDLT) recipients: 4% received HCVD+ livers. The %DDLT with HCVD+ varied by region, ranging from 2% in Regions 4 and 6 to 6% in Region 2 (Fig. 1). Of all HCV+ candidates, 4% received a HCVD+ liver, ranging from 1% in Region 4 to 7% in Region 10 (Fig. 1). Nationally, 9% of all HCVR+ received an HCVD+ liver. This ranged from 4% in Region 6 to 14% in Region 10 (Fig. 1). Nationally, HCVR+ that received an HCVD+ liver had a median MELD score at transplant of 24 compared to 28 for HCVD- livers ($p<.01$). This difference in median MELD at transplant was observed on a regional basis as well (Fig. 2).

Conclusions: There is significant regional variation in usage of HCV+ donor livers. The geographic likelihood of receiving an HCVD+ liver should be taken into account when weighing the risks and benefits of pre-LT HCV treatment. Given the safety and efficacy of HCV treatment and evidence that HCVD+ donor livers could allow for earlier transplantation, HCV+ candidates in regions with high HCVD+ availability should consider deferring treatment until *after* LT.

Figure 1. Relative usage of HCVD+ livers in the U.S. from 2010-2014.

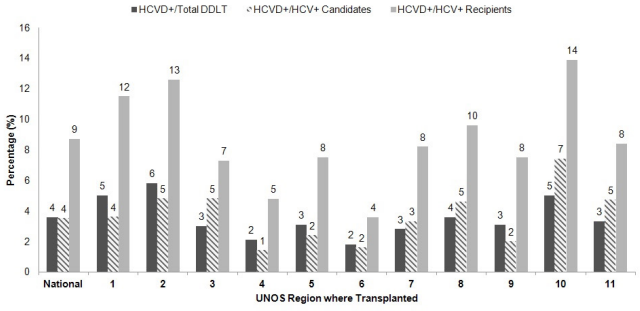
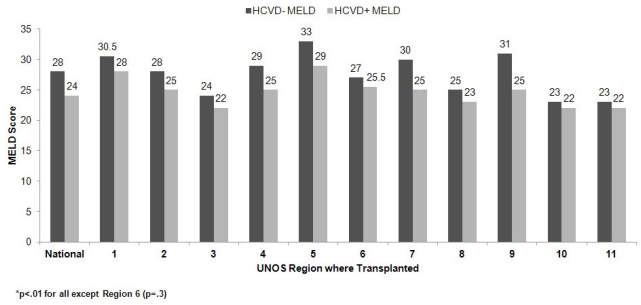


Figure 2. Median MELD of HCV+ recipients at transplant by HCV donor status in the U.S. from 2010-2014.



*p<.01 for all except Region 6 (p=.3)

Disclosure: James Salazar: No | John Roberts: No | Michael Volk: No | Neil Mehta: No | Jennifer Lai: No
KEYWORDS: liver transplantation, deceased donor organs, hepatitis C virus.

ABSTRACT # 35

A Case of a Living-Related Kidney Transplantation After Ex-Vivo Repair of the Donor Renal Artery Aneurysm (RAA)

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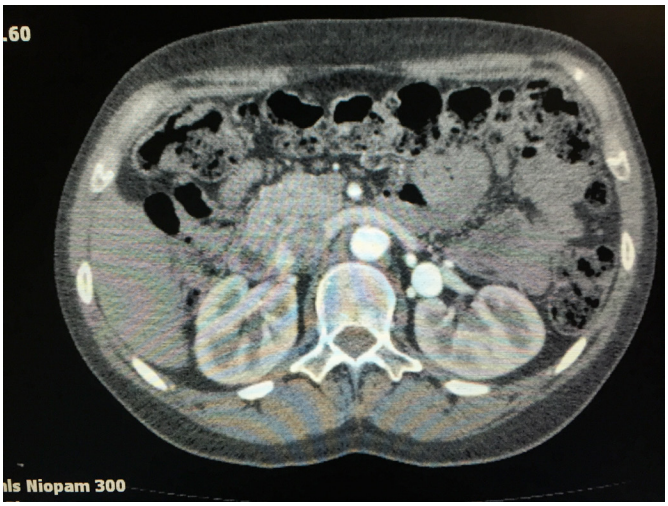
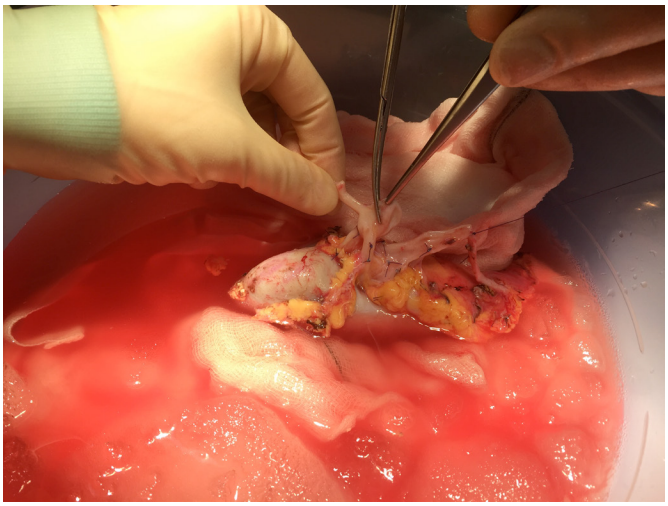
Background: Kidney transplantation is the definite surgical treatment for end-stage renal disease. Shortage of organs and the increasing number of patients with end stage renal disease has led to expansion of the selection criteria promoting use of organs from marginal donors. Use of kidneys with renal artery aneurysm (RAA) is one such example.

Methods: We report a case of living-related kidney transplantation from a 46-year-old female donor with unilateral RAA to her 68-year-old father. The pre-operative donor's assessment with a computed tomography angiogram, revealed a saccular aneurysm of the left renal artery. The transplant team proceeded to the left nephrectomy, surgical ex vivo repair of the aneurysm and transplantation of this kidney to the recipient, with the total ischemic time of 130 minutes. At revascularization there was no anastomotic leak with good perfusion of the organ and normal postoperative kidney function.

Results: The fact that the number of the patients with end stage renal disease is increasing and the number of donor organs is limited, expansion of the donor selection criteria in order to increase the number of organs available for transplantation is inevitable, both for cadaveric and living donor allograft transplantation. Isolated case reports and small case series showed that the selected use of organs with renovascular pathology is a safe solution for the recipient and at the same time gives definite treatment to the donor.

Conclusions: RAA is a rare renal anatomical abnormality with unproven clinical significance. Advanced microvascular surgical techniques can be used to repair the aneurysm with subsequent successful use for transplantation.





Disclosure: petros christopoulos: No | Afridi Faryal: No | Dosani Muhammed: No | David Rix: No | David Talbot: No
KEYWORDS: expanded criteria donors, kidney transplantation, chronic kidney disease (CKD), vascular biology.

ABSTRACT # 36

Ex-Vivo Lung Perfusion: The Procedure, Protocols and Program Provision in Clinical Context

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Background: The single most lamentable factor limiting lung transplantation (LTx) remains the donor allograft shortage. A new approach involves Ex-Vivo Lung perfusion (EVLP) and optimization. AConsidered a great opportunity to increase donor lung utilization of initially deemed unsuitable allografts, the feasibility has been shown and federal approval (FDA) obtained in the US. The rate of adaptation of the technology and implementation in clinical lung procurement not established. Considering its potential to increase lung transplantation the factors influencing program developments need to be understood to recognize "diffusion" of this innovation. We sought to understand the essential factors lung transplant programs encounter in developing EVLP in clinical practice.

Methods: A qualitative review was performed. The currently available clinical evicdence was reviewed and graded. Data from several published trials was critically appraised. The administrative priorities and (LTx) program requirements to establish EVLP was assesed in a retrospective analysis of our lung transplant program. Trial circumstances and pre-requisites were considered in the context of current lung procurement practices. Cost factors and lung allocation principles as well as other regulatory and governance issues were reviewed in this regard.

Results: Outcomes of two RCTs and a single multicenter EVLP trial showed feasibility and safety. Limitations of the selection criteria and the trial settings deserve discussion. Additional experimentsal research data is considered in the review clinical applications. Review of our EVLP practice development and the relevance for future transplant centers persuing EVLP has to be understood in the confinements of probable trial participation and post-marketing monitoring needs. The administrative support requirements demand a planning process best provided with a strategic business model to prospectively account for equipment investment and organ acquisition costs. A substantial change in procurement practice has unintended consequences for manpower and logistic needs. These are discussed. The compliance with lung allocation systems and the option of humanitarian device exemption demand insight into applied governance and equity principles in thoracic transplantation.

Conclusions: The potential for EVLP to transform lung allograft procurement is evident. The complexity of such practice change has to be considered in the context of a highly regulated and outcome monitored environment.

Disclosure: Christopher Wigfield: Yes;BARD:Honoraria:Teaching;Actelion / KCI:Consulting Fee:Consulting

KEYWORDS: Donor evaluation, lung transplantation, organ regeneration, expanded criteria donors.

ABSTRACT # 37

Deceased Organ Donor Management: Does Hospital Volume Matter?

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1. Surgery, Massachusetts General Hospital, Boston, MA, United States.
2. Surgical Critical Care Section, Portland Veterans Affairs Medical Center, Portland, OR, United States.
3. Surgery, Oregon Health & Science University, Portland, OR, United States.

Background: As the shortage of organs available for transplantation persists, identification of strategies to improve donor organ utilization rates remains imperative. Despite the association between hospital volume and outcomes for various diseases, there have been no studies to assess the impact of hospital organ donor volume on the number of organs transplanted per donor (OTPD).

Methods: A prospective observational study of all hospitals managing deceased organ donors covered by ten organ procurement organizations (OPOs) across UNOS Regions 4, 5, and 6 was conducted from February 2012-June 2015. Donor demographics, blood type, cause of death, OPO, and creatinine prior to procurement were collected prospectively through use of the UNOS Donor Management Goal Web Portal. In order to study the impact of hospital volume on organ yield, each donor was placed into a hospital volume quartile based on the number of donors managed by their hospital over the study period. Multivariate analysis was used to identify the independent effect of hospital volume on our primary outcome measure of having ≥ 4 OTPD.

Results: Data from 4427 donors across 384 hospitals were collected. Hospitals managed an average of 12±16 donors over the study period and were assigned quartiles based on their volume of deceased donors. Specifically, there were 97 hospitals in quartile 1 (lowest volume; managing an average of 1.4 ± 0.5 donors per hospital over the study period), 102 in quartile 2 (3.6 ± 1.7 donors), 89 in quartile 3 (9.2 ± 3.5 donors), and 96 in quartile 4 (highest volume; 32.3 ± 20.2 donors). After adjusting for age, ethnicity, donor type (standard criteria, expanded criteria, donor after circulatory determination of death), blood type, body mass index, creatinine, and OPO, being managed in hospitals within the highest volume quartile remained a positive independent predictor of ≥ 4 OTPD (OR 1.50 [1.28-1.77], P<0.001; see Table).

Conclusions: Deceased organ donor hospital volume impacts organ utilization rates, with the highest volume centers being 50% more likely to achieve ≥ 4 OTPD. Efforts should be made to share practices from these higher volume centers and consideration should be given to centralization of donor care.

Disclosure: Madhukar Patel: No | Jahan Mohebali: No | Mitchell Sally: No | Tahnee Groat: No | Parsia Vagefi: No | David Chang: No | Darren Malinoski: Yes;Health Resources and Services Administration:Grant:Research;Life Gift of

Texas:Honoraria:Other;Centura Health:Honoraria:Other;Pacific Northwest Transplant Bank:Other:Other;Sierra Donor Services:Grant:Other
KEYWORDS: deceased donor organs, expanded criteria donors, organ allocation.

ABSTRACT # 38

Calculated Panel Reactive Antibody Predicts Mortality on the Heart Transplant Waiting List

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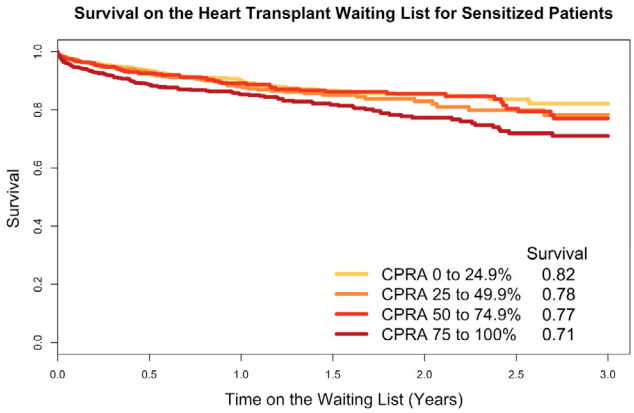
1. Cardiovascular Diseases, Mayo Clinic Arizona, Phoenix, AZ, United States.
2. Division of Laboratory Medicine and Pathology, Mayo Clinic Arizona, Phoenix, AZ, United States.

Background: The implementation of organ allocation points for highly sensitized patients with elevated calculated panel reactive antibody (CPRA) values has led to a major increase in the number of kidney transplants for these patients. The United Network for Organ Sharing (UNOS) also allows for listing of unacceptable human leukocyte antigens (UA-HLA) at the time of waiting list addition for heart transplant (HT) candidates. However, since CPRA is not used for allocation in HT, little is known about how CPRA affects access to HT. We sought to determine the relationship between CPRA and mortality on the HT waiting list.

Methods: A dataset of patients listed for HT with UA-HLA between years 1997 and 2013 was obtained from UNOS. Years that contained greater than 1% of waiting list additions with UA-HLA were selected for further analysis (years 2006 to 2013). A CPRA calculator was developed using R (R Foundation for Statistical Computing, Vienna, Austria). Validation for 100 randomly selected patients showed perfect agreement between CPRA calculated in R and CPRA calculated using the UNOS online calculator (correlation = 0.999). CPRA was calculated for each patient at the time of HT waiting list addition. Kaplan-Meier survival analysis was performed with death as the primary outcome.

Results: Patients listed for HT with UA-HLA increased from 2 (0.05%) in 1997 to 688 in 2013 (17.3%). We identified 4,504 patients with UA-HLA between 2006 and 2013 for further analysis. Within 3 years of waiting list addition, 428 patients (9.5%) died, 2551 patients (56.6%) underwent HT, and 1525 patients (33.9%) were still waiting. When stratified into 4 groups by CPRA, survival decreased for each successively higher CPRA range (Figure, $p<0.001$). In particular, patients with CRPA of 75 to 100% had the lowest survival at 3 years.

Conclusions: CPRA is strongly associated with mortality on the HT waiting list. Clinicians should consider early waiting list addition or left ventricular assist device placement in these patients. Furthermore, new policies for donor heart allocation should be developed with the goal of improving equity and reducing death on the waiting list for sensitized patients.



Disclosure: Evan Kransdorf: No | Marcelo Pando: No
KEYWORDS: sensitised transplant recipient, sensitization, heart transplantation, organ allocation.

ABSTRACT # 39

Tissue Engineering: A New Promise for Organ Transplantation and the Start of a Banff Classification of Tissue Engineering Pathology.

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1. Laboratory Medicine and Pathology, University of Alberta, Edmonton, AB, Canada.

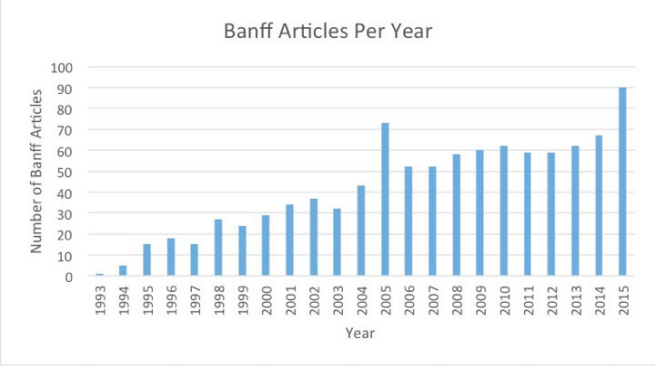
Background:
Despite the implementation of new criteria to increase the donor pool, increased donation awareness, extended donor criteria, and acceptance of "presumed consent", the number of patients on transplant waiting lists continues to grow. Regenerative medicine - tissue engineering transplantation, the use of various combinations of stem cell creation of organs, bio-artificial organs, ex vivo repair, and xenotransplantation to generate functional tissues or whole organs may hold the key to solving the organ shortage problem. The new Banff Classification of Tissue Engineering Pathology activities planned for 2017-2019 https://www.youtube.com/watch?v=LU4jRQRP-CU will help to determine what abnormalities of stem cell generated organs, decellurized and recellurized scaffolds, and bioartificial organ constructs can be safely implanted into patients. It will also provide the "common language" to bring more transplant physicians and surgeons on board in advancing the progress of regenerative medicine repair and de novo creation of organs to end the organ shortage worldwide.

Methods: The plan of the Banff Consensus Community is to organize formal sessions on Tissue Engineering Pathology at the 2017 and 2019 Banff meetings with the first classification available by 2021 at the latest. Once the regenerative medicine effort is successful transplantation will expand at least ten fold greatly benefitting both patients and transplant professionals. The upside far outweighs the downside, and the skills

transplant professionals already possess are much needed within regenerative medicine to make progress as quickly and wisely as possible.

Results: The Banff Transplant Pathology consensus process remains more relevant than ever. 2015 will see an estimated 90 Banff transplant papers, the most in any year since the classification began in 1991. With the advent of tissue engineering pathology publications will increase still further.

Conclusions: Looking back from the future, going the regenerative medicine route, which does not exclude the other near term initiatives discussed for solving the organ shortage, seems like an obvious next step. The lives of more than a million patients per year will be saved when we succeed and the organ shortage will end.



Banff papers.

Disclosure: Kim Solez: No | Khouloud Saliba: No
KEYWORDS: regenerative medicine, tissue engineering, pathology, Banff schema.

ABSTRACT # 40
Utilization of HCV-Positive Donors' Kidneys: Potential Benefits in the Era of Direct Acting Antiviral (DAA) Therapy.

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2. Department of Medicine, Division of Nephrology, Massachusetts General Hospital, Boston, MA, United States.
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Background: Organ shortage and expanding kidney waiting list fostered utilization of Hepatitis C Virus (HCV) positive donors' organs (HCVD+). HCVD+ kidneys have slightly worse long term outcomes compared with HCV- kidneys, but better outcomes compared to remaining on the waiting list. Using HCVD+ for HCV+ patients may shorten waiting times decreasing its mortality. Limited early data of novel HCV DAA therapy in this population is promising, and may improve HCVD+ outcome.

Methods: To evaluate HCVD+ kidney utilization and post-transplant HCV therapy, we retrospectively reviewed charts of kidney transplant recipients between 1/1/2010 and 8/31/2015 at our institution. Multi-organ and living donor transplants were excluded.

Results: Of the remaining 305 deceased donor transplants, only 15 (5%) were from HCVD+. HCVD+ kidney recipients' had shorter waiting time and mean KDPI of 46% (Table1 and Table2). All of the HCVD+ kidney recipients have functioning allografts. Neither HCV genotype switches, nor new infections were noted among recipients. Eleven (73%) had HCV treated post transplant with DAA. Five of those (46%) achieved sustained virologic response. Six remain on therapy. Four have not initiated treatment (Table2).

Conclusions: HCVD+ kidneys underutilization remains challenging at our institution and nationwide despite high quality of organs and documented good outcomes. According to Scientific Registry of Transplant Recipients, 2008-2012 data, 6.3% of deceased donor kidney recipients and 2.3% of deceased donors kidneys transplanted were HCV+, hence less than third of HCV+ recipients received HCVD+ kidneys. With new highly effective DAA therapies, HCVD+ may represent a safe resource to expand the donor pool for HCV+ recipients.

Table 1

Donor Data	Range	Mean	Median
Waiting Time HCV(+)	15-1971	784	634
Waiting Time HCV(-)	14-4940	994	884

Waiting time in days

TABLE 2

N	Tx Date	HCV GT pre-Tx	HCV GT post-Tx	Viral Load pre-Tx	Drug Therapy	HCV Status	Length of Therapy	KDPI
1	1/15/2014	1a	1a	1440000	Ledispavir/Sofosbuvir	SVR 12	12 weeks (failed IFN/RBV, co-infected with HIV)	32%
2	1/9/2014	1	NA	8970000	Ledispavir/Sofosbuvir	SVR 12	24 weeks (did not tolerate IFN/RBV)	74%
3	5/21/2013	1a	NA	7840000	Sofosvubir/Simrepivir	SVR 12	12 weeks (failed IFN-PEG/RBV)	30%
4	8/3/2014	2b	2b	22600000	Sofosvubir/RBV	SVR 12	12 weeks	43%
5	8/6/2013	1a	1	1390000	Ledispavir/Sofosbuvir	SVR 12	12 weeks	49%
6	11/29/2014	1b	1b	462000	Ledispavir/Sofosbuvir /RBV	On therapy	24 weeks (failed IFN/RBV)	47%
7	1/4/2015	1b	NA	1968963	Ledispavir/Sofosbuvir	On therapy	24 weeks	44%
8	6/23/2013	1a	1	2070000	Ledispavir/Sofosbuvir	On therapy	24 weeks	60%
9	1/25/2013	1a	1a	179000	Ledispavir/Sofosbuvir	On therapy	24 weeks (did not tolerate IFN/RBV)	34%
10	12/10/2013	1a	1a	2360000	Ledispavir/Sofosbuvir	On therapy	24 weeks (failed IFN/RBV/telapavir)	46%
11	1/30/2015	2	2	1790000	Sofosvubir/RBV	On therapy	24 weeks	20%
12	12/5/2014	1a	P	286000	None	Referred		68%
13	7/10/2015	1b	P	886000	None	Referred		50%
14	8/4/2015	1a	P	7140	None	Referred		58%
15	11/28/2013	1b	P	452000	None	Referred		38%

Legend: GT- genotype; **Tx**- Transplant, **NA**- Not Available, **P**- pending, will be available at the time of presentation, **SVR 12**-sustained virologic response at 12 weeks, **IFN**- interferon, **PEG**- pegylated, **RBV**- ribovarin

Disclosure: Beth Amundsen: No | Meghan Sise: No | Ming V Lin: No | Hany Deirawan: No | Elliot Heher: No | Brendan Kimball: No | James Markmann: No | Nahel Elias: No
KEYWORDS: hepatitis C virus, kidney transplantation, organ allocation, expanded criteria donors.

ABSTRACT # 41
Adverse Drug Reaction of Blackened Tongue to Oral Vancomycin Compounded Suspension
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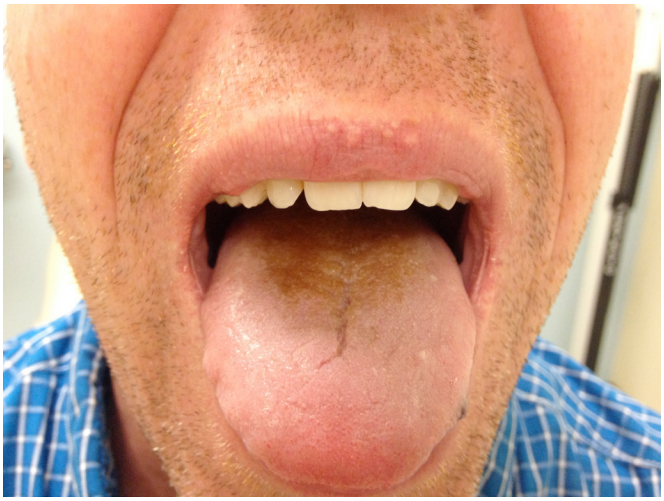
2. North Shore Transplant Center, Manhasset, NY, United States.

Background: Adverse drug reactions are common and often go unreported. Oral Vancomycin (Vancocin®) is a glycopeptide antibiotic used orally in the treatment of Clostridium Difficile. Vancomycin capsules are expensive, and rarely covered under prescription insurance, consequently, Vancomycin powder from intravenous formulation is used to compound a suspension.

Methods: CO is a 42 year old white male with a past medical history of hypertension and polycystic kidney disease, status post Living Unrelated Renal Transplant in October 2014. He was given Kidney Transplant induction immunosuppressive therapy with Antithymocyte Rabbit Globulin (Thymo®) and Methylprednisolone (Solumedol ®) and is maintained on Tacrolimus (Prograf ®) and Mycophenolic Acid (Myforytic ®.) Patient was admitted to the hospital on 5/7/2015 with gastroenteritis and complaints of frequent loose stools; greater than 7 daily. During admission he was diagnosed with Clostridium Difficile infection, after stool sample tested positive. He was started on oral Vancomycin suspension 250mg every 6 hours for 14-days.

Results: The patient was noted to have a blackened discoloration of his tongue shortly after starting therapy. The patient completed two weeks of oral therapy and was seen at Transplant Offices. Tongue discoloration was noted upon physical exam of the patient at the start of antibiotics and throughout therapy. It resolved at repeat check-up 1 week later. Patient was prescribed an additional 14-day course upon repeat check-up. Upon restarting the oral Vancomycin the the patient's blackened tongue returned. Patient denied any changes in taste. Patient also denied taking any over the counter products such as bismuth subsalicylate, gargling with peroxide, menthol or witch hazel which also cause blackened tongue.

Conclusions: Blackened tongue from oral Vancomycin is a previously unreported adverse reaction and should be published to alert future patients of the potential side effect. The blackened tongue resolved upon discontinuation of oral therapy, and reoccurred when therapy was restarted. There were no other changes in the patient's medication regimen.



Vanco Induced Blackened Tongue

Disclosure: Antonette Flecha: No | Ernesto Molmenti: No | Madhu Bhaskaran: No | Bishoy Luka: No | Mabel Wai: No
KEYWORDS: immunosuppression, infectious diseases, rabbit anti-thymocyte globulin, kidney transplantation.

ABSTRACT # 42
Is Donor Service Area market competition associated with Organ Procurement Organization performance?
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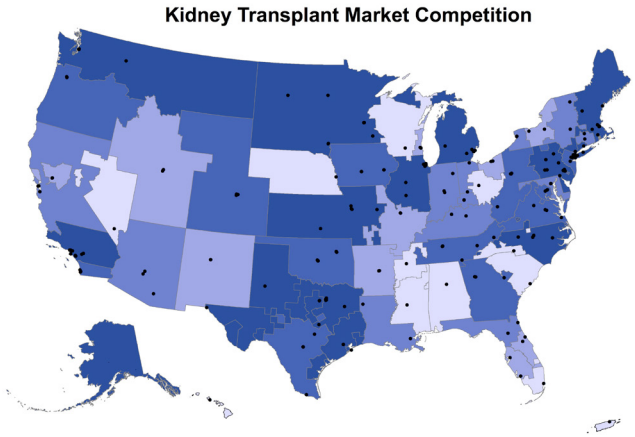
Background: Organ Procurement Organizations (OPO) are currently evaluated on donation rates and number of organs per donor. However, there is significant variability in market characteristics that affect transplant programs' donor organ acceptance practices and OPOs ability to successfully place higher risk organs. The impact of transplant market characteristics on OPO performance metrics has not been evaluated.

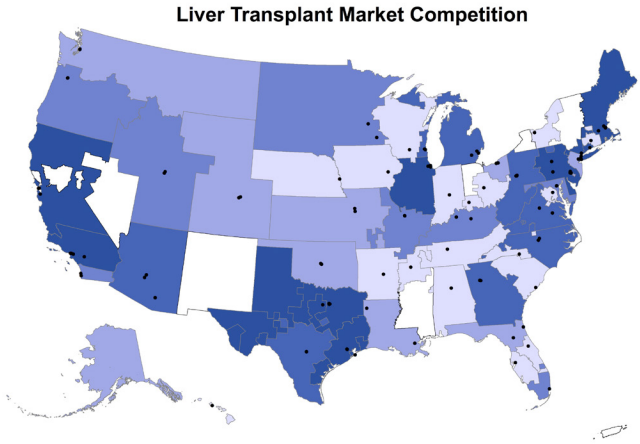
Methods: OPO performance measures were correlated annually with the Herfindahl Hirschman Index (HHI), a standard measure of market competition for centers within the OPO Donor Service Areas (DSA) from 2003-2011.

Results: Market competition varied widely across the country (Figures 1 and 2). More competitive DSAs were associated with increased number of donors ($P = 0.01$) and eligible deaths ($P < 0.001$). Market competition was associated with increased use of high donor risk index (DRI) for kidney ($P = 0.03$) and liver ($P = 0.01$) allografts. OPOs with increased competition in

liver transplant also were noted to have a higher donor conversion rate ($P < 0.001$), more donors per million population ($P < 0.001$), and a higher utilization rate for liver allografts ($P = 0.007$).

Conclusions: These data suggest that proposals to increase district size to increase competition among transplant programs could result in improved organ utilization over time by incentivizing the use of marginal donor organs and increasing access to transplantation.





Disclosure: Joel Adler: No | Heidi Yeh: No | James Markmann: No | David Axelrod: No
KEYWORDS: organ allocation, deceased donor organs, public policy, kidney allocation.

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