



April 8, 2017

DAILY *Links*

37th Annual Meeting & Scientific Sessions Manchester Grand Hyatt, San Diego, CA

Today's Closing Plenary Session

The annual meeting is coming to an end. The closing plenary session chaired by Andrew J. Fisher, MD, PhD FRCP, and Christian Benden, MD, FCCP, will begin with the awards presentation highlighting all awards and this year's winning projects. The invited lecture will be presented by Roger M Stein, PhD, from the Laboratory for Financial Engineering from the Massachusetts Institute of Technology (MIT), Boston. He will talk about "Using the Financial Markets to Fund Early-Stage Drug Development". Dr. Stein has been working with several colleagues at MIT to develop new financing methods for early-stage drug development. The early-stage juncture in the drug development process is particularly difficult to fund because the risk of failure is high and the horizon of the required investment is often long. Stein and his colleagues have developed a number of approaches that apply financial engineering techniques to this problem.

The highlighted abstract will be presented by Dr. Ambardekar representing the MedaMACS investigators entitled "Advanced Therapy Utilization and Survival in Ambulatory Patients with Advanced Heart Failure: Results from the Medical Arm of Mechanically Assisted Circulatory Support (MedaMACS) Registry". Integral to the original intent of INTERMACS was a comparison to ambulatory patients living with advanced heart failure who are not currently receiving MCS. Until now, the lack of information on outcomes with continued medical therapy has limited the ability to advance indications for MCS into the "less sick". But there are also factors beyond survival alone. In this study all these aspect will be covered.

Last but not least past presidents Lori J West, MD, DPhil, and Allan R Glanville, MBBS, MD, FRACP, will debate "We Must Take Greater Risks for the Sake of Our Patients!" Don't miss this great session!

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Is There Light at the End of the Rejection Tunnel?

Preview Sunrise Symposium 15

Extracorporeal Photopheresis: Shedding Light on Rejection

Open those curtains and let the sunlight in early on the last day of the ISHLT 2017. This sunrise symposium about extracorporeal photopheresis (ECP) is a *must attend* session for the cardiothoracic clinician dealing with rejection. Under the view of Benden and Morrell the session will explore the mechanisms and clinical indications for ECP. The aim is to increase the clinicians understanding of the possible positive effects and whether it can be incorporated in the arsenal of therapies in cardiothoracic transplantation. Doctor Adamski will view the mechanisms of ECP and review commonly used protocols in clinical practice. Doctor Zuckermann from Vienna will provide a torch on how the underlying type of chronic lung allograft dysfunction affects response to therapy then speculate on why restrictive lung allograft dysfunction might be resistant to this form of therapy. The session will end with a presentation of doctor Greer from Hannover showing the potential role of ECP in treating acute rejection as well as a treatment for prevention from chronic rejection in lung transplant recipients. So take this opportunity to be enlightened about ECP in cardiothoracic transplantation.

Prostitution, IV Street Drugs, Jail Time: To Use or Not to Use High Risk Donors, That is the Question

Review Oral Session 22

Does Risk Reap Reward? Expanding the Heart Donor Pool

Dr. Lyengar from the University of California Los Angeles had an enlightening talk on expanding the donor pool using CDC high risk donors. Donors that were categorized as high risk were compared to standard donors. In general, there are more recipients listed for needing available organ donors than there are donors available. This is an ongoing issue in transplantation. To assist in not wasting such a scarce resource, centers are challenged with accessing all available options to help to give our potential recipients a second chance at life.

In 2004, UNOS applied "high risk donor" designation based on the CDC high risk behavior for infection. In this particular study, there were 86% standard donors compared to 14% CDC donors. Overtime the availability of CDC donors has in fact increased. Of this population, there tend to be more males than females. The cause of death is cardiovascular in both the CDC and the standard group. The CDC group tended toward slightly younger donors with less stroke history making this group potentially great donors, aside from the infection risk.

The results showed no significant survival difference noted among all donors. This donor population is allocated to the sicker population with likely status 1A patients or those with a high LAS score and have not led to significant differences



in mortality. If the option is death on the waiting list versus the risk in the use of a CDC donor it may be beneficial to consider all donors given the results of this study supporting the use.

Education, Adherence and Activity 2.0

Review Oral Session 31

Saved by the Bell:

Overcoming Adherence and Frailty

We all know the importance of ongoing education in improving adherence and long term outcomes in our transplant patients.

Information technology (IT), like web based education programs and cell phone apps, are becoming more

popular in today's healthcare environment. Haifa Lyster, MSc, presented data from a pilot observation study utilizing an iTunes U course with their post-transplant patients to improve medication knowledge.

Sabina De Geest, RN, PhD, shared a secondary data analysis of the international BRIGHT study, with a focus on practice patterns regarding medication adherence assessment and interventions at different points throughout the care continuum. Mohammad Alrawashdeh, MSN, PhD, discussed his center's data around the dynamic between attitudes on self-care and adherence to exercise in patients during the first year post-lung transplant.

Kanchana Wijesekera, PhD, provided information on pediatric medical traumatic stress, reported in up to 29% in organ transplant patients and up to 58% in their parents. In order to enhance resilience within their patients and families, her center has deployed the Families OverComing Under Stress (FOCUS) program. Using iPad technology, this allows for real time, customized screening and interventions during their clinic visit.

Rebecca Kelly discussed the importance of physical activity post heart transplant. Her center's study utilized a combination of wristband fitness trackers, six minute walk test (6MWT) and quadriceps muscle strength to look at physical activity in stable, post-heart transplant patients. Martha Abshire, MS, RN, shared the impact of psychosocial stressors experienced by patients with a Left Ventricular Assist Device (LVAD) on Quality of Life (QoL).

Sildenafil to prevent thrombotic events with LVADs

Review Oral Session 21

New Fixes for an Old Problem: Preventing, Diagnosing and Treating Pump Thrombosis

Low-level hemolysis at the time of hospital discharge after LVAD implantation has been associated with subsequent thrombosis. Plasma free hemoglobin from ongoing hemolysis



scavenges nitric oxide (NO) causing a relative NO deficiency. Such deficiency results in platelet aggregation and ultimately thrombosis.

Sildenafil, a phosphodiesterase-5 inhibitor potentiates NO signaling and therefore can reduce platelet aggregation. In Friday morning's session, Dr. Omar Saeed from Albert Einstein College of Medicine in NY presented a retrospective analysis on the use of sildenafil in patients implanted with a HMII device from January 2010 to December 2016.

They identified 39 patients who were discharged after HMII implant with low-level hemolysis (LDH >400 U/dL) with 13 patients who were on sildenafil for other indications. Baseline characteristics were similar between groups with ~25% female, ~10% with a history of stroke, and nearly all patients were on aspirin and warfarin with no difference in INR between groups (goal INR 2-3 at the study center). The mean dose of sildenafil in the treatment group was about 30 mg every 8 hours. Only one patient in the sildenafil group (7%) had a thrombotic event (pump thrombosis) compared to 9 patients in the control group (35%, 6 ischemic strokes and 3 pump thrombosis). From this, Dr. Saeed concluded that sildenafil may be associated with a reduction in the risk of thrombotic events in patients with LVADs but of course larger randomized trials are needed.



What
difference a
year
makes!



Octreotide for the LVAD Associated GI Ooze

Review Oral Session 27, 309

Octreotide Reduces the Reoccurrence of Ventricular Assist Device Related Gastrointestinal Bleeding

Gastrointestinal bleeding is a frequent complication of LVADs. Octreotide has been used for treatment of other types of GI bleeds. There have been several case reports and small studies evaluating the use of octreotide for patients with LVAD associated GI bleeding with some promising results. In Friday morning's oral session "The Leaking Gut – New Strategies for GI bleeding in MCS", Dr. Keyur Shah of Virginia Commonwealth University in Richmond, VA, presented a retrospective analysis of outpatient administration of octreotide to prevent recurrent GI bleeding in patients with LVADs.

The study enrolled 51 patients with a HMII device from 5 centers in the US who were admitted for a GI bleed from 2009-2015. All patients received either octreotide LAR (62%) or daily subcutaneous octreotide (38%) for a median of 34 days after hospital discharge (IQR 3-196). They compared the re-bleeding rate in this study to a historical cohort of 240 patients from the HMII clinical trials (control) who experienced a GI bleed from 2005-2011. They found that patients in the octreotide treatment group had significantly lower rates of GI re-bleeding at 6 months compared to those in the historical control group (24% vs 40%, $p=0.026$). Of note, the index event (GI bleed) was the first GI bleed for 100% of patients in the historical control group compared to only 67% in the octreotide group.

While this study was not without limitations (i.e. retrospective analysis, used a historical cohort as control, difference in history of GI bleed between groups), the results seem promising and a larger, well-designed, randomized control trial would be helpful to truly evaluate this therapy. What were Dr. Shah's recommendations for octreotide formulation and duration? He recommended octreotide LAR (if cost allows) due to better patient compliance and a duration of up to 6 months if possible.

Living Outside the Box

In the spirit of "we're all in this together," I always enjoy attending sessions that are outside my specialty. Today was no exception. I started my morning off at Sunrise Symposium 12, "HIV and Transplantation: It Isn't Going Away." This was a phenomenal, multidisciplinary symposium sponsored by the Pharmacy Council that went far beyond the candidacy of HIV+ individuals for heart and lung transplantation. Marco Masetti and Robert Frantz described the cardiac and pulmonary complications of chronic HIV infection, respectively, and highlighted that these can occur despite adequate virologic control. There is so much more to learn about chronic inflammation! Tina Stosor then discussed considerations for HIV+ patients undergoing evaluation for thoracic transplantation from an ID perspective, recommended criteria for transplantation in HIV, and provided a framework for post-transplant monitoring of HIV+ recipients. Christine Hui closed with an excellent discussion about the balancing act between immunosuppressants, antiretrovirals, and prophylactic medications.

I then moved on to Oral Session 29, "Donor Utilization and Allocation in Heart Transplantation: Lessons to Learn." I've always found the topic fascinating. Kiran Khush described the variability in donor heart acceptance practices across the United States, and David Baran followed with a discussion about the differing donor acceptance and utilization practices across regions 2, 5, and 9. He won quote of the day with "Necessity is the mother of invention...MacGyver is the father."

David Morales then asked whether there is an optimal acceptance rate for adult transplant centers (it appears to be $\geq 10\%$) and Raymond Givens described the trends in simultaneous heart-kidney



transplantation. We learned about the implications of the new heart allocation system on patients with restrictive cardiomyopathy from Lakshmi Sridharan, and David Tryon closed with a study showing that donor hearts with LV dysfunction remain underutilized.

Thanks to all for such a wonderful meeting! As always, I leave inspired by colleagues across all disciplines, and I have certainly taken away invaluable information and insight that will help me better serve my patients. That's what it's all about at the end of the day.

How to Increase the Donor Pool

Review Oral Session 37, 366

Impact of donor characteristics on lung transplant outcome

The interesting field of lung transplant medicine was nicely demonstrated by the content of the session. Doctor Zych showed ten years of single center experience on lungs from controlled DCD, which contribute significantly in expanding of available donor pool. Very good long-term results comparable to standard DBD approach reassure implementation of this technique to standard lung transplant practice. In addition a multicenter study, also on DCD donors, was presented by Levvey. Extended donation after DCD category 3 agonal and post-mortem warm ischemic times do not affect early mortality. Current experience with DCD category 3 lung transplantation does not show a relation between the duration of donor agonal phase and early survival.

These results suggest the true limits of clinical DCD allograft warm ischemic times are yet to be reached. Global variations in clinical DCD practice are apparent. Continued accurate recording and analyses of DCD processes is warranted.

Furthermore, Doctor Egan presented the Australian experience with lungs that recovered from uncontrolled DCD donors and assessed by EVLP. Lungs availability is limited by logistical problems, and medical contraindications of uncontrolled DCD donors. Although no lungs were transplanted, they learned how to address many logistical challenges. Uncontrolled DCD donors could help alleviate the shortage of lungs for transplant. Better understanding and utilization of first person authorization might improve recovery of lungs from uncontrolled DCD donors and reduce ischemic time.

These studies show that the lung transplant community is trying to give DCD donors a chance, in order to increase donors.

*From the breezy Pacific coast to the calm azure of the
Mediterranean...*

See you in Nice #ISHLT2018!

2017 Award Candidates

Philip K Caves Award:

Stephen Chiu, MD

Zhiyi Liu, MD

Corey Tabit, MD, MBA, MPH

Yoshito Yamada, MD, PhD

Arainda Page, MBBChir, MRCS

Alyajahan Bhimji, PhD

Junior Faculty Clinical Case Dilemmas in Thoracic Transplantation Award:

Danielle Burstein, MD

Robert Gottlieb, MD, PhD

Rebecca Cogswell, MD

Sophia Airhart, MD

Yael Peled, MD

Gregory Calligaro, MD

Nursing, Health Sciences and Allied Health Excellence in Research Award:

Maral Bakir, RN, BS, PHN

Newsletter Editor:

Vincent Valentine, MD

Newsletter Coordinators:

Lauren Daniels and Naomi Rios

Roving Reporters:

Heart Failure and Transplantation:

Alexander Bernhardt, MD

University Heart Center Hamburg, Hamburg, Germany

Lung Failure and Transplantation:

Tji Gan, MD, PhD

University Medical Center Groningen, Groningen, The Netherlands

Pharmacy and Pharmacology:

Cassandra Baker, PharmD, BCPS

Virginia Commonwealth University Health System, Richmond, VA, USA

Nursing, Allied Health, PH, Infectious Diseases, Misc:

Emily Stimpson, MSN, RN, CCTC

Cedar Sinai Medical Center, Los Angeles, CA, USA

Erin Wells, BSN, RN, CCTC, CPN

Northwestern Medicine, Chicago, IL, USA

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