DAILY LINKS

34th Annual Meeting & Scientific Sessions

April 10th - 14th, 2014 San Diego, California

@ISHLT

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Schedule at a Glance:
Saturday April 12th

7:00 AM - 8:00 AM

SUNRISE SYMPOSIUM 6: *The Aortic Valve – An Open and Shut Case? (Grand Hall A)*

SUNRISE SYMPOSIUM 7: *The Effects of Prostaglandin Therapy in Pulmonary Arterial Hypertension: The Seen and Unseen Risk/ Benefit Profile (Grand Hall B)*

SUNRISE SYMPOSIUM 8: *Exercise Training in Heart Transplantation (Grand Hall C)*

SUNRISE SYMPOSIUM 9: *CMV Infection in Lung Transplant Recipients: Are We Ready for Personalized Medicine? (Grand Hall D)*

SUNRISE SYMPOSIUM 10: *Exploring Interactions Between Cellular and Humoral Immunity in Cardiac Allograft Rejection (Seaport H)*

8:00 AM – 10:00 AM

PLENARY SESSION (Seaport)

Review: *The Early Bird Rises to the Challenge*

Friday at daybreak, I tiptoed over to San Diego Bay in a dreamlike peaceful manner. Why am I up so early? It's highly recommended for anyone travelling internationally who is expected to show up at work attentive and alert at 7 a.m. to "jet lag" yourself a little bit with a preparatory long-haul flight 1-2 days in advance. So as I was listening to birds singing during my morning jog at 5 a.m. I knew I was in fact jetlagged. However, I knew this was not going to keep me from attending an early morning session as I get to experience cutting edge discussions in my medical field. In fact, if there are any headhunters out there looking for a nomadic surgical trainee for a split-week post in Europe/North America/Asia I am your man! (Cont'd)

Back to the topic at hand. A complete North American roster of junior presenters and senior experts showed up notably rested, prepared and eager for the kick-off **Sunrise Symposium 2: Under too much Pressure: Challenging Cases in Pulmonary Hypertension Management.** With three well-selected cases of challenging pulmonary hypertension patients, the junior physicians succeeded with the difficult task of setting up for a very fruitful yet early discussion between the invited expert panel and early bird specialists in the auditorium.

Dr. Amit Banga from Cleveland presented a case depicting the difficulties of combatting high PVRs in hypertrophic cardiomyopathy transplant candidates. This was skillfully tackled by the senior colleague Dr. Adaani Frost on the topic of balancing right and left ventricular function and clearly defining the cause of the pulmonary hypertension to be able to target the intervention toward preload, afterload, or the pulmonary vasculature.

Dr. Kerri Akaya Smith then presented a case of the ill-defined patient group suffering from pulmonary hypertension at exertion, with a following discussion and consensus on the appropriateness of not hurrying with the diagnosis labeling in these often otherwise healthy patients, but to instead offer a generous follow-up strategy.

Finally, Dr. Mitesh Thakrar from Calgary portrayed the challenges in the optimization of patients awaiting a liver transplant with pulmonary hypertension, with the balance between hypo perfusion, control of the pulmonary hypertension and vascular resistance, and the occasional massive cardiac output seen in these patients with port pulmonary hypertension. Well done Docs a 5+ symposium!

Review: *I Thought This was a Rock Concert*

When I was first assigned this **Pre-Meeting Symposium 20: Pulmonary Hypertension in Left Heart Disease, "WHO Group 2 PH,"** I thought I was going to meet Roger Daltry. Imagine my surprise to find Howard Eisen, my mentor and program chair, overseeing a session on pulmonary hypertension. Alas, instead of rocking out to "My Generation" I had to muster the energy this late in the day and on my fourth consecutive session to get excited about DPGs and PAWPs.

Dr. Galie started the conversation off reviewing new definitions and terminology recently decided on at a recent consensus panel. He reviewed the need to clarify terminology, and to ensure we the audience are focused solely (Cont'd)

10:00 AM – 10:30 AM

Coffee Break/Visit Exhibits (Harbor A-F)

View Posters (Harbor and Seaport Foyers)

10:00 AM – 4:00 PM

Exhibit Hall Open

10:00 AM – 6:30 PM

Posters Open

10:30 AM – NOON

CONCURRENT SESSION 19: Mechanical Circulatory Support: Optimizing Outcomes II (Seaport)

CONCURRENT SESSION 20: *Mechanical Circulatory Support: Getting Down to the Science of VAD Support (Grand Hall A)*

CONCURRENT SESSION 21: *Adult Heart Failure: Drugs and Devices (Grand Hall B)*

CONCURRENT SESSION 22: *Frailty, Body Composition and Coronary Disease: Pushing the Limits of Recipient Selection (Grand Hall C)*

CONCURRENT SESSION 23: *A Fresh Look at Lung Allograft Dysfunction – What the Bench is Telling Us (Grand Hall D)*

CONCURRENT SESSION 24: *Much Ado About Nothing? (New Approaches to Immune Monitoring in Heart Transplantation) (Harbor GHI)*

CONCURRENT SYMPOSIUM 28: *JHLT at ISHLT: The Year in Capsule (Seaport H)*

CONCURRENT ABSTRACT SESSIONS

NOON – 2:00 PM

Lunch Break

on WHO Class 2 pulmonary hypertension due to failing of the left heart, particularly as this comprises of 80 percent of all pulmonary hypertension cases worldwide. Using new terminology, focusing on isolated post capillary pulmonary hypertension and combined post and pre-capillary hypertension, he set the groundwork for the following presenters.

Dr. Myung Park provided some of the data behind assessment of diastolic pulmonary gradients and its role in assessing pulmonary hypertension due to left heart failure. Despite the attractiveness of this concept, it seems that little data bears out its usefulness in predicting outcomes after VAD or Transplant. Perhaps when used as part of a composite assessment with other useful parameters it can still play a key role in RV and transplant studies.

Dr. James Fang furthered the discussion on pulmonary hypertension reviewing many of the benefits and limitations of current values we use every day such as PVR. He pointed out parameters such as RV stroke work index and perhaps simple measurements such as CVP that when done right and measured accurately can provide the best markers of success with VAD and transplant. He advocates for a milrinone bolus during right heart catheterization to assess RV compliance that may be better then any marker.

Finally, Dr. Robert Frantz presented some novel therapeutic options for these difficult patients as we try to get them to successful transplant or VAD placement. I think the most important take home point from his discussion was to treat the underlying problem, i.e., treat the left heart failure, diurese aggressively, and use hemodynamic monitoring to aid in treatment. Many novel therapies have been handicapped by premature study termination, or by failing to demonstrate true survival benefit, but tried and true therapies like ace inhibitors can still help these patients regardless of the pulmonary pressure.

As Roger Daltry would say, the next time I see a case of WHO Class 2 pulmonary hypertension I "Wont Get Fooled Again." Now time to get some dinner with 'My Generation."

Review: *A Road Less Traveled*

After a much-appreciated symposium taking us through the lifespan of a cystic fibrosis patient, this multidisciplinary "Lifecycle Journey" concept seems to be established and here to stay. Instead of a classic case report followed by a panel discussion, this series was intended to be a sort of practical integrated hybrid, portraying a patient's journey through life with specialist discussions on best clinical practice scattered along the way.

At this year's **Concurrent Symposium 25: A Lifecycle Journey in Pulmonary Hypertension**, the focus was set on a 17-year-old female patient presenting with rapidly deteriorating severe pulmonary hypertension on top of an HIV infection and previous substance abuse. (Cont'd) Dr. James Coons kept the audience on track with a flowing case presentation, which was often interrupted by Dr. Jean Luc Vachiery, Dr. Patricia Ging, Professor Patricia Uber, and Dr. Francis Pagani who added their individual expert knowledge at key journey intervals. Even though an even more homogenous and case concentrated presentation would have been stimulating, this new format concept was innovative and is here to stay for sure!

Jumping on the Government Bandwagon — *It's NOT What You Think*

Have you heard about the kid named Suvir Mirchandani who has figured out how to save organizations including our government thousands of dollars? Well hold on to your seats because this 14 year old is brilliant! Noticing that the number of handouts he was receiving had increased as he was advancing in school, Mirchandani knew there had to be way he could cut down on the constant flurry of ink that was used for these so called important handouts, as well as save the district some cash.

After some research, he concluded that ink by the ounce is more expensive than French perfume. Chanel No. 5 cost $38 an ounce, while the equivalent amount of Hewlett-Packard printer ink can cost up to $75.

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2:00 PM – 3:30 PM

CONCURRENT SESSION 25:*Tackling Bad VAD Situations: Penalty or Score?*
(Grand Hall A)

CONCURRENT SESSION 26: *How to Live Better with an LVAD*
(Grand Hall B)

CONCURRENT SESSION 27: *All's Well that Ends Well? What we can learn from Heart Transplant Registries*
(Grand Hall C)

CONCURRENT SESSION 28: *Diagnosis and Monitoring of Pulmonary Hypertension*
(Grand Hall D)

CONCURRENT SYMPOSIUM 29: *Approach to the Highly Sensitized Patient Awaiting Heart Transplantation*
(Harbor GHI)

CONCURRENT SESSION: 29: *Lung Donation: Take It to the Limits*
(Seaport H)

CONCURRENT SESSION 30: *Phillip K. caves Award Candidate Presentations*
(Gaslamp AB)

CONCURRENT SYMPOSIUM 30: *Controversies in Listing Children for Thoracic Organ Transplant*
(Gaslamp CD)

3:30 PM – 4:00 PM

Coffee Break/Visit Exhibits
(Harbor A-F)

View Posters
(Harbor and Seaport Foyers)

4:00 PM – 5:30 PM

CONCURRENT SESSION 31: *Building the Bridge to Transplant:Old Challenges, New Solutions*
(Grand Hall A)

CONCURRENT SESSION 32: *Mechanical Circulatory Support: Is the Outcome Worth the Cost?*
(Grand Hall B)

CONCURRENT SESSION 33: *A Midsummer Night's Dream (Potential Improvements in Outcomes After Cardiac Transplantation)*
(Grand Hall C)

Now that's something to ponder. So Mirchandani decided to find a solution to this problem for his middle school science project.

Collecting several teachers' handouts, Suvir focused on the most commonly used characters (e, t, a, o and r). First, he charted how often each character was used in four different typefaces: Garamond, Times New Roman, Century Gothic and Comic Sans. Then he measured how much ink was used for each letter, using some sort of fancy software. Next he enlarged the letters, printed them and cut them out on cardstock paper to weigh them to verify his findings.

From this analysis, he figured out that by using Garamond with its thinner strokes, his school district could reduce its ink consumption by 24%, and in turn save as much as $21,000 annually.

Then somehow the Journal of Emerging Investigators (JEI) from Harvard heard about his research and decided to help Mirchandani take this to the next level and apply this knowledge to the federal government.

Using the General Services Administration's (GSA) estimated annual cost of ink - $467 million – they concluded that if the federal government used Garamond exclusively it could save nearly 30% -- or $136 million per year. An additional $234 million could be saved annually if state governments also jumped on board, they reported.

So now the government is jumping on board and so are we. Did you notice the newsletter has a new font? We are on board with the government. UH-OH!

Review: *En Fuego:* *The Latin American Transplant Experience*

In the first of its kind session, the ISHLT provided a great forum to voice growing concerns in heart and lung transplant in the developing world and allow members of the organization to highlight "the good, the bad, and the ugly" of transplants, in this growing region of the world, Latin America. **The Concurrent Symposium 27: Heart Transplantation and Mechanical Circulatory Support (MCS)** in Latin America session kicked off with an introduction by former ISHLT President Lori West explaining why this session was necessary and the potential for growth at future meetings of these types of sessions.
Dr. Mejia opened the session highlighting the challenges facing Latin American countries as transplant and MCS continues to grow worldwide. It became painfully clear that these resources are greatly limited due to numerous reasons in these countries and that just a few centers in each country control the majority of transplants. That said Latin American countries have some of the lowest rates of transplantation per million population of any country in the world. Dr. Mejia was able to highlight several key areas that might improve these numbers including improved multidisciplinary teams and consulting centers that can help in expertise, as well as a need to better preserve/aid in harvesting donor grafts.

Dr. Bacal then focused a bit on the epidemiology of heart failure in Latin America, particularly highlighting the role Chagas' disease plays in heart failure, in these countries. It is important to make this distinction as he points out, because while these patients have much worse prognosis then other forms of heart failure such as ischemia, patients that do receive a transplant do much better post transplant with improved survival. One risk is reactivation of disease, which if monitored for closely can be aggressively treated, and perhaps requires a change in immunosuppression including the use of azathioprine instead of mycophenolate which is a different protocol than many Western countries use that don't contend with Chagas' disease.

Dr. Duran then shared his experience with a difficult patient with decompensated heart failure, and shared how limited access to transplant and MCS in his country led to a different approach to bridging support using a Vitacor paracorpeal pneumatic pump to support the patient until he was able to be transplanted. It was a very unique concept, and while the patient sadly died in the peri-transplant period, it shed light on a potential cheaper MCS device that can be used in the developing world.

Dr. Villavicencio took this discussion one step further and shared his broader experience with managing cardiogenic shock in Latin America where limits to traditional LVADs and transplant make it difficult to manage these patients. He demonstrated his experience with the Centrimag device, which is much cheaper and more accessible, and through a tightly controlled protocol allows the patient to ambulate and perform ADLs while in the hospital waiting for a heart. He has outstanding results with the use of this device and offers that it may offer a tremendous advantage in countries with limited resources for cardiogenic shock patients.

The session closed with two great presentations by Dr. Favaloro and Dr. Colafranceschi sharing long term results in Latin America from patients with transplant and MCS respectively. The overarching themes of these talks, were that while numbers are small, and the learning curve is steep, the trends are demonstrating that this is a growing field in Latin America and that continued

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CONCURRENT SESSION 34: *Chronic Lung Allograft Dysfunction: Mechanisms (Grand Hall D)*

CONCURRENT SESSION 35: *Alternative Resources for Organs (Harbor GHI)*

CONCURRENT SESSION 36: *Long-Term Outcomes in Pediatric Heart Transplantation (Seaport H)*

CONCURRENT SESSION 37: *Heart and Lung Transplant Pathology (Gas lamp AB)*

CONCURRENT SESSION 38: *Innovative Pharmacotherapeutic Approaches to Thoracic Transplant and Mechanically Assisted Patients (Gaslamp CD)*

4:00 PM – 5:30 PM

MINI ORAL SESSION 7: *Improving the Heart Donor (Grand Hall A)*

MINI ORAL SESSION 8: *Immunology and the Child in Heart Transplantation Gaslamp AM)*

MINI ORAL SESSION 9: *Quality of Life, Ethics, Policy and Economics in MCS and Thoracic Transplant (Gaslamp CD)*

MINI ORAL SESSION 10: *VADs gone bad, Complications after MCS (Grand Hall B)*

MINI ORAL SESSION 11: *Heart Transplant: Monitoring and Immunosuppression (Grand Hall C)*

MINI ORAL SESSION 12: *Lung Transplant: Candidate Seletiona nd Genetic Variation (Seaport H)*

5:30 PM – 6:30 PM

General Poster Viewing

7:30 PM – 9:00 PM

PRESIDENT'S GALA RECEPTION

support and lobbying will be necessary for these to be viable fields in Latin America in the future.

Following these presentations, there was a great deal of interest by the audience, and numerous statements of support were made by members from all over the world. There was a strong sense of urgency that the ISHLT should play an active role in lobbying national governments and provide education and data demonstrating the necessity of advanced cardiac support to countries and patients in need around the world. It was made abundantly clear that such international issues will play a prominent role at next years meeting in

Review: *Fear the Biofilm*

This afternoon's **Concurrent Symposium 26: "Infections in Mechanical Circulatory Support Devices – Understanding and Conquering the Beast** provided a harrowing and eye-opening look at what we are up against as we help our LVAD patients with long-term survival. The session started off with a great case presentation that we are all too familiar with, provided by Dr. Pavan Atluri, of the unfortunate gentleman who presented with MRSA bacteremia six months after LVAD placement. After multiple treatments were provided including surgical intervention, the patient presented with bacteremia again and will require lifelong antibiotics. This provided a great opening to our next speaker who explained why we are confronted with such difficult cases in our clinical practice.

Now normally I don't offer much praise to folks from Boston, as I myself am a lifelong Yankees fan, but Dr. Robert Padera provided great insight into the LVAD infection quandary. His talk on "Biofilm Basics" provided a kind of "biofilm 101" on what a biofilm is, and why we have such difficulty treating it. The biofilm is the product of 3.5 billion years of bacteria evolution to protect itself in the environment it lives. In a simple five-step diagram, Dr. Padera demonstrated how attachment and production of an extracellular matrix leads to the development of an early biofilm within minutes of a bacteria touching down on a surface, which then organizes into a mature biofilm from which further bacteria can reproduce and disperse into the host (our LVAD patient!). Breaking through or dissolving this biofilm sadly does not solve the problem as a few select "persister cells" bacteria manage to stick around, and as soon as the offending agents (our antibiotics) are removed, these little suckers rev back up again and infect our patient. As Dr. Padera pointed out, this will remain an ongoing problem as long as LVADs are in use and will likely require a multifactorial approach to treat and ultimately solve this problem.

Linda Staley, an LVAD coordinator at the Mayo Clinic, then took to the stage and offered insight into managing patient drivelines, and how to aggressively manage and triage any issues that can arise with the driveline. She reviewed a great four-stage assessment that patients, family and clinicians alike can use to help quantify the degree of inflammation/infection seen at the driveline site. She reviewed some great techniques to prevent infections as well, including pre-surgery selection of driveline sites by the patient and some simple dressing change protocols in place to maximize sterility and ease of use for the patient.

Dr. Margaret Hannan was tasked with outlining what an LVAD infection actually is, and did an outstanding job outlining terminology and standardization that is being applied through the IMAC database to ensure proper reporting and descriptions of LVAD infections. She also reviewed an LVAD "Duke's Criteria" type approach to work up and diagnose LVAD infections including labs, imaging and clinical picture which will be very useful in patient management.

Unfortunately, Dr. Benjamin Medalion could not make it to his talk, as he was in a helicopter over Israel saving a patient's life with ECMO. Thus, his partner was able to fill in and provide an overview to surgical approaches to driveline and pump infections. He reviewed several cases from his hospital and demonstrated different surgical techniques that can be used to salvage existing pumps, and how to approach reimplants. The pictures were gruesome, but the results were outstanding. Luckily I had a light lunch.

Finally, Dr. Matthew Romano provided insight into LVAD imaging techniques that can help evaluate driveline and pump infections. His work up often includes a simple ultrasound to start with to evaluate for fluid collections that can be tapped for cultures. He will then follow with a CT scan for further evaluation. While little data exists on the use of PET or WBC scans, he shared some of his experience with these imaging modalities and demonstrated how they may be useful with further study.

This was a great session, with many thought provoking questions posed to the presenters after thier talks, and it is clear this will be an ongoing field that will require a lot of research, time and cost to solve.