HISTORY IN THE MAKING

James K. Kirklin, MD, President ISHLT (2009-2010)

The 2010 ISHLT annual meeting in Chicago (April 21-24) marks an historic occasion, the 30th Anniversary of ISHLT. In addition to our usual primary focus on the highest quality scientific abstracts, the meeting will also feature a running commentary on our history based on audio and video recordings of interviews with key pioneers and historical figures in the field of heart and lung transplantation and mechanical circulatory support. We intend for this to provide the genesis of an ongoing archive of interviews with pioneers, past presidents, and key contributors that will enrich the culture of each annual meeting.

In keeping with this special occasion of our 30th Anniversary, the fourth volume of the ISHLT Monograph Series has been dedicated to the History of ISHLT. This monograph will contain colorful narratives of the events and individuals who paved the way for the first human heart transplant and other historic events, discussions of the birth of ISHLT, descriptions of major milestones in the field, and commentary by past presidents and other key individuals who helped shape the Society. The ISHLT History Monograph will be completed in time for distribution at the 2010 meeting. I might also mention the outstanding contributions of authors from our Society to the first three monographs (Mechanical Circulatory Support, Pediatric Heart Transplantation, and Advanced Heart Failure). These mini-textbooks have been very well received, and in response to the demand for additional copies, a second printing is planned for the first monograph on Mechanical Circulatory Support. A limited number of copies are available for the second and third monographs, which can be ordered through Amanda Rowe, Executive Director. The Scientific Councils are currently busy planning the content for subsequent volumes of the monograph series. Our Society has always taken great pride in our Journal (the Journal of Heart and Lung Transplantation), and we are extremely fortunate to have the Journal under the dynamic leadership of Dr. Mandeep Mehra. One indicator of any journal’s reputation is the Impact Factor, which is a metric describing the frequency of citations of our scientific articles. The JHLT Impact Factor exceeded 3.0 in 2007 for the first time, and our 2008 Impact Factor was the highest ever, at 3.32. Recognized as the premiere journal for heart and lung transplantation and mechanical circulatory support, the progressive increase in Impact Factor is a tribute to all the scientists and clinicians who have submitted their best scientific work to our Journal.

During the first few months of my presidency, we have been focusing on the development of a formal comprehensive ISHLT policy for reporting and managing Conflict of Interest. Triggered by heightened awareness of the soaring expense of health care and the potential for bias in the use of products and services for the delivery of health care, the Accreditation Council for Continuing Medical Education (ACCME) has heightened its surveillance of medical educational activities. Coupled with the 2009 Institute of Medicine document on conflict of interest and new pharmaceutical guidelines designed to prevent inappropriate industry influence on the delivery of health care, the evolving ACCME Guidelines for identification and management of Conflict of Interest are of particular relevance to our Society. A draft of the ISHLT Comprehensive COI Policy is in its final stages of development, and we expect Board approval of this document within the next month. I look forward to sharing details of our evolving policies with the ISHLT membership in the next issue of LINKS.
The role of left ventricular assist devices (LVADs) in the management of end-stage heart failure (HF) is growing. LVADs, initially tested in the clinical setting as a “bridge to transplantation”, are now implanted for permanent use in patients who are not candidates for cardiac transplantation (“destination therapy”). Furthermore, observations from some centers indicate that a non-negligible percentage of chronic HF patients can be weaned from LVADs after significant functional recovery of their native heart (“bridge to recovery”) (1). Witnessing a mortally and chronically sick HF patient achieve sustained myocardial recovery post LVAD weaning is one of the most fascinating experiences in contemporary treatment of heart disease.

However, most of the studies performed to address this issue were retrospective and their results, as far as success in LVAD weaning and in achieving sustained myocardial recovery, varied significantly (2). These inconsistencies can be explained by numerous limitations in study design, such as a) absence of a pre-specified diagnostic protocol to monitor for functional myocardial recovery, b) absence of a pre-specified protocol for the use of concomitant pharmacotherapy with potential anti-remodeling effects, c) variable lengths of LVAD support, often due to transplantation of patients soon after LVAD implantation, d) lack of standardized LVAD explantation criteria, e) frequent inclusion of patients who were too sick and had irreversible heart tissue damage. The most effective approach aimed at recovery of myocardial function reported so far is that of the Harefield group (3, 4). Reproducibility of these results in larger patient cohorts is of great importance and the Harefield protocol is currently being validated in a multi-center North American clinical trial. In addition, the Harefield protocol is also tested in Europe (3rd Division of Cardiology, University of Athens, & Iaso General Hospital, Athens, Greece - “Harefield Athens Recovery Program”) and preliminary results from this project have been reported recently. Despite their preliminary nature, these results seem to be promising (2).

What does the field really need at this stage?
Are “bridge to recovery” studies what we really need at this stage? The LVAD population provides an invaluable and rare opportunity for in depth investigations in human biology. The research advantages are really unique, as this approach allows for:

a) Examination of human tissue before and after ANY therapy combined with LVAD (drugs, cell-based, gene-based delivery systems).

b) Ability to correlate human tissue/structural findings to functional data using various imaging modalities. Tight correlation between structure and function is something achievable in animal models (though even there not always performed), but it is rare that this level of understanding can be achieved in humans.

c) Safety platform to test aggressive investigational therapies.

d) Opportunity to investigate the effects of removing a significant part of the excess load that drives the vicious cycle of myocardial remodeling.

From a basic science perspective, the discovery of knockout technology by Mario Capecchi at the University of Utah provided a unique opportunity to interrogate signaling pathways in the context of structure and function of a mammalian cardiovascular system. It is a privilege for me to be associated with investigators from that institution and share with them the strong belief that in a strangely analogous manner, the LVAD population offers an important opportunity to do the same for human cardiovascular biology. This is what the field of reverse remodeling really needs to move forward.

It needs to be emphasized that translational research in this field seems to be a win-win situation. Two major outcomes are possible, and both are important. The first outcome is that significant degree of improvement in myocardial function is observed after mechanical unloading. These studies will provide the basis for identifying the hallmarks that are associated with unloading-induced recovery. The second possible outcome is that the unloading-induced myocardial recovery is minimal or rare. In that case these results would provide both the guidance and the baseline foundation for future investigations of the impact of advanced pharmacological and cell-based therapies added to LVADs.

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In either case, these investigations are likely to provide a comprehensive starting point for the new coming era of regenerative medicine.

**Do we have adequate data on the effects of mechanical unloading on myocardial structure and function?**

Several recent studies offered data on myocardial tissue changes associated with mechanical unloading with 1st generation pulsatile LVADs. These data are of limited importance because of various reasons (5):

A. Newer-generation non-pulsatile LVADs, which produce a different type of mechanical unloading, are now being used.

B. In most of these studies no functional myocardial recovery data were reported. Therefore, it cannot be distinguished which changes would occur in all LVAD patients regardless of the presence of functional myocardial recovery (epiphenomena of the hemodynamic improvement resulting from LVAD) and which changes would only occur in patients with signs of myocardial recovery. It is these latter changes that might be associated with the true pathophysiologic mechanisms of reverse remodeling. Examination of tissue from both the patients with evidence of various degrees of myocardial recovery and from those without evidence of improvement is critical to distinguish the two scenarios and to enable further investigation to prove causality.

C. Anti-remodeling medications were routinely used and their effect could thus not be separated from the effects of unloading alone.

D. Most of the studies lacked prospectively designed protocols for myocardial tissue acquisition, preservation and analysis. In depth investigation at both the structural, ultrastructural and molecular level is not possible by simply snap freezing the tissue in the operating room as was regularly done in most of the reported studies.

It is obvious that the field is still at its infancy. Numerous fundamental questions at the basic science, translational and clinical level remain unanswered. The effects of chronic mechanical unloading on fibrosis-extracellular matrix, hypertrophy regression and other remodeling features are either poorly understood or unknown. What is the impact of HF etiology or duration of HF on the prospect of unloading-induced reverse remodeling? What is the impact of pulsatile versus non-pulsatile unloading? What is the relationship between the amount of time of mechanical unloading and functional and tissue changes? Without knowing the answers to these fundamental questions it is difficult to imagine how we can even begin to assess future therapies aimed at regeneration or reverse remodeling.

Investigational setting: “bridge to transplant” versus “bridge to recovery”.

The real need at this stage is a “bridge to knowledge”. From that perspective it seems that the “bridge to transplant” study design offers more advantages compared to the “bridge to recovery” study design. The opportunity to study paired tissue samples from both recovery responders and non-responders along with the ability to study the effects of unloading at various time points seem to be important advantages. Large scale and carefully designed “bridge to transplant” studies, adequately powered to address many of the above unanswered questions, should come first; of course, down the road, “bridge to recovery” studies will follow.

It is obvious that the Kavafis’ approach of hard and unrelenting struggle to achieve important goals applies in this case not only for philosophical but for strictly scientific reasons as well. The longer the road the more we will learn and the wiser we will become in order to effectively apply this knowledge as a springboard for future studies aiming both at reverse remodeling and at regeneration. This is why we should hope the road is going to be long enough, full of obstacles and full of discovery. Given the poor current understanding of the effects of mechanical unloading alone, premature combining of LVADs with adjuvant “attractive” therapeutic interventions such as cell-based and gene-based therapies should be avoided. For example, how should we assess the effects of “stem cells+LVAD” on fibrosis if we do not understand the effects of “LVAD alone” on fibrosis? Our resistance to these alternative “attractive” options should be as definitive as Odyssey’s resistance to the sirens during the original journey to Ithaca. Retaining our focus to the fundamental targets is the most important thing at this stage of the field. And, at the same time, we should realize what Kavafis has been teaching us since several decades ago: difficulties, obstacles and disappointments are necessary steps given that the most important is the road to Ithaca and not Ithaca per se.

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References
May 2009 marked our humble beginnings to fill in the seemingly cavernous shoes left for us by immediate past Editor Jim Kirklin, MD who so deftly commanded the *Journal of Heart and Lung Transplantation* to new heights for nine straight years. We have taken the first steps, fumbled a little, missed a few, but nevertheless have forged ahead with renewed vigor. Early in our tenure, we realized that authors expect high quality and rapid reviews while readers cling to substance, provocative scientific direction and clear messages that drive further inquiry. Thus, we set out to diligently set ourselves on the pathway towards these sentinel goals.

Following on the heels of the annual meeting, we recorded a 62% increase in submissions compared to the same period last year. This means that our colleagues are choosing the journal more and more as a primary medium for their work. Our heartfelt thanks to you all! Unfortunately, this also means that we must now reject many worthy papers (66%) which in past times would have found a voice in the journal. We have drastically cut the time to first decision to 16.7 days, certainly an industry benchmark. This has been achieved by developing a rapid editorial office triage system and structured use of our newly constituted editorial board consultants who now are able to provide a decision and review in as short as 72 hours from submission. We would like to use this opportunity to thank our new editorial office and board consultants who have been incredibly supportive with adhering to our new rapid review policies. In particular, our thanks to the diligent and untiring work of Dr. Patricia A. Uber, Scientific Managing Editor of the journal. (table 1)

We shall be remiss if we don’t take this opportunity to highlight some new journal features. We have launched a section on “perspectives” which are short pieces that seek to provide a clinical viewpoint on issues taken to be fact, controversies, new directions or comments that accompany a published paper. Similarly, our “state-of-the-art” review sections seek to provide comprehensive clinically relevant or scientifically poignant writings that distill complicated lines of data into deftly accumulated reviews. We now have a new section of “research correspondence” that allows authors to publish preliminary data that is innovative or opens a line of further inquiry of benefit to the field. In this section, we typically either accept or reject the papers within a week and reviews are confined to the editorial office consultants. The editors have also made a conscious decision to limit the publication of “Case reports” and to include those that make the cut into a “clinical dilemma or innovations” section – The acceptance rate for “case reports” has dwindled to 8% and only those cases that are a “first” in the field are typically successful.

A matter of core interest to the new editors relates to the now mandatory requirements with reference to conflict disclosure. As many of you may have noticed, we do not allow papers to move through the editorial process unless a full conflict of interest declaration is made within the main body of the text. We have noticed that authors sometimes remain confused with this requirement. We wish to clarify that it is our policy that you should declare any potential conflict that you believe is present or perceived.

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This is needed not just for the principle authors but for all co-authors as well. We have asked the publisher to automatically seek author endorsement for updating conflicts even as late as in the galley stage of manuscripts. This is so because conflicts can change over time and readers deserve to evaluate your writings in the context of full disclosure. Another “hot button” topic relates to ghost written articles. These are papers that are written by a third party, often with an inherent conflict, with authorship provided to those that do not have adequate data or draft control. We abhor this situation and ask that whenever there has been any third party support, this must be declared in full extent and papers can only move through the process if the authors have had full data control throughout the conduct of the study.

We also invite our members to review the new editorial board and policies by visiting the www.jhlonline.org website. Our heartfelt thanks to authors that choose us for their work, reviewers who diligently provide a voluntary service that maintains the timeliness of the review process and our editorial team that collates this work into a meaningful value for the authors and readership.

We hope to continue to take large strides in new shoes and soon break into a run!

JHLT Accountability Benchmarks – The first 75 days

- Number of New Submissions: 157 (62% increase)
- Submission to First Decision: 16.7 days
- Reviewer days to complete reviews (from date invited): 9.8 days
- Rejection Rate (total): 66%
  - Rejection rate on first submission: 53.6%
  - Rejection rate on revised submissions: 12.4%

MECHANICAL CIRCULATORY SUPPORT FOR THE VISUALLY IMPAIRED?

Chittoor Sai-Sudhakar

In the past decade, long-term mechanical circulatory support devices (MCSD) have gained acceptance as an adequate therapy for selected patients in decompensated heart failure either as destination therapy or bridge to transplantation or recovery. However, the current technology of the system controller limits the utilization of MCSD for patients with visual impairment who present in heart failure. 58% of Type I and 80% of Type 2 diabetic patients develop some form of retinopathy in 5 – 10 years and this condition afflicts 90% of those patients at 15-20 years with varying degrees of visual impairment.

With improvements in device technology and patient survival following surgery, there is debate regarding consideration for MCSD during the early stages of heart failure. Under these circumstances, a small segment of the patient population with congestive heart failure is likely to have visual problems, which would impact on their selection for MCSD. Modifications have been made to provide tactile sensation to the patients by way of small protrusions on the batteries to help them orient and change the battery on their own. However, the current alarm system for device malfunction consists of warning lights, an audio tone (steady tones or beeps) and alarm message flashing on the screen. With a visual impairment and in the absence of a care giver, it is difficult, if not impossible, for the patient to identify the nature of the problem.

A particular feature which would make a difference would be the addition of a voice message indicating the nature of the problem to the patient. With current developments in technology, consideration should be given for automatic and immediate notification to the care giver and the implantation center, to enable them to identify, assist and advice the patient in an emergency. The proposed modifications would enable wider application of MCSD for patients with visual problems.
The cardiac transplant program in Vienna started in March 1984, five months after Margreiter and colleagues transplanted the first heart in Innsbruck. When Axel Laczkovics, Ernst Wolner and Hermann Kassal transplanted the first heart in Vienna, however, instead of using the heterotopic technique like the colleagues in Innsbruck had done, Laczkovics used the orthotopic technique, which has become the technique of choice thereafter. In 1984 three patients were transplanted. The first patient survived for 2 weeks and died of infectious complications. The next patient survived for three months but the third patient survived in excess of 2 years.

In 1986, the first two patients were bridged to transplant with a total artificial heart designed and constructed locally. Thereafter in 1992 Günther Laufer became director of cardiac transplantation after Axel Laczkovics was named head of cardiac surgery in Bochum Germany. In late 1993, 300 patients had already been transplanted. Acute rejection as well as infection incidence decreased and overall survival at one year was 75% and 62% at five years. Based on these numbers, indication for transplantation was widened by increasing the age limit to 70 years, accepting patients with chronic renal insufficiency and diabetes. Moreover donor criteria were expanded.

The Vienna cardiac transplant group was one of the first worldwide that used Mycophenolate-Mofetil as an immunosuppressive drug. In the year 2000, Vienna became more and more involved in multi-center prospective randomized trials. In addition, that same year Günther Laufer became chair of the Dept of Cardiac surgery at Innsbruck University and Michael Grimm assumed the position as director for cardiac transplantation.

The new generation of mechanical assist devices has helped Vienna and others programs to successfully bridge patients to transplantation under the direction of Georg Wieselthaler. In 2006, a consolidation of the three heart failure treatment teams reflected changes in end-stage disease management. At that time, Michael Grimm became director for heart failure surgery, Georg Wieselthaler remained director of mechanical assist device technology and Andreas Zuckermann became director for cardiac transplantation.

In the last several years immunosuppressive drug therapy and its impact on graft vasculopathy have been some of the main areas of research focus on the Vienna campus. In 2007 Vienna became the fifth center worldwide to use ‘beating’ heart technology with the ‘Organ Care System’ as transportation system for donor hearts. The Cardiac Transplant center in Vienna has now reached its 25th anniversary in March of 2009 and has performed over 1150 cardiac transplants during that time period.

WELCOME NEW BOARD MEMBERS

The following individuals were elected to the ISHLT Board of Directors during the Annual Business Meeting in Paris on April 23, 2009:

- President-Elect: John Dark, FRCS, Newcastle, United Kingdom
- Director: Susan Chernenko, RN, MN, Toronto, Canada
- Director: Allan Glanville, MD, FRACP, Sydney, Australia
- Director: David Vega, MD, Atlanta, GA, USA
- Director: Florian Wagner, MD, Hamburg, Germany

Dr. James K. Kirklin, MD, assumed the position of ISHLT President.

The sincere thanks and appreciation of the Society and its members go to the following individuals, who rotated off the Board of Directors in April, 2009. The time and effort they expended on behalf of the Society were of great value and are sincerely appreciated:

- Paul Corris, FRCP, Immediate Past President
- Fabienne Dobbels, PhD, Director
- Shaf Keshavjee, MD, FRCSC, FACS, Director
- Joren C. Madsen, MD, D.Phil, Director
- Randall C. Starling, MD, MPH, Director

2008-2009 and 2009-2010
ISHLT Boards of Directors


2009 ISHLT GRANT AND AWARD RECIPIENTS

Research Fellowship Awards
Hua Shen, MD, PhD
Yale University School of Medicine, New Haven, CT
The Impact of CD14 and CD36 Signaling in Costimulatory Blockade Extension of Allograft Survival

Shin Hirayama, MD, PhD
University of Health Network, Toronto, Canada
The Role of Genetically Engineered IL-10-Producing T Regulatory 1 (Tr1)-Like Cells in Immunoregulation After Lung Transplantation

Masahiro Miyajima, MD, PhD
Massachusetts General Hospital, Boston, MA
The Role of T Regulatory Cells and Natural Killer Cells in the in Vivo Promotion of Coronary Allograft Vasculopathy

Tobias Deuse, MD, PhD
University of Heart Center Hamburg, Hamburg, Germany
Allogeneic Stem Cell Transplantation for the Ischemic Myocardium: Immunobiology of Stem Cells-A Hurdle for Clinical Application

Philip K. Caves Award
Howard Huang, MD
Washington University School of Medicine, St. Louis, MO
Deletion of Inhibitory k Kinase B from Myeloid Cells Prevents Induction of Mouse Lung Allograft Acceptance

Branislav Radovancevic Memorial Best Paper Award
Nishant R. Shah, MD
Baylor College of Medicine, Houston, TX
Percutaneous LVAD Support Reverses Neurohumoral Dysregulation and Apoptosis but Increases Inflammation in Profound Refractory Cardiogenic Shock

Branislav Radovancevic Memorial Fellowship Award
Sasa Borovic, MD
Texas Heart Institute, Houston, Texas

Nursing & Social Sciences Research Grant Award
Jane MacIver, RN, MSc
Toronto General Hospital, Toronto, Canada
HeartMate II Quality of Life Study

Nursing & Social Sciences Excellence in Research Award
Connie White-Williams, MSN
University of Alabama at Birmingham, Birmingham, AL
The Relationship of Social and Quality of Life 5 to 10 Years after Heart Transplantation

TRANSPLANT by John A. Elefteriades, MD
Reviewed by Emily A. Farkas, MD

Consider allowing the enthralling novel “Transplant” to be your literary indulgence this summer. In this newly released medical fiction thriller by Yale cardiothoracic surgeon John Elefteriades, you will find a riveting tale where personal temptation becomes entangled with professional success in the transplant community. Absent is the inconsistent and monochrome quality that often plagues medical drama on the screen or in print; left behind is all of the vivid dimension and ambition that defines truly engaging entertainment.

You are likely to be struck by how authentic medical fiction can feel when masterfully crafted by an artisan of our trade. You are likely to wonder what would happen if a transplant specialist like yourself were caught in the crosshairs on this unprecedented but totally plausible ethical battleground. You are likely to read this gripping novel from cover to cover in only one sitting to find out.

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Click Here to
Return to the Table of Contents
HIGHLIGHTS OF ISHLT 29TH ANNUAL MEETING AND SCIENTIFIC SESSIONS IN PARIS

Josef Stehlik, MD

The 29th Annual Meeting and Scientific Sessions took place in Palais des Congress in Paris, France in April. The planning committee chaired by Dr. Randall Starling, and the ISHLT staff, did a superb job in organizing a dynamic, stimulating meeting of high scientific quality.

The first day of the meeting started with satellite symposia in the form of didactic sessions and debates which focused on timely topics relevant to care of organ donors, heart and lung transplant candidates and recipients, as well as management of patients with ventricular assist devices.

Ms. Roselyne Bachelot, the French Minister of Health, honored our society and the attending members with a welcome address during the opening plenary session. Research covering the basic, translational and clinical science was then presented in a number of plenary and concurrent sessions, lunch-time symposia, mini-oral sessions and poster presentations. These presentations confirmed the report of the meeting planning committee that indicated that the quality of submissions for this year’s sessions was exceptionally high.

A number of invited lectures given by experts in the field complemented the scientific presentations.

The ISHLT councils and committees had an opportunity to meet in person and, as always, the meeting was an excellent opportunity for networking with colleagues and friends. Below is a synopsis of 15 out of more than 700 accepted submissions. This selection highlights the breadth and the significance of topics addressed at the ISHLT 29th Annual Meeting and Scientific Sessions.


   This symposium was chaired by Drs. Elizabeth Hammond and Renee Rodriguez. The selection of topics and speakers resulted in an outstanding overview of our current understanding of the pathophysiology of antibody mediated rejection (AMR) and its impact on the cardiac allograft function. Dr. Renee Rodriguez reviewed the histologic findings of AMR and the significance of complement activation in cell injury. He also explored the potential of novel complement inhibitors in the fight against AMR. Dr. Abdallah Kfoury focused on the clinical presentation of patients with AMR and proposed that even subclinical forms of AMR might result in increased incidence of cardiac allograft vasculopathy and compromised survival. Dr. Lori West highlighted the specifics of alloantibody graft injury in a pediatric population and in neonates. Finally, Dr. Marilia Cascalho explored the promise of better understanding of processes that lead to accommodation to the future of heart transplantation.

2. Pioneer Lecture: Dr. Christian Carbol, LaPitie Hospital, France

   The pioneer lecture was given by Dr. Christian Carbol. While previous ISHLT meetings highlighted the beginnings of heart transplantation in North America and South Africa, Dr. Carbol gave a unique account of the early days of heart transplantation in Europe. In his capturing narrative, Dr. Carbol reminded us of the inquisitiveness and courage of the early heart transplant teams, as well as the complexity of their task in the context of the contemporary societal perceptions of organ donation and transplantation.


   Dr. Gries is the recipient of the 2008 ISHLT Transplant Registry Junior Faculty Award. She and her colleagues used the ISHLT Registry data in a quest to develop a model that would predict post-transplant survival using lung transplant candidates’ clinical characteristics.

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The investigation showed that inclusion of exclusively pre-transplant characteristics did not result in a sufficiently accurate prediction model. This finding underlines the challenges the lung transplant clinicians face in their quest for improved post-transplant outcomes.

4. Long-Term Outcomes after Alemtuzumab Induction in Lung Transplantation. S. Shyu et al.
The authors reviewed outcomes after lung transplantation in close to 600 recipients who received different immunosuppressive induction therapies. Patients who received alemtuzumab induction in this retrospective study had lower incidence of acute and chronic rejection and better survival than patients receiving other forms of immunosuppressive induction. Prospective clinical studies are needed to confirm this finding.

The authors examined the utility of cardiac magnetic resonance imaging in patients with documented acute cellular rejection. Compared to controls, these patients demonstrated elevated early myocardial contrast enhancement, which resolved on MRI studies repeated after treatment. In this small group of patients the sensitivity and specificity for proven rejection was 88% and 92%, respectively. Prospective examination of this approach is needed.

6. BNP Levels Predict Outcome in Pediatric Heart Failure Patients: Post-Hoc Analysis of the Pediatric Carvedilol Trial. S.R. Auerbach et al.
The authors conducted an analysis of data from the Pediatric Carvedilol Trial. They found that, in pediatric patients with moderately symptomatic heart failure, and after adjusting for other covariates, serum BNP levels of more than 140 pg/ml identified patients at higher risk for adverse outcomes. This finding could aid in decisions regarding advanced heart failure therapies in pediatric patients.

The authors queried the Pediatric Heart Transplant Study database and determined that, in the past 13 years, there has been a striking decrease in rejection (65% to 25%) and rejection death occurring in the first year after pediatric heart transplantation. This is likely one of the factors for improved survival of pediatric heart transplant recipients.

8. Impact of ABO-Incompatible Listing on Wait Times and Waitlist Mortality among Infants Listed for Heart Transplant in the US. C. Almond et al.
The authors of these two studies sought to determine whether listing of neonatal patients for ABO-incompatible heart transplant (ABO-I) results in shorter waiting times and lower mortality on the waiting list. The authors determined that over the past several years listing for ABO-I heart transplant has gradually increased from 0% to approximately 30%. While the time on the waiting list has decreased for patients listed as candidates for ABO-I heart transplantation, waiting list mortality has not. This may be a result of marked differences between the two groups (patients listed for ABO-I transplant are sicker than those who are only listed for ABO-compatible transplant). The effects of ABO-I listing on waiting times and other outcomes should continue to be analyzed closely, especially as this approach gains a more widespread acceptance.

9. The Resuscitated DCD Donor Heart Is Functionally Superior to the Brainstem dead donor Heart. A. Ali, MD et al.
In this experimental study, the investigators compared myocardial contractility in a group of rats that suffered a hypoxic arrest followed by 15 minutes of warm ischemia, to myocardial contractility in a group of rats after brainstem death. Contractility, assessed by examination of end-systolic pressure volume relationship and sarcomere shortening, was better in the group that suffered hypoxic death. This study is timely as potential for utilization of hearts for transplantation in donation after cardiac death (DCD) is being explored.

The authors studied gene expression in coronary arteries in patients with cardiac allograft vasculopathy (CAV). As compared to controls, patients with CAV had an increased expression of profibrotic genes (CTGF, PAI-1 and TGF-β) and a weaker expression of anti-fibrotic genes (Id-1, BMP-4 and BMP-7) in the coronary artery luminal layer. This finding suggests that use of anti-fibrotic pharmacotherapies could slow the progression of CAV.
11. Axial vs Pulsatile Flow in Reversing Pulmonary Hypertension in Heart Failure Patients Supported by Left Ventricular Assist Devices. L. Jacob et al.
It is known that unloading with pulsatile LVADs leads to reversal of pulmonary hypertension and allows for heart transplantation in patients whose pulmonary pressures can not be reversed with pharmacological therapy. Whether newer non-pulsatile devices result in similar decrease of pulmonary pressures has not been well documented. The authors compared the effect of 24 pulsatile and 42 non-pulsatile LVADs on pulmonary hemodynamics. Both types of unloading resulted in a significant reduction of mean pulmonary arterial pressures (mPAP) and pulmonary vascular resistance (PVR). Furthermore, unloading with non-pulsatile LVADs appeared to result in a higher degree of mPAP and PVR reversal.

Recovery of myocardial function is the ‘holy grail’ for many clinicians taking care of patients with advanced heart failure. The authors presented long-term follow-up data on a cohort of 84 patients whose LVADs were explanted after improvement of myocardial function was documented. Thirty-six of these patients have now reached 5 years since explant and 3 patients reached 13 years since explant. The authors identified clinical characteristics that seem to be associated with sustained myocardial recovery. These findings give promise for a wider application of ‘bridge to recovery’ LVAD use.

Anticoagulation management in patients with LVADs often represents a challenge, as the risks of thrombosis and hemorrhage are balanced. The authors of this study reviewed the incidence of bleeding and thromboembolic complications in patients who underwent implantation with HeartMate II LVAD. Patients directly transitioned to warfarin (n=192) had lower bleeding complications and no excess in thromboembolic events as compared to patients bridged with heparin drip (n=140).

14. Concurrent Session: Social Support - "The Good, the Bad, and the Lonely"
Presentations during this session highlighted the importance of caregivers for patients with mechanical circulatory support and patients awaiting organ transplantation. Importantly, the extent of burden associated with being a caregiver for these patients was also explored. The discussions addressed approaches that could improve the coping of both the patients and their caregivers.

15. Symposium: Generics in Thoracic Transplantation: Boon or Bane.
At this lunch symposium a panel of experts discussed the potential challenges that await clinicians at a time when immunosuppressives enter the market as generic preparations. Many transplant programs are currently defining their policies on the use of these generic agents and this symposium surely helped many in this process.

Jean-Marie Le Guen, (second from left) Vice Mayor of Paris, pictured with Drs. Souilamas, Starling, and Mehra