In the rapidly evolving era of trans-catheter aortic valve replacements, Washington University heart specialists are working side by side, collaborating both in surgery and in multidisciplinary patient clinics. “The surgical and medical disciplines are no longer completely independent because patients with complex valvular disease often present with multiple co-morbidities and we need to evaluate treatment options from all perspectives,” says interventional cardiologist Alan Zajarias, MD.

The patient clinic visits are longer (45-60 min.), and benefit not only patients, but also physicians. “All of us are interested in treating patients with valvular heart disease, but a lot of my time is spent focusing on the technical issues and avoiding the potential pitfalls associated with open heart surgery,” says cardiothoracic surgeon Hersh Maniar, MD. “Working alongside cardiologists, our evaluations have become much more thorough, improving our abilities to care for these patients.”

The team includes Drs. Zajarias, Maniar, surgeon Ralph Damiano, MD, interventional cardiologist John Lasala, MD, and cardiologist Brian Lindman, MD. Roadblocks to the establishment of similar collaborative environments include potential “turf” battles, challenges of coordinating specialists’ schedules, and even economics. At WU, the hurdles were cleared during participation in the PARTNER (Placement of AoRTic traNscathETR valves) trial and the recent opening of the multidisciplinary Valvular Heart Disease Center.

“Every trans-catheter procedure we did during the PARTNER trial, we did together, which improved our understanding of each other’s abilities and enhanced our mutual trust,” says Dr. Maniar. “Examples of this type of collaboration between cardiac surgery and cardiology continue to grow, most recently in collaborative efforts between surgeons and electrophysiologists in the treatment of atrial fibrillation.”

Dr. Lindman says current WU fellows see the value of shared decision-making. “Just because we can put in a new valve doesn’t mean that we should or that the person will benefit,” he says. “There are difficult decisions about whether to intervene, and when and how best to intervene in patients with complex valvular heart disease. Decisions are best made when the surgeon and cardiologist can put their heads together. The multidisciplinary format for seeing, evaluating and treating patients has definitely helped me as a cardiologist.”
As you can see from our lead article, our multidisciplinary approach is re-defining how cardiologists and cardiovascular surgeons can collaborate together in both the OR and in clinic. The advantages to this approach are apparent already, as demonstrated by higher patient satisfaction scores, and the excitement that is generated within the faculty when they work together on complex cases. This step forward also mirrors what we have been doing to enhance the training experience of our fellowship program. As more fellows express an interest in outcomes training and specialized cardiology niches, we have added several new cardiology multidisciplinary training tracks. This has allowed us to improve the training environment for our fellows.

In July 2012, we have two new faculty members joining our Division: Babak Razani, MD, currently is one of our advanced research fellows. He focuses his research efforts on diabetes and atherosclerosis. Presently, Dr. Razani is training in the laboratory of Dr. Clay Semenkovich. The research team recently discovered that the absence of a specific protein leads to atherosclerotic progression in mice. Amit Amin, MD, will work on outcomes research within the division. He currently is an interventional cardiologist and outcomes research fellow at St. Luke’s Mid-America Heart and Vascular Institute in Kansas City and was a finalist for the national AHA ACOR Young Investigator Award in 2010. Dr. Amin was part of a team of researchers who identified therapies that could improve the safety of percutaneous coronary intervention (PCI) and reduce the risk of post-procedure bleeding. These two appointments will strengthen our efforts to advance understanding of heart disease in the Center for Cardiovascular Research (CCR) and the Center for Cardiac Outcomes Research (CCOR).

We also are close to announcing new directors for both the CCR and CCOR. We have excellent candidates that have applied for these positions and look forward to sharing that information with you in our next newsletter.

We’re pleased that our second annual satellite symposium held during the annual AHA meeting last November continues to draw participants across the country. The topic, which focused on advanced therapies for patients with heart failure, was especially timely as there has been growing evidence to suggest that early implantation of mechanical assist devices could result in better outcomes for these patients.

Along with the symposium, a number of our current fellows presented at the AHA meeting. In addition, we’re proud to report that one of our fellows also earned top honors at an abstract oral presentation competition sponsored by the Missouri & Kansas Chapters of the American College of Cardiology. This year, our fellows applied for and won an AHA Acory Young Investigator Award in 2010. Dr. Ami is part of a team of researchers who identified therapies that could improve the safety of percutaneous coronary intervention (PCI) and reduce the risk of post-procedure bleeding. These two appointments will strengthen our efforts to advance understanding of heart disease in the Center for Cardiovascular Research (CCR) and the Center for Cardiac Outcomes Research (CCOR).

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As always, I encourage you to keep in touch with the Division and to let us know your career moves and accomplishments. Send us an email to cardiology@wustl.edu or log onto our Facebook page by searching for Washington U. Cardiovascular Alumni and clicking “Like” at the top of the page. Continue to let us know what you and your family are up to, and we look forward to hearing from all of you.

Douglas L. Mann, MD
Chief, Cardiovascular Division

Masthead image courtesy of Pamela Woodard, MD, Washington University Advanced Cardiac Imaging (CT/MR) Program.

Become a fan of Washington U. Cardiovascular Alumni on Facebook!
For the second year in a row, heart specialists from Washington University/Barnes-Jewish Hospital hosted a satellite symposium during the annual meeting of the American Heart Association in Orlando, FL. The symposium focused on the latest therapies that allow the heart to recover after heart failure, including the use of newer medications as well as earlier intervention with mechanical heart assist devices. Currently the REVIVE-IT study is underway to evaluate whether patients with less advanced heart failure would be good candidates for LVADs versus waiting until their disease progresses further. “It could be the dawn of a new era of evidence supports the benefit of implanting mechanical assist devices earlier in the disease process,” says Douglas Mann, MD, chief of the WU cardiovascular division. Other WU presenters included: Ralph Damiano, Jr., MD, chief of cardiothoracic surgery; Edward Geltman, MD, professor of medicine; Greg Ewald, MD, chief of clinical cardiology and director of the heart failure and cardiac transplantation section; and Scott Silvestry, MD, associate professor of surgery. They were joined by Emma Burke, MBBS, PhD, BSc, FRCP, director of the heart failure, transplant and mechanical support program at the University of Louisville, and Keith Aaronson, MD, MS, medical director of the heart failure program at the University of Michigan and one of the principal investigators of the REVIVE-IT study.

Satellite Symposium: “Recovering” the Failing Heart

Diabetes is a profound risk factor for the development of obstructive coronary artery disease and for heart failure. While it is likely that hyperglycemia and hyperlipidemia, systemic metabolic abnormalities in diabetes underlie this increased risk, understanding how these excess nutrients impair vascular and myocellular function is not well understood. Recent work in the field had suggested that when high levels of these nutrients are delivered to cells, the result is oxidative stress, cell dysfunction, and cell death. Jean Schaffer, MD, Director of the Washington University Diabetic Cardiovascular Disease Center is looking to uncover how these excess nutrients impact these processes.

Passing it On

In his 27 years as a member of the Division, John Boineau, MD, spanned the worlds of cardiothoracic and cardiothoracic surgery. A former director of the Division, John Boineau, MD, has recently retired from his position as the Division’s chief of clinical cardiology and professor of cardiology. He is currently the director of the Cardiothoracic Surgery Research Labs. Dr. Boineau is internationally recognized for contributions in the field of electrocardiography. He authored The ECG in Multiple Myocardial Infarction and the Progression of Ischemic Heart Disease, published in 2005.

Dividend Research Highlights

First Genetic Variant Discovered Associated with Extent of Coronary Artery Disease (CAD) in Diabetics

Washington University researchers have found the first genetic variant that correlates with the extent of atherosclerosis in patients with diabetes. The research, published in Circulation, is significant because clinical factors alone don’t explain why patients with diabetes often develop aggressive coronary artery disease (CAD). Researchers identified the gene, TLL1, after analyzing thousands of DNA samples from three large-scale health studies. “We now have a very clear trait that correlates with the development and progression of atherosclerosis,” says researcher Sharon Cresci, MD. The team is analyzing additional DNA samples to determine how the gene variant is verified across multiple ethnic populations. Further study also will revolve around clinical outcomes. “We'd like to know how does this gene link to an increased in mortality or an increased need for bypass surgery,” says Richard Bach, MD. Read more at http://news.wustl.edu/news/Pages/22776.aspx or email: news@wustl.edu.
Little Packages Deliver a Big Wallop — Nanomedicine

Within this decade, nanomedicine will advance breakthrough clinical methods to treat one of the leading causes of cardiovascular disease, atherosclerosis. After more than a decade, two WU heart specialists are honing in on ways to prevent strokes caused by build-up of plaque in the arteries. Gregory Lanza, MD, PhD and Samuel Wickline, MD are receiving worldwide attention after developing a targeted nanoparticle that enables noninvasive molecular imaging of plaque-associated angiogenesis. “We have developed the tool to precisely image angiogenesis,” says Dr. Lanza. “Coupled with the ability to image intraplaque hemorrhage in patients with atherosclerosis, we now have two markers that additively should accurately stage a patient’s risk for stroke and their responsiveness to antiangiogenic therapy.”

The synthesized nanoparticle, which can be injected into a patient intravenously, is of particular interest because plaque secretes enzymes to “recruit” more blood vessels as it builds up along the vessel walls. Because these newer vessels are initially fragile, they can rupture, causing an intraplaque hemorrhage. “Disease progression is slow until intraplaque hemorrhaging starts, and then it escalates, driving further angiogenesis,” says Dr. Lanza. “Our nanoparticle is filled with a fluorine-rich compound that can be seen binding to nascent vessels forming in active plaque with clinical MRI (19F MRI). Our laboratory studies suggest that if both markers were present, there is a high risk for stroke regardless of whether or not there was moderate or severe stenosis.”

On the heels of this diagnostic nanoparticle imaging agent, the team has also developed laboratory breakthroughs that extend the nanoparticle imaging system for drug delivery, a so-called theranostic agent. Because the nanoparticles can travel in vivo directly to the location of angiogenesis, lower doses of potentially toxic medications can be used to attack where tumors or plaques are growing. “We patented the platform in 1995 and we’ve been pushing our way to the clinic ever since. In addition to cancer and cardiovascular disease, we now are researching the use of our nanoparticles to treat rheumatoid arthritis,” Dr. Lanza says. “The research has broad applications in medicine.”