Collaborative Trends — Cardio-Neuromuscular Clinic

In just over a year and a half, a unique Cardio-Neuromuscular Clinic (CNC) at Washington University School of Medicine is improving the coordination of care for hundreds of patients diagnosed with genetic neuromuscular diseases.

“In these patients, especially those who have muscular dystrophies, there is an elevated risk of cardiomyopathy and/or conduction system diseases in at least half,” says neuromuscular specialist Brian Sommerville, MD. “In some diseases, the risk is so high that if they don’t have cardiac manifestations right now, they need attentive monitoring on a regular basis because those complications will probably arise at some point.”

The monthly clinic is the brainchild of Douglas Mann, MD, Lewin Chair and Chief of Cardiology, who was researching genetic disorders and their link to heart muscle complications and skeletal disorders. He approached colleagues in the Department of Neurology. Mann and Nathan Stitziel, MD, PhD, serve as the attending cardiologists for the clinic and work side by side with neuromuscular specialists Anne Connolly, MD, and Brian Sommerville, MD.

“It’s a niche clinic at present,” says Mann. “As newer therapies that prolong life expectancy are employed, however, these patients will increasingly come to the attention of cardiologists. You need experts in neurology and cardiology who have experience with neuromuscular diseases; one without the other is not sufficient because the care is so complex.”

The one-stop clinic not only is improving care coordination, it also is boosting patient satisfaction. “Many of the patients are wheelchair-bound, some are on ventilators and it is cumbersome for them to access care,” says Stitziel. “Now, in one appointment, patients can see a cardiologist, neurologist, a representative from the Muscular Dystrophy Association, a wheelchair specialist, a nurse and physical therapist. They also can get their imaging and clinical services completed at the visit. In the end, patient satisfaction and quality of care are rising.”

As the clinic matures, there is the possibility of innovative research. Already, an IRB-patient registry has been established to track long-term outcomes of the coordinated care process. Later this year, an invited review article on the preliminary benefits of the clinic authored by Sommerville and the Cardio-Neuromuscular team is expected to appear in Trends in Cardiovascular Medicine.

“I’ve seen a number of instances in which patients had necessary and meaningful cardiac interventions that would not have happened with such speed, if at all, in a regular clinical setting,” says Sommerville. “Just having that focus and disease-specific knowledge makes us look really hard at the patients and sometimes see problems before they actually become problems.”
MESSAGE FROM THE CHIEF

I was delighted to see many of our alumni during the ACC Scientific Session in Chicago this past April. It always makes us proud that our former fellows are pursuing diverse and dynamic careers in cardiovascular medicine and research. I hope you enjoyed, as I did, our Live Case Presentations—a first for our Division at the ACC—and an activity that took significant effort to plan and present. Our presenting faculty and fellows were outstanding and we thank them all for their efforts. One of my goals when I first became the Chief of the Cardiovascular Division at Washington University School of Medicine in 2009 was to grow and enhance the research opportunities for fellows and faculty. Over the past several years, with the guidance of Andy Kates, Mike Rich and Phil Barger, coupled with the commitment of our faculty to serve as research mentors, we have seen a tremendous growth in the quality of research pursued here. As you will read in this edition, the clinical research program for fellows is robust. We have other opportunities for basic and outcomes research that enable our fellows to not only conduct investigations here, but also to create their own research pathway elsewhere under the auspices of our Division if that approach is warranted. What that means is that we put the cardiovascular interests of our fellows first and foremost. It is that approach that has led to meaningful research and a list of alumni who are passionate about their own career pursuits.

We were so pleased that former fellow and faculty member Ben Barzilai returned to our campus in June to present at the 2nd Annual Michael Beardslee Lecture. I think he had a great time catching up with old friends and colleagues! I encourage you to also maintain your own connections with our Division. We truly are interested in your career moves and significant research publications. Email your information to Ava Ysaguirre at aysaguir@wustl.edu.

NEW! We’ve started a Facebook group to better connect with our alumni—when you have the chance, Join our page and keep up to date with the events and happenings within the Division. Find us at Washington University Cardiology Alumni.

We enjoyed seeing many of our alumni and catching up on their respective careers at our Division’s ACC Reception in Chicago.

ALUMNI NEWS

Alumni Update

Susan Arnold, MD

Cardiovascular Fellow 2008-2012

Currently: Clinical Scholar and Assistant Professor, Saint Luke’s Mid-America Heart Institute (UMKC)

Dr. Arnold split her time 40/60 between general cardiology and outcomes research. Her main research is focused on transcatheter aortic valve replacement (TAVR), trying to better understand which patients will not improve despite TAVR. Already, she and her colleagues have built and validated a model and implemented it in her valve clinic. While at WU for fellowship training, Arnold received an AHA Outcomes Research Fellowship that enabled her to conduct research at Saint Luke’s during the last two years of her fellowship. In addition to TAVR, Arnold conducts observational analyses of clinical trial results to understand which patients are most (or least) likely to benefit from various treatments.

Favorite Leisure Activities: Despite having four knee surgeries ($2 during fellowship), I still play soccer and volleyball several times a week on both women’s and co-ed teams.

Favorite Fellowship Memories: During my first year, I diagnosed a descending thoracic aortic dissection at 4 a.m. on the subcostal view on a transthoracic echo. The patient went for emergent fenestration that saved his leg and kidneys. It remains a time in my clinical career where I feel I really made a big difference in someone’s life. Also, I felt so supported in my research time, even outside of WU. There was a genuine desire to provide the best opportunities for me to develop the skills I needed and I am so thankful to Doug and Andy for their support.

2016 Departing Fellows

Several fellows are leaving our program this year and we wish them well on the next phase of their cardiology careers:

Graduating from Electrophysiology Fellowship:

Sahil Attawala, MD, Princeton Baptist Medical Center, Birmingham, AL.

Jason D. Meyers, MD, Iowa Heart Center, Des Moines, IA

Graduating from Structural Heart Fellowship:

Alejandro Aguayo, MD, Honor Health Medical Group, Scottsdale, AZ

Graduating from Interventional Fellowship:

Edward Coverstone, MD, Heart Specialty Associates, St. Louis, MO

Marc Sintek, MD, Remaining at WU for Structural Heart Fellowship

Graduating from General Cardiology Fellowship:

Casey Wong, MD, Princeton Medical Group, Princeton, NJ

We also have several graduating fellows who will remain at WU for advanced cardiology fellowships:

Electrophysiology Fellows:

Tracy Hagerty, MD

Praveen Rao, MD

Interventional Fellows:

Paul Lavigne, MD

Nishtha Sodhi, MD

Advanced Heart Failure Fellows:

Mirnella Byka, MD

Deana Mikhalkova, MD

Douglas Mann, MD

Lewin Professor and Chief, Cardiovascular Division

Cardiovascular Division Washington University School of Medicine Campus Box 8060 660 S. Euclid Ave. St. Louis, MO 63110

Administration Office 314-747-3033 Fellowship Office 314-362-1297 Ava Ysaguirre, coordinator aysaguir@dom.wustl.edu

On the web: cardiology.wustl.edu Tel-Free Appointment Line: 888-210-8375

If you are interested in making a donation to the Cardiovascular Division, send it to: Washington University in St. Louis, Office of Medical Alumni and Development, Attn: Helen Z. Liu 7425 Forsyth Blvd Campus Box 1247 St. Louis, MO 63130 Phone: 314-935-9715 helens@wustl.edu

Contact Information

Find us on Facebook Washington University Cardiology Alumni

Washington University Cardiology Alumni Newsletter

2 | Washington University Cardiology Alumni Newsletter

3
MESSAGE FROM THE CHIEF

I was delighted to see many of our alumni during the ACC Scientific Session in Chicago this past April. It always makes us proud that our former fellows are pursuing diverse and dynamic careers in cardiovascular medicine and research. I hope you enjoyed, as I did, our Live Case Presentations—a first for our Division at the ACC—and an activity that took significant effort to plan and present. Our presenting faculty and fellows were outstanding and we thank them all for their efforts.

One of my goals when I first became the Chief of the Cardiovascular Division at Washington University School of Medicine in 2009 was to grow and enhance the research opportunities for fellows and faculty. Over the past several years, with the guidance of Andy Kates, Mike Rich and Phil Barger, coupled with the commitment of our faculty to serve as research mentors, we have seen a tremendous growth in the quality of research pursued here. As you will read in this edition, the clinical research program for fellows is robust. We have other opportunities for basic and outcomes research that enable our fellows to not only conduct investigations here, but also to create their own research pathway elsewhere under the auspices of our Division if that approach is warranted. What that means is that we put the cardiovascular interests of our fellows first and foremost. It is that approach that has led to meaningful research and a list of alumni who are passionate about their own career pursuits.

We were so pleased that former fellow and faculty member Ben Barzilai returned to our campus in June to present at the 2nd Annual Michael Beardslee Lecture. I think he had a great time catching up with old friends and colleagues! I encourage you to also maintain your own connections with our Division. We truly are interested in your career moves and significant research publications. Email your information to Ava Ysaguirre at aysaguir@wustl.edu.

NEW! We’ve started a Facebook group to better connect with our alumni—when you have the chance, Join our page and keep up to date with the events and happenings within the Division. Find us at Washington University Cardiology Alumni.

Drs. Ben Barzilai, left, and David Goldstein, right, return to the Cardiovascular Division to present at the ACC Session.

2009 was to grow and enhance the research opportunities for fellows and faculty. Over the past several years, with the guidance of Andy Kates, Mike Rich and Phil Barger, coupled with the commitment of our faculty to serve as research mentors, we have seen a tremendous growth in the quality of research pursued here. As you will read in this edition, the clinical research program for fellows is robust. We have other opportunities for basic and outcomes research that enable our fellows to not only conduct investigations here, but also to create their own research pathway elsewhere under the auspices of our Division if that approach is warranted. What that means is that we put the cardiovascular interests of our fellows first and foremost. It is that approach that has led to meaningful research and a list of alumni who are passionate about their own career pursuits.

We were so pleased that former fellow and faculty member Ben Barzilai returned to our campus in June to present at the 2nd Annual Michael Beardslee Lecture. I think he had a great time catching up with old friends and colleagues! I encourage you to also maintain your own connections with our Division. We truly are interested in your career moves and significant research publications. Email your information to Ava Ysaguirre at aysaguir@wustl.edu.

NEW! We’ve started a Facebook group to better connect with our alumni—when you have the chance, Join our page and keep up to date with the events and happenings within the Division. Find us at Washington University Cardiology Alumni.

We enjoyed seeing many of our alumni and catching up on their respective careers at our Division’s ACC Reception in Chicago.
Could Atherosclerosis Be Alzheimer’s Disease of Blood Vessels?

A recent cardiovascular study has found that the process by which plaques build up within arteries and causes atherosclerosis could be similar to the process by which plaque forms in brain diseases such as Alzheimer’s disease. The study, published in Science Signaling, is the first to show that as plaque accumulates in the arteries, another process also is occurring in which immune cells start to accumulate misshapened proteins in the lining of the arteries. The buildup of certain proteins is the hallmark of Alzheimer’s, Parkinson’s and other degenerative neurological disorders.

Babak Razani, MD, PhD

A recent cardiovascular study has found that the process by which plaques build up within arteries and causes atherosclerosis could be similar to the process by which plaque forms in brain diseases such as Alzheimer’s disease. The study, published in Science Signaling, is the first to show that as plaque accumulates in the arteries, another process also is occurring in which immune cells start to accumulate misshapened proteins in the lining of the arteries. The buildup of certain proteins is the hallmark of Alzheimer’s, Parkinson’s and other degenerative neurological disorders.

Babak Razani, MD, PhD

WU Cardiovascular Division researchers found that when they mimicked the development of atherosclerosis in laboratory tests, the waste-disposal functions of cells became disrupted, causing a specific protein, p62, to accumu-
late in the arteries. Atherosclerotic plaque samples taken from patients also were found to have high amounts of p62. A surprising finding is that when p62 is missing and no longer gathers waste in one place, atherosclerosis becomes worse. Senior author Babak Razani, MD, PhD, says, “Our study demonstrates that p62’s role in gathering up misshapened proteins is protective against atherosclerosis even if the cell can’t actually dispose of the waste it gathers. I equate that process to putting everything into a trash bin. The cell can’t remove the trash, but at least it’s corralled. If p62 is missing, there’s no gathering of the misshapened proteins, which causes more damage than if the waste were corralled into a large ‘trash bin.’” Razani says, therapeutic efforts might now focus on ways to remove protein aggregates rather than on preventing them from forming.

Ed Coverstone, MD (left), discusses his cardiology clinical research project
FACULTY NEWS

Cardiovascular Faculty Promotions

Congratulations to the following faculty members who received promotions within our Division:

Effective 7/2016:
- Brian R. Lindman, MD, researcher, Center for Cardiovascular Research, promoted to Associate Professor of Medicine
- Maysire J. Gleva, MD, electrophysiologist, promoted to Professor of Medicine

Maysire J. Gleva, MD, electrophysiologist, promoted to Professor of Medicine

Angela Brown, MD, is 2016 Stellar Performer in Health Care

Angela Brown, MD, associate professor of medicine in the cardiovascular division and director of the Hypertension Clinic, was honored in April with the 2016 Stellar Performance in Health Care Award at the St. Louis American Foundation's 16th Annual Salute to Excellence in Health Care Awards Luncheon. Brown says the foundation of her passion for caring for patients with hypertension came from her parents, grandparents and other relatives, all of whom had high blood pressure and many of whom later died from complications of the disease. "Managing high blood pressure is a challenge that I had experienced firsthand even before becoming a hypertension specialist," Brown says. In addition to her cardiology practice and research activities, Brown is a passionate educator on heart health issues and serves as co-director of the Center for Community Engaged Research (CCHER). The group focuses on forming partnerships between the School of Medicine and local communities to improve overall community health through research participation.

DIVISION RESEARCH HIGHLIGHTS

Fellowship Clinical Research Program Paying Dividends

At the recent American College of Cardiology meeting in Chicago, cardiology fellow Tyson Turner, MD, MPH, and his faculty mentor, David L. Brown, MD, presented their preliminary research focused on whether IVC filters can help reduce death or minimize repeat pulmonary embolisms in patients diagnosed with venous thromboembolic disease who are unable to receive standard anticoagulation therapy. The project is one of a wide range of investigations currently under way in trainees in the cardiovascular fellowship program.

"Five years ago, research was strongly encouraged but it wasn't mandatory in our training program," says Michael W. Rich, MD, director of the Cardiology Fellowship Clinical Research Training Program. "It is our mission, however, to train future leaders in cardiology and that means exposing them to research. Whether or not a fellow ultimately pursues a research career, the experience makes them better critical thinkers, which then enhances how they approach the care of their patients."

"Significantly," adds Rich, "we have found that participation in research has, in some cases, altered career paths toward clinical investigation. Interfellowional fellow Ed Coverstone, MD, is one of them. Drawn into research as a first-year fellow, he started looking into the links between smoking, tobacco use and cardiovascular disease. Partnering with a researcher, he found that the answer to one research question led to more and more questions. "I likened the process to Alice falling down the rabbit hole. I became enthralled by the investigative process," Coverstone says.

"By the time they leave our program, our fellows will have participated in research, with many projects presented at a scientific meeting or developed into a manuscript," says Rich. "Although there is always room for improvement, we know our approach is working because we are seeing significant contributions to both knowledge and the medical literature."

Lights, Camera, Live at the ACC!

Four faculty from the Cardiovascular Division participated in live case presentations at the American College of Cardiology 2016 Scientific Session in April. The invasive cardiologists — Javindar Singh, MD, John Lasala, MD, PhD; Howard Kurz, MD, MSc; and Allan Zajarias, MD — presented four very complex coronary intervention cases live from Barnes-Jewish Hospital.

"This was the first year for the Cardiovascular Division to participate in live case presentations during a national conference," says Singh. "The audience was able to ask questions during all of the cases and we received positive feedback during and after the presentations."

Singh is no stranger to an educational role and has hosted an educational program for nine years, he has hosted the Advanced Revascularization Chapter Conference (ARCH) in St. Louis and has regularly offered live case with feedback for discussions. More than 400 people participated in ARCH earlier this year.

For the ACC Scientific Session, two cases were done simultaneously in two different procedure rooms. Two more cases were broadcast live later that same afternoon. The logistics involved tracking the timing of cases coming through the hospital and securing patient permission. In addition to the four faculty, fellows from the cardiovascular training program also participated in the cases. During the presentations, Singh and his colleagues spoke directly to a panel of cardiologists in Chicago while an audience listened in and watched the procedures. Several of the panelists weighed in when asked what they would do during similar cases.

"It was much like the live cases presented during my ARCH programs here in St. Louis, but on a grander scale. In both, we are teaching as the case is happening,"

Left: The team at WU/BJH prepares for the live case presentations. Right: More than 500 cardiologists watched the live coronary intervention procedures.

A recent cardiovascular study found that the process by which plaque builds up within arteries and causes atherosclerosis could be similar to the process by which trash builds up in brain diseases such as Alzheimer’s disease. The study, published in Science Signaling, is the first to show that as plaque accumulates in the arteries, another process also is occurring in which immune cells start to accumulate misshapen proteins in the lining of the arteries. The buildup of certain proteins is the hallmark of Alzheimer’s, Parkinson’s and other degenerative neurological disorders.

Could Atherosclerosis Be Alzheimer’s Disease of Blood Vessels?

WU Cardiovascular Division researchers found that when they mimicked the development of atherosclerosis in laboratory tests, the waste-disposal functions of cells became disrupted, causing a specific protein, p62, to accumulate in the arteries. Atherosclerotic plaque samples taken from patients also were found to have high amounts of p62. A surprising finding is that when p62 is missing, there is no longer a buildup of the misshapen proteins that causes more damage than if the waste were corralled into a large ‘trash bin.’"

Ismail Sergin and Babak Razani.

A recent cardiovascular study found that the process by which plaque builds up within arteries and causes atherosclerosis could be similar to the process by which trash builds up in brain diseases such as Alzheimer’s disease. The study, published in Science Signaling, is the first to show that as plaque accumulates in the arteries, another process also is occurring in which immune cells start to accumulate misshapen proteins in the lining of the arteries. The buildup of certain proteins is the hallmark of Alzheimer’s, Parkinson’s and other degenerative neurological disorders.

Babak Razani, MD, PhD

A recent cardiovascular study found that the process by which plaque builds up within arteries and causes atherosclerosis could be similar to the process by which trash builds up in brain diseases such as Alzheimer’s disease. The study, published in Science Signaling, is the first to show that as plaque accumulates in the arteries, another process also is occurring in which immune cells start to accumulate misshapen proteins in the lining of the arteries. The buildup of certain proteins is the hallmark of Alzheimer’s, Parkinson’s and other degenerative neurological disorders.

Babak Razani, MD, PhD

A recent cardiovascular study found that the process by which plaque builds up within arteries and causes atherosclerosis could be similar to the process by which trash builds up in brain diseases such as Alzheimer’s disease. The study, published in Science Signaling, is the first to show that as plaque accumulates in the arteries, another process also is occurring in which immune cells start to accumulate misshapen proteins in the lining of the arteries. The buildup of certain proteins is the hallmark of Alzheimer’s, Parkinson’s and other degenerative neurological disorders.

Babak Razani, MD, PhD

"Our study demonstrates that p62’s role in gathering up misshapen protein is protective against atherosclerosis even if the cell can’t actually dispose of the waste it gathers. I equate that process to putting everything into a trash bin. The cell can’t remove the trash, but at least it’s corralled. If p62 is missing, there’s no gathering of the misshapen proteins, which causes more damage than if the waste were corralled into a large ‘trash bin.’"

Razani says, therapeutic efforts might now focus on ways to remove protein aggregates rather than on preventing them from forming.

Tyson, who has conducted research since his residency, agrees. "Research allows a trainee to develop a unique set of critical thinking skills and provides a personal perspective on the rigor of clinical investigation that helps inform our daily clinical decisions," he says.

Since 2011, 35-40 fellows have been involved in clinical research. First-year fellows begin by rotating through all of the cardiology subspecialties in the first six months. All then receive from Rich individually to identify a research interest. Fellows are then connected with a faculty member who serves as a mentor and collaborator. The hands-on approach has resulted in what Rich calls a "progressive improvement" in the quality of research conducted by the fellows.

"Significantly," adds Rich, "we have found that participation in research has, in some cases, altered career paths toward clinical investigation. Interfellowional fellow Ed Coverstone, MD, is one of them. Drawn into research as a first-year fellow, he started looking into the links between smoking, tobacco use and cardiovascular disease. Partnering with a researcher, he found that the answer to one research question led to more and more questions. "I likened the process to Alice falling down the rabbit hole. I became enthralled by the investigative process," Coverstone says.

"By the time they leave our program, our fellows will have participated in research, with many projects presented at a scientific meeting or developed into a manuscript," says Rich. "Although there is always room for improvement, we know our approach is working because we are seeing significant contributions to both knowledge and the medical literature."

Edward Coverstone, MD (left), discusses his cardiology clinical research project.
Benico “Ben” Barzilai, MD, returned to Washington University School of Medicine in June to be the guest speaker at the 2nd Annual Michael Beardslee Memorial Lecture.

Barzilai was the Director of the Vascular Heart Disease Clinic at Barnes-Jewish Hospital and served as the Director of the Adult Cardiology Fellowship Training Program from 1992 to 2009 before leaving to join the Cleveland Clinic. Currently he is the Head of the Section of Clinical Cardiology in the Robert and Suzanne Tomsich Department of Cardiovascular Medicine in the Heart and Vascular Institute at Cleveland Clinic.

“I always enjoy returning to Washington University to see many old friends, but it is particularly special this year as we got together to honor the life of Michael Beardslee,” says Barzilai.

Barzilai, who lectured on “Bioprosthetic Valve Thrombosis: How Do We Interpret Recent Clinical Studies?” is a 1978 graduate of the University of Illinois School of Medicine. He completed his internship, residency and then fellowship in cardiology at Barnes-Jewish Hospital and Washington University School of Medicine before joining the faculty here in 1984. He has a long-standing interest in coronary artery and valvular disease. While at Washington University, he helped to establish the Center for the Treatment of Valvular Heart Disease at Barnes-Jewish Hospital.

“Data gathered in the last five years suggests that clot formation on bioprosthetic valve may be much more important than previously recognized,” Barzilai says. “It is possible that some bioprosthetic valves that have become dysfunctional may have thrombus on the leaflets, which could be treated with anticoagulants. It is important for us to recognize valve thrombosis and treat it accordingly.”

The Beardslee Memorial Lecture is named in memory of Michael Beardslee, MD, an alumnus of the Cardiovascular Division’s fellowship training program and a former faculty member from 1999 to 2008 before he entered private practice. He passed away unexpectedly in 2015 just before he was to return to our faculty.