

UT SOUTHWESTERN

Heart Beat



Elizabeth Brickner, MD Dr. Brickner is an Associate Professor of Internal Medicine at UT Southwestern, where she is also Director of the Adult Congenital Heart Disease Clinic, as well as Director of the Audre and Bernard Rapaport Center for Cardiovascular Research. Her research interests include echocardiography and congenital heart disease in adults. A graduate of the Ohio State University College of Medicine, Dr. Brickner completed residency in internal medicine at the University of Michigan Hospitals, followed by a fellowship in cardiology at UT Southwestern.

Adult Congenital Heart Disease Clinic: Subspecialty Care at UT Southwestern

by Beth Brickner, MD

More Adults Than Children

Congenital heart disease is the most common form of birth defect, occurring in about 0.8 percent of live births. Traditionally, physicians have considered congenital heart disease to be a problem for pediatricians. However, due to the resounding success of surgical/interventional treatments for congenital heart defects, more than 85 percent of patients survive to adulthood. Now, there are more adult than pediatric patients with congenital heart disease. In fact, there are more than 1 million adults in the United States with congenital heart disease.



Cardiologists trained in adult medicine have minimal training in the diagnosis and management of congenital heart disease, usually limited to defects such as simple left to right shunts (ASD, VSD, and PDA) and valvular disease (aortic or pulmonary stenosis). However, nearly half of all patients with congenital heart disease have significantly more complicated lesions, including tetralogy of Fallot, atrioventricular septal defects, transposition of the great arteries, and single ventricles. Adult cardiologists usually have no training in these more complex defects.

Survival to adulthood for patients with these more complicated defects has been made possible in large part due to surgical procedures to palliate or correct the underlying anatomic defects. Many of the surgical procedures performed are quite creative and result in complicated intracardiac anatomy. Many physicians caring for adults who have undergone surgery for congenital heart disease in childhood—and often the patients themselves—mistakenly assume that the patient has been “cured” of their heart disease.

There are few surgical procedures in congenital heart disease that can be considered completely curative, without potential long-term complications. Many complicated surgical procedures can result in long-term sequella, such



Seal of Approval

The Centers for Medicare & Medicaid Services (CMS) have certified UT Southwestern's multidisciplinary transplant programs for heart, lung, kidney, and liver to accept Medicare and Medicaid patients. CMS certification for transplantation is an important milestone. To gain certification, transplant programs must meet strict requirements stipulated by CMS, which oversee transplantation programs nationwide.

UT Southwestern's multidisciplinary approach assembles a unique team of medical experts for each patient to handle comorbidities and complications, as well as specialized teams to help steer patients through the entire process from financial paperwork to postsurgical care instructions and follow-up. A dedicated coordinator provides each patient a point person to contact who helps identify and resolve any issues and tracks all the moving pieces.

"What distinguishes UT Southwestern's programs is having the academic background, the clinical trials, and the ability to do basic and translational research, as well as quickly tap into UT Southwestern's world-renowned field of experts," says Juan Arenas, MD, Chief of Surgical Transplantation and Surgical Director of the Liver Transplant Program.

In The Next Issue
Valvular Heart Disease

UT Southwestern *HeartBeat* is produced by the Office of Communications, Marketing and Public Affairs.

5323 Harry Hines Blvd.
Dallas, Texas 75390-8519

utsouthwestern.org/heartbeat

Copyright © 2010 UT Southwestern Medical Center

RESEARCH UPDATE



Fitness vs. Fatness

People with a healthy body weight are more likely than those who are physically fit to have lower blood pressure, according to the results of a new study by UT Southwestern cardiologist Dr. Susan Lakoski.

In a comparison of physical fitness and body weight, body-mass index (BMI) was more important than cardiorespiratory fitness in assessing risk for prevalent hypertension, according to findings published in the *American Heart Journal*.

Dr. Lakoski and her colleagues analyzed data from about 35,000 patients, mostly white men, collected over the last 20 years at the Cooper Clinic in Dallas.

"Obesity strongly predicts blood pressure, and if you have a normal body weight, your chances of having high blood pressure decrease substantially," Dr. Lakoski says.

"The study suggests that fitness alone may not overcome the negative effects of being obese," she adds.

The purpose of the study was to analyze the relative importance of BMI and cardiorespiratory fitness on systolic blood pressure. Previous studies have shown that exercise and cardiorespiratory fitness are associated with lower hypertension risk, including reductions in systolic blood pressure of 3 or 4 mm Hg with exercise training.

When assessing body mass index and cardiorespiratory fitness together, obese patients had a significantly higher systolic blood pressure compared to normal weight individuals for every level of fitness, including those with low and high levels of fitness.

Obese patients who increase their fitness levels substantially, Dr. Lakoski says, may not see the same benefits in blood pressure as patients who are normal weight.

New Physicians & Faculty



Srinivas Bollineni, MD
Assistant Professor of Internal Medicine

Dr. Bollineni comes to the Department of Internal Medicine–Pulmonary Diseases from Baylor College of Medicine in Houston, where he completed a fellowship in pulmonary critical care. He earned his medical degree from Sri Venkateswara Medical College in Tirupati, India, and finished residency in internal medicine at St. Luke's Hospital in St. Louis. Dr. Bollineni is board certified in internal medicine.



James Daniels, MD
Assistant Professor of Internal Medicine

Dr. Daniels joins the Department of Internal Medicine–Cardiology after completing fellowships in cardiovascular diseases and cardiac electrophysiology at UT Southwestern. He received his medical degree from UT Southwestern and finished residency at the University of New Mexico School of Medicine. Dr. Daniels specializes in the treatment of heart rhythm disorders, including electrophysiology studies, ablations, and implantation of cardiac rhythm management devices such as pacemakers and cardiac defibrillators.



Sarah Gualano, MD
Assistant Professor of Internal Medicine

Dr. Gualano joins the Department of Internal Medicine–Cardiology after completing fellowships in cardiovascular medicine and interventional cardiology at the University of Michigan. She earned her medical degree from the University of Chicago School of Medicine and completed residency there. Dr. Gualano is board certified in internal medicine, cardiovascular medicine, and interventional cardiology. Her research interests include coronary artery disease, coronary intervention and stenting, and valvular heart disease.



Susan Matulevicius, MD
Assistant Professor of Internal Medicine

Dr. Matulevicius joins the Department of Internal Medicine–Cardiology after completing fellowships in cardiology and advanced cardiac imaging at UT Southwestern. She received her medical degree from the University of Pennsylvania School of Medicine and finished residency at the Hospital of the University of Pennsylvania. She specializes in advanced cardiac imaging, including cardiac MRI, as well as noninvasive cardiology, including echocardiography. Her research interests include women and heart disease, and valvular heart disease.



Nicole Minniefield, MD
Assistant Professor of Internal Medicine

Dr. Minniefield joins the Department of Internal Medicine–Cardiology after completing a fellowship in cardiology at UT Southwestern. She earned her medical degree from Temple University School of Medicine and completed residency in internal medicine at the University of Pennsylvania. Her research interests include noninvasive markers of early cardiac dysfunction, diastolic function, and African American hypertensive heart disease and health disparities. She is board certified in internal medicine.



Joseph Mishkin, MD
Assistant Professor of Internal Medicine

Dr. Mishkin joins the Department of Internal Medicine–Cardiology from the University of Florida College of Medicine, where he served as a fellow in heart failure and transplantation. He received his medical degree from Indiana University School of Medicine and finished residency at the University of South Florida College of Medicine, where he also completed a fellowship in cardiology. He specializes in congestive heart failure, heart transplantation, and mechanical-assist devices for advanced heart failure.



Melanie Sulistio, MD
Assistant Professor of Internal Medicine

Dr. Sulistio joins the Department of Internal Medicine–Cardiology from the University of Texas Health Science Center at San Antonio, where she completed a fellowship in cardiovascular disease. She also earned her medical degree and completed residency in internal medicine there. A clinical cardiologist, Dr. Sulistio's areas of interest include ECG interpretation, physical exam skills, hemodynamics, and simulation teaching. Dr. Sulistio is board certified in internal medicine and cardiovascular disease.



Aslan Turer, MD, MHSc
Assistant Professor of Internal Medicine

Dr. Turer comes to the Department of Internal Medicine–Cardiology from Duke University Medical Center, where he completed fellowships in cardiology and interventional cardiology. He earned his medical degree from the University of California, San Francisco, and finished residency in internal medicine at Duke. Dr. Turer's research interests include cardiac metabolism in response to acute stress states. He is board certified in internal medicine. Dr. Turer also holds a master's degree in health sciences from Duke.

Adult Congenital Heart Disease Clinic: Subspecialty Care at UT Southwestern

continued from front cover

as arrhythmias related to surgical scars or chamber enlargement, failure or deterioration of prosthetic tissues used in the original repair, or development of ventricular dysfunction due to altered hemodynamics.

Transitioning Patients

Transition of patients from the world of pediatric cardiology to adult medicine has been haphazard at best. For patients with moderate or complex lesions, many pediatric cardiologists have felt uncomfortable transferring their care to adult cardiologists who have not been trained in the management of these patients and do not understand the complexities of their management. So, pediatric cardiologists “hold on” to these patients, continuing to care for them well into adulthood.

Patients with congenital heart disease who are doing well in young adulthood may drift away from regular medical care, under the assumption that their disease is “cured.” Several studies have shown that gaps in medical care can be as long as 10 years or more. When adults with congenital heart disease that has been previously treated in childhood re-enter the health care system as adults, they often present to adult cardiologists who do not understand their underlying disease.

Most commonly, adults with congenital heart defects present again in adulthood with either arrhythmias or symptoms of heart failure. When they present with arrhythmias, the adult cardiologist may focus primarily on managing the arrhythmia and not recognize or address the fact that the arrhythmia is related to previous surgical repairs or new hemodynamic derangements resulting from the underlying congenital heart disease. When hemodynamic derangements are present, due to ventricular dysfunction, residual defects, deterioration of prosthetic materials, or

from other causes, specialized interventions may be needed. Late recognition of these problems can result in unnecessary hospitalizations, clinical deterioration, and even premature death.

Bethesda: Establishing a Plan

The Bethesda Conference in 2001, cosponsored by the American College of Cardiology and the American Heart Association, officially recognized the need for establishing a plan of care for the large population of adults with congenital heart disease. They divided congenital heart defects into simple, moderate, and complex lesions and proposed the need for subspecialty level care for these patients—expert care in adult congenital heart disease, to be provided by specially trained physicians at regional referral centers.

The Bethesda Conference further specified the components of a regional referral center, including involvement of both adult and pediatric cardiologists and cardiac surgeons; availability of experts in imaging of congenital heart defects; interventional cardiologists and electrophysiologists

with expertise in congenital heart disease; expertise in heart and lung transplant and pulmonary hypertension; and management of high-risk pregnancies.

The Adult Congenital Heart Disease Clinic at UT Southwestern provides this level of subspecialty care for these patients.

About the UT Southwestern Clinic

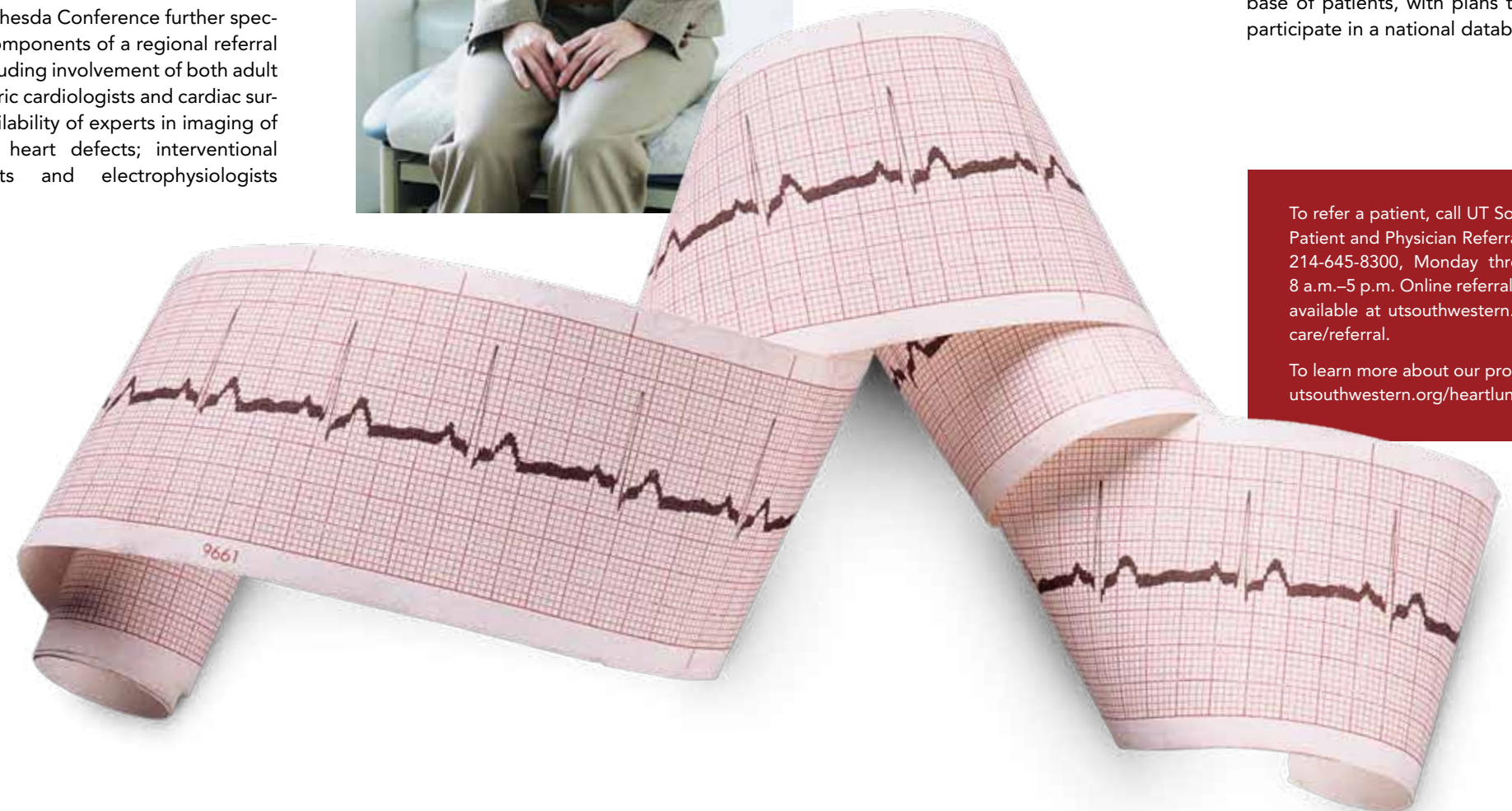
Working in close collaboration with the pediatric cardiologists and cardiac surgeons at Children’s Medical Center Dallas, the Adult Congenital Heart Disease Clinic provides consultative services and regular follow-up for patients with all types of congenital heart disease. Patients are transitioned from the pediatric practices to the adult clinic at the discretion of their pedi-

atric cardiologist, usually with transition to the adult clinic by age 21. We also receive referrals from pediatric cardiologists in private practice in the Dallas area.

Adult cardiologists in the Dallas/Fort Worth area are becoming increasingly aware of our clinic and are referring patients for evaluation. We provide care for patients throughout Texas, Oklahoma, and Louisiana; the only other regional referral center for adult patients with congenital heart disease is in Houston. Some patients seek us out, often by word-of-mouth or through the Adult Congenital Heart Association, which maintains a list of regional referral centers. We are participating in efforts to standardize training and certification in the care of adult patients as sponsored by the Adult Congenital Heart Association and are creating a local database of patients, with plans to eventually participate in a national database.

To refer a patient, call UT Southwestern’s Patient and Physician Referral Services at 214-645-8300, Monday through Friday, 8 a.m.–5 p.m. Online referral requests are available at utsouthwestern.edu/patient-care/referral.

To learn more about our program, visit: utsouthwestern.org/heartlungvascular



Entering a New Era: Cardiovascular Effects of Diabetes Drugs

by Darren K. McGuire, MD, MHSc



Darren McGuire, MD, MHSc Dr. McGuire is an Associate Professor of Internal Medicine at UT Southwestern and Director of the Parkland Health & Hospital System Outpatient Cardiology Clinics. His research interests include the long-term prevention of, and risk-modification for, cardiovascular disease, especially among patients with diabetes. Dr. McGuire earned his medical degree from Johns Hopkins University School of Medicine. After finishing residency at UT Southwestern in internal medicine, he completed fellowships in cardiology here and at Duke University. He also holds a master's degree in health sciences from Duke.

A Significant Evolution

Over the past two decades, a significant evolution has occurred in both our understanding of type 2 diabetes and its clinical consequences, and in our clinical approach to the management of this disease.

While any discussion of type 2 diabetes is inevitably broad and complex, I will focus here on a few specific situations that have culminated in a shift in the regulatory oversight and review of drugs developed to manage blood glucose in patients with type 2 diabetes. Since the beginning of 2009, both in the United States and in Europe, for the first time in the field of diabetes, drugs under development for the management of hyperglycemia will be required to demonstrate cardiovascular safety in high-risk patients prior to regulatory approval.

Historically, much focus for the treatment of diabetes has centered on preventing microvascular complications (retinopathy, nephropathy, and neuropathy). We now know that the primary contributor to morbidity and mortality associated with diabetes involves cardiovascular complications such as myocardial infarction, stroke, peripheral vascular disease, heart failure, and cardiovascular death, in aggregate occurring two to four times more frequently than microvascular complications. In that context, while glucose control favorably affects microvascular disease risk, we have been unable to prove that contemporary strategies for glucose management materially affect cardiovascular risk, underscoring the necessity to evaluate the cardiovascular safety and effectiveness of glucose-lowering medications.

The prevalence of diabetes continues to climb, both in the U.S. where about one in 10 adults now have diabetes, and around the world, with the vast majority (>95%) being type 2 diabetes. On the backdrop of the serious clinical complications attributable to diabetes, this creates an international public health crisis that demands intensified investigation into more effective strategies to both prevent diabetes and to more effectively intervene on its associated clinical risk.

Explosion of Diabetes Drugs

Until 1995, only three classes of medications were available for use in the U.S. to treat hyperglycemia: insulin, sulfonylureas, and α -glucosidase inhibitors; metformin was added in 1995. The lack of therapeutic options largely justified the regulatory approach, which only required proof that a drug improved measures of glucose control in the absence of evident toxicities or "safety signals;" no clinical outcomes assessment was required.

Since 1995, there has been an explosion of new diabetes therapies approved for clinical use, with more than 30 formulations in 11 different classes currently available. Additionally, at least 12 novel classes of diabetes medications are in advanced clinical testing. Therefore, with the urgency to develop more therapeutic options greatly attenuated, we now can clinically afford to slow down the development process sufficiently to execute clinical out-

comes trials, and specifically, cardiovascular outcomes trials prior to drug approval.

Observations from a number of research programs have highlighted how very little we presently know about the cardiovascular safety and effectiveness of drugs and strategies presently used to treat hyperglycemia. For example:

- Consistent observation across studies that rosiglitazone (Avandia) may increase myocardial infarction risk—not observed with pioglitazone (Actos), a drug in the same class;
- Observed increased risk for new or worsening heart failure with both rosiglitazone and pioglitazone;
- The halting of development of muraglitazar—a dual PPAR α/γ agonist—when increased cardiovascular disease risk was demonstrated after application to the FDA for new drug approval; and
- The observed increased mortality associated with more intensive glucose control versus standard glucose control in the NIH-sponsored ACCORD trial studying patients with type 2 diabetes with increased cardiovascular risk, leading to early termination of the trial (a safety signal that was not observed in a series of other similarly designed trials).

Need for Assessment

Significant uncertainty remains regarding the optimal strategies for glucose control in the context of cardiovascular effects.

Overall, these observations underscore the imperative to systematically appraise the cardiovascular effects of glucose-lowering drugs. In the wake of the recently modified regulatory guidance requiring cardiovascular safety assessment, there are

at least 14 randomized clinical outcomes trials presently under way, comprising a net planned enrollment of more than 100,000 patients with diabetes. Our research group is actively involved in 10 of these trials.

The imperative for CVD assessment of drugs for type 2 diabetes has never been as objectively apparent as now, and given the global burden of diabetes and its associated cardiovascular disease risk, never so important. As we move forward with this research, the results of which will not be known for three to seven years, it is important to continue to manage blood glucose to present A1C target of <7% with existing therapies for microvascular risk reduction, and to extend the focus of diabetes management with similar intensity toward aggressive treatment of cardiovascular disease risk—especially control of blood pressure (target <130/80) and LDL-cholesterol (LDL-c<100mg/dL, and ideally <70mg/dL).

To refer a patient, call UT Southwestern's Patient and Physician Referral Services at 214-645-8300, Monday through Friday, 8 a.m.–5 p.m. Online referral requests are available at utsouthwestern.edu/patient-care/referral.

To learn more about our program, visit: utsouthwestern.org/heartlungvascular



UT SOUTHWESTERN
MEDICAL CENTER

5323 Harry Hines Boulevard
Dallas, Texas 75390-8519

Nonprofit Org.
U.S. POSTAGE
PAID
Dallas, Texas
Permit No. 2650



The future of medicine, today.

UT SOUTHWESTERN
Medical Center