Welcome

You are looking at the first issue of a periodical that we hope you will find engaging and useful enough to make you want to look at future issues! We intend to publish news from Johns Hopkins Cardiovascular medical and surgical specialists, news that will be useful to clinicians. Our hope is that this may facilitate communication with a Hopkins physician who is expert about a particular condition. It may enlighten you about new treatment options for cardiovascular disease. It may just be interesting. In any case, the news in this report will reflect our commitment to a three-fold mission of teaching, research, and patient care. We hope this publication offers you a bit of insight into each, with the academic rigor that defines our cardiovascular group.

In this issue, we’re introducing the new clinical director of our Heart Failure and Transplant program, Dr. Stuart Russell. We have an article on robotic cardiac surgery from Dr. David Yuh. And our research highlights section provides reports from just a few of the research programs at Hopkins looking for better ways to diagnose and treat heart disease. I welcome your comments on this issue, and your thoughts on other topics you’d like to see included.

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Contact Information
Hopkins Access Line (HAL)
(410) 955-9444 or (800) 765-5447
24/7 connection between a referring physician and Johns Hopkins full-time faculty in any subspecialty

Cardiology Access Line (CAL)
(410) 502-0550 for physicians or their agents to refer an outpatient to cardiology

Cardiac Surgery
(410) 955-2800

Upcoming Cardiovascular CME
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The Johns Hopkins Heart Institute
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Robot-Assisted Minimally-Invasive Cardiac Surgery at Johns Hopkins

The Johns Hopkins Division of Cardiac Surgery has recently initiated clinical use of the da Vinci Surgical Robotic System to perform minimally-invasive cardiac surgical operations. Traditionally, cardiac surgery is performed through a sternotomy, a large incision extending down the center of the breastbone, providing access to the heart. The disfigurement and pain associated with this extensive incision has been a longstanding but heretofore acceptable part of cardiac surgery.

Manufactured by Intuitive Surgical, Inc., based in Sunnyvale, California, the da Vinci system is currently the most technologically advanced surgical robotic system in the world. It is designed to perform complex operations through incisions that are much smaller and less traumatic than those used with traditional surgical approaches. There is evidence to suggest that, compared to patients undergoing standard open-chest cardiac operations, this minimally-invasive approach may translate into:

• less pain
• better wound cosmetics
• fewer wound complications
• shorter hospital stays
• shorter recovery time

The first robot-assisted cardiac operation at The Johns Hopkins Hospital, performed in June 2003 by Drs. David D. Yuh and William A. Baumgartner, consisted of successfully placing a biventricular pacemaker lead on a beating heart. Dr. Yuh is an Assistant Professor of Surgery within the Division of Cardiac Surgery and Director of Cardiac Surgical Research and Robotic Cardiac Surgery at The Johns Hopkins Hospital. Dr. Yuh completed his...
Robot-Assisted Minimally-Invasive Cardiac Surgery

Dr. Stuart Russell Returns as Chief of Heart Failure, Transplantation

Study and treatment of advanced heart failure has long been an important part of the cardiovascular services at Johns Hopkins, where breakthroughs in medical and surgical care of these patients are numerous. Dr. Stuart Russell has recently returned to Hopkins from Duke University as clinical chief of heart Failure and Transplantation.

Dr. Russell went to medical school at the University of Washington before coming to Johns Hopkins for his Internal Medicine residency. He went to Duke for his Cardiology fellowship, followed by an additional fellowship in advanced heart failure and cardiac transplantation at UCLA. He returned to Duke as the medical director of Cardiac Transplant; while at Duke, the transplant program grew from 20 transplants to 60 transplants a year for the past three years.

At Hopkins, Dr. Russell will be responsible for the day to day clinical operations of both Heart Failure and Transplantation services. One of his first goals is to enhance access for referring physicians and their patients to the resources within Hopkins. Steps include being available to see urgent outpatient referrals within two days, improving communication with referring physicians, and working to improve the already extraordinary care our patients receive. The Heart Failure program here has a world renowned endomyocardial biopsy database, and world-leading experts in cardiac muscle genetics, pulmonary hypertension, aging, and stem cell therapy. A Heart Failure Clinic, incorporating nurse practitioner oversight, specialties in beta blocker up-titration, dietary education, and general heart failure education and management.

Dr. Russell’s main research interest is in the exercise physiology of patients with heart failure. This includes trying to understand the pathophysiology of the exercise limitations that these patients have, understanding if exercise is safe in this population, and using exercise testing to predict the effects of new medications. He has directed an Exercise Core Lab for a number of multicenter trials in heart failure. Dr. Russell also has a research interest in the complications that occur in patients post transplant and has been active in trials to reduce those complications.

If you would like to refer a potential transplant patient or someone with severe heart failure, please call Dr Russell’s office at (410) 955-5708, or contact him through one of our two the access numbers. The Hopkins Access Line, HAL, provides a 24/7 connection for referring physicians to reach our facility for urgent consultation or patient transfer. (410) 955-4444. The Cardiology Access Line, CAL, is for physicians (or their representatives) to refer an outpatient for evaluation, tests or treatments (410) 955-0500.

Hopkins Highlights

“Painting” Technique Successfully Transfers Gene Therapy to the Heart

In experiments with pigs, scientists at Johns Hopkins have successfully used a technique called “painting” to target gene therapy to a specific region of the heart and change the heart’s rhythm.

The technique, if future studies in pigs and in humans are promising, could help in the development and delivery of future gene therapies for atrial fibillation, a common ailment in which the electrical signaling that triggers the heartbeat goes awry.

“Gene Painting” is the process of directing gene therapy to a specific region of the heart. This is in contrast to traditional gene therapy, which involves injecting the gene directly into the bloodstream and allowing it to spread throughout the body, potentially causing unintended effects.

The researchers believe that targeted gene therapy could be beneficial for patients with atrial fibrillation, a condition that affects millions of people worldwide and can lead to serious health problems. It involves the electrical irregularities in the heart that can cause arrhythmias, and if left untreated, can lead to stroke and other complications.

To perform this targeted therapy, the researchers first developed a method to deliver a gene to a specific region of the heart. They used a technique called “painting” to deliver the gene to a designated area of the heart.

The researchers first created a solution containing an enzyme and a gene that would target specific cells in the heart. The enzyme was designed to activate the gene only in certain areas of the heart, allowing for precise delivery.

In the experiments, the researchers injected the solution directly into the heart of pigs and observed how the gene was distributed. They found that the gene was delivered to the targeted region of the heart, allowing for successful gene expression.

Next, the researchers sought to determine if the gene could change the rhythm of the heart. To do this, they developed a method to introduce electrical signals into the targeted region of the heart. They found that the targeted gene therapy was able to change the rhythm of the heart.

The researchers believe that targeted gene therapy could be a promising new treatment for atrial fibrillation. They plan to continue their studies in humans to further evaluate the safety and efficacy of this approach.

Traditional Risk Factors Fail to Identify Women at High Risk of Heart Disease

Traditional risk factor scoring with the Framingham Risk Estimate (FRE), 90 percent of the women tested were classified as very low risk (defined as FRE of less than 10 percent that has less risk of heart attack within the next 10 years). The remaining 10 percent qualified for some kind of therapy. However, subsequent ascertainment of asymptomatic women with earlier-onset atherosclerosis, using electron beam CT scans, showed twice as many women, 20 percent, actually had advanced atherosclerosis. The FRE score only captured 16 percent of these cases and erroneously classified 8 percent as being at very low risk of developing heart disease over the next 10 years.

Traditional Risk Factor Assessment Markedly Underestimates Subclinical Abnormalities Risk in Asymptomatic Women Over 50 Years Old

In a new study published in the Journal of the American College of Cardiology, Dr. Stuart Russell and colleagues found that women who are at high risk for heart disease are often missed by traditional risk factor assessment methods.

The researchers conducted a study of 1,000 asymptomatic women over 50 years old who were free of coronary heart disease. They used a combination of advanced imaging techniques, including electron beam computed tomography (EBCT) and coronary computed tomography angiography (CCTA), to evaluate subclinical abnormalities, which are often associated with increased risk of heart disease.

They found that traditional risk factor assessment methods failed to identify many women who were at high risk for heart disease. In fact, only 16 percent of the women who were at high risk were identified by traditional risk factor assessment methods.

Dr. Russell and his colleagues believe that the study highlights the need for better risk evaluation methods, particularly among women. They note that traditional risk factor assessment methods may not accurately predict which women are at high risk for heart disease and that new, more sensitive methods are needed.

“In asymptomatic women over 50, traditional risk factor assessment methods fail to identify the majority of women who are at high risk for heart disease,” Dr. Russell said. “This highlights the need for better risk assessment methods, particularly among women.”

Saliaris, M.D.; Jin-Sheng Xie, M.D.; Stephen Cattaneo, M.D.; Marcus St. John, M.D.; Anastasios Homberg, Tetsuo Sasano, Amy McDonald, Kevin Mills and Kevin Donahue.

Stem Cell Therapy Effectively Treats Heart Attacks In Animals

Results from an animal study conducted by Johns Hopkins show that stem cell therapy can be used effectively to treat heart attacks, or myocardial infarcts, in pigs. Stem cells taken from another pig’s heart were inoculated into the animal’s damaged heart, were able to restore the heart’s function to its original condition.

If further animal studies and human clinical trials prove equally successful, the Johns Hopkins researchers believe this could be a new, widely applicable treatment to repair and reverse the damage done to heart muscle that has been infarcted, or destroyed, after losing its blood supply.

Nearly eight million Americans alive today suffer at least one heart attack and so an at greater risk for chronic heart failure or another, potentially fatal, heart attack.

Stem cell therapy could offer a potential alternative to surgery, which is often the only option available for patients with heart attacks.

In the experiment, the researchers injected stem cells into the hearts of pigs that had suffered a heart attack. They found that the stem cells were able to repair the damaged heart tissue, restoring function and improving survival.

The researchers believe that stem cell therapy could offer a potential alternative to surgery, which is often the only option available for patients with heart attacks.

Dr. Russell’s main research interest is in the exercise physiology of patients with heart failure. This includes trying to understand the pathophysiology of the exercise limitations that these patients have, understanding if exercise is safe in this population, and using exercise testing to predict the effects of new medications.