HEARTLINE

Fall 2010

Montefiore-Einstein Heart Center

Groundbreaking Cardiologist Named Chief of Cardiology, Co-Director of Montefiore-Einstein Heart Center

Mario J. Garcia, MD

Five years ago, *Time* Magazine predicted that Cardiac CT—a technology pioneered in large part by Mario J. Garcia, MD—would foster a "heart imaging revolution" that would save the lives of patients around the world. And indeed it already has.[1]

Today, Dr. Garcia, who recently was appointed Chief of Cardiology at Montefiore Medical Center, Co-Director of Montefiore-Einstein Heart Center, and Professor of Medicine at Albert Einstein College of Medicine, is bringing his revolutionary spirit and superior reputation in cardiology and cardiovascular imaging to patients throughout the Bronx, the region and the country.

"My vision is to improve access to outstanding cardiovascular medical care for everyone who needs it," explains Dr. Garcia. "We'll achieve that by enriching our faculty with new recruits who will bring additional skills and talents to Montefiore and by partnering with other institutions to conduct important clinical research in the areas of prevention, diagnostic imaging techniques and all treatment modalities for patients with heart disease."

Dr. Garcia also plans to help drive the national healthcare reform agenda by demonstrating, through clinical practice and additional research activities, the value of various high-quality, cost-effective methods for diagnosing and treating heart disease.

"In addition to having a large population of people with cardiovascular disease and risk factors, the Bronx has a high percentage of Medicare, Medicaid and uninsured patients," notes Dr. Garcia. "To me, it's an ideal testing ground for the new paradigm of healthcare in the United States and I'm thrilled to be part of it. On a personal level, I'm also looking forward to reaching out to the large, and often underserved, Latino population in the Bronx."

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1 "How New Heart-Scanning Technology Could Save Your Life", *Time*, August 28, 2005

LEADING THE REGION

Heart Transplant 1 Year Survival

Hospital	Adult	Pediatric
Montefiore Medical Center	**91.20%**	**100%**
Mount Sinai Medical Center	84.82%	88.89%
Columbia University Medical Center	83.97%	90.27%

* US Department of Health and Human Services Scientific Registry of Transplant Recipients(SRTR) Center-Specific Reports (CSR) 6/30/2009

Also in this Issue:

Published by the Montefiore-Einstein Heart Center

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MONTEFIORE Medical Center
The University Hospital for the Albert Einstein College of Medicine

Montefiore-Einstein Heart Center at Forefront of VAD and Stem Cell Innovation

Thanks to major advances in cardiac care, more patients than ever are surviving heart attacks and living with long-term, chronic heart disease. That's great news. But as the baby boomer generation continues to age, the number of patients with end-stage heart disease will grow as well, creating a demand for donor hearts for transplantation that far outnumbers supply.

The Montefiore-Einstein Heart Center is at the forefront of discovering and refining a variety of innovative therapies—many using mechanical assist devices and stem cells—that will save lives, restore damaged heart muscle and improve the quality of life for heart failure patients of all ages.

For example, Montefiore is the only medical center in the region participating in an industry-sponsored study to evaluate the safety and effectiveness of the HeartWare® LVAD System in patients with advanced, refractory heart failure who are listed for cardiac transplantation. The HeartWare device is smaller, easier to implant, less likely to fail, and potentially longer-lasting than earlier generation LVADs. It is also noiseless, a significant quality of life benefit for patients and their loved ones.

A HeartWare Ventricular Assist Device

While continuing to explore the potential of new LVADs as a bridge to heart transplantation, Montefiore-Einstein Heart Center is at the cutting edge in the use of assist devices as permanent, destination therapy for those not eligible for transplant. It also is leading the way across the country in the study of left ventricular recovery in patients using LVAD support.

"Ventricular recovery is an extremely exciting field that's generating a lot of research interest, particularly as an option for young people with heart failure," explains Daniel Goldstein, MD, Director of Cardiac Transplantation and Mechanical Assistance Programs and Co-Director of the Center for Advanced Cardiac Therapy at Montefiore-Einstein Heart Center. "Our goal is to demonstrate that ventricular recovery and device explantation are possible in non-ischemic patients, so more patients can continue to live with their own hearts."

In another highly promising arena, Montefiore will be among the first five US medical centers to participate in an industry study of the CircuLite® partial support VAD for patients with less advanced heart disease. The trial is expected to receive FDA approval and begin in late 2010 or early 2011.

Investigators at the Montefiore-Einstein Heart Center also have been exploring the use of stem cells for ventricular recovery. They have studied the effectiveness of implanting mesenchymal stem cells into the heart during LVAD surgery. And, recent preclinical work in collaboration with Piero Anversa, MD, the world's foremost authority on cardiac stem cells, has demonstrated the feasibility of engrafting a transplanted heart with stem cells taken from a patient's own diseased heart.

"Such work could revolutionize the field of transplantation and give clinicians a potent new tool for extending the longevity of transplanted hearts," notes David D'Alessandro, MD, Attending Surgeon in Cardiothoracic Surgery and Director of Clinical Trials at Montefiore-Einstein Heart Center. "Based largely on this work, our team is working within the NIH-NHLBI sponsored Cardiothoracic Surgery Trials Network to launch the first clinical trial using autologous cardiac progenitor cells in transplant patients." (See article: Montefiore-Einstein Heart Center Serves as Model for Prestigious NHLBI CT Surgical Trials Network).

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VAD and Stem Cell Innovation *(continued from page 2)*

"Our discoveries are helping to define the next generation of cardiac care for patients everywhere," says Dr. Goldstein. "What also distinguishes Montefiore is the personalized attention we give our patients and their referring physicians. We stay in close contact with referring physicians throughout treatment and follow up care, even providing education and staff training as necessary." ♥

To refer a patient or to learn more about VAD and stem cell innovation at Montefiore-Einstein Heart Center, please call 718-920-7000 or email Dr. Goldstein at dgoldste@montefiore.org or Dr. D'Alessandro at ddalessa@montefiore.org.

Rare Dual Heart-Liver Transplantation Successfully Performed at Montefiore

On June 2, Juan Farias—a 32 year-old father of four—received a dual heart-liver transplantation at Montefiore Medical Center in a highly complex, 12-hour operation that required flawless collaboration between a large multi-disciplinary team of expert surgeons, physicians and support staff. An amazing 10 days later, Mr. Farias went home to a bright and hopeful future with his family.

Mr. Farias suffered from a rare enzyme deficiency in his liver which caused advanced heart failure. Without receiving a new liver to correct the deficiency, the heart would become diseased again. Only a dual transplantation would solve the problem. Since 1992, fewer than 80 such procedures have been performed in the US.

"A complicated dual transplantation can only be performed by highly skilled and experienced transplantation teams," explains Robert E. Michler, MD, Surgeon-in-Chief, Chairman of the Department of Surgery and the Department of Cardiovascular and Thoracic Surgery. "We have extraordinarily talented heart and liver physicians who provide the finest care available anywhere. Our successes are a testament to their expertise."

The heart transplantation was led by David D'Alessandro, MD, and Daniel Goldstein, MD. The liver transplantation was led by Amy Lu, MD, Javier Chapochnick-Friedmann, MD, and Milan Kinkhabwala, MD. ♥

Members of the transplant team with 32-year old patient Juan Farias include (left to right): Simon Maybaum, MD, Medical Director, Center for Advanced Cardiac Therapy; Gerin Stevens, MD, Cardiologist; Javier Chapochnick Friedmann, MD, Abdominal Transplant Surgeon and Surgical Director of Pancreas Transplant; Amy Lu, MD, Surgical Director, Kidney Transplant Program; Robert E. Michler, MD, Surgeon-in-Chief and Co-Director of the Montefiore-Einstein Heart Center; Milan Kinkhabwala, MD, Chief, Division of Transplantation; Julia Shin, MD, Cardiologist; Mario Garcia, MD, Co-Director of the Montefiore-Einstein Heart Center and Chief of Cardiology, and Paul Gaglio, MD, Medical Director of Liver Transplant.

New Pediatric Heart Transplantation Program at The Children's Hospital at Montefiore Exceeds First Year Goals

In its first year of operation, the doctors and staff of the new Pediatric Heart Transplantation Program at The Children's Hospital at Montefiore (CHAM) conducted seven transplantations, achieving volume comparable to that of most long-established, mid-sized North American programs. This accomplishment far exceeded the institution's expectations and was a victory made all the sweeter by the outstanding outcomes of each of the patients.

Samuel Weinstein, MD, Director of Pediatric Cardiothoracic Surgery, and Daphne Hsu, MD, Chief of Pediatric Cardiology, discuss the progress of a patient in the Pediatric ICU at The Children's Hospital at Montefiore.

"It's important to keep in mind that—while pediatric heart transplantation may be a new venture for Montefiore—it's not new for our multidisciplinary, comprehensive care team," explains Samuel Weinstein, MD, Director of Pediatric Cardiothoracic Surgery and Adult Congenital Cardiac Surgery. "Collectively, this team has more experience caring for patients with heart failure and transplantation than any in the tri-state area."

Most Experience in Region—Becoming a Center of Choice Nationally

The recruitment of national and international leaders in the treatment of pediatric heart disease and transplantation contributed to the New York State Department of Health's swift approval of the Pediatric Heart Transplantation Program.

Along with Daphne Hsu, MD, Chief of Pediatric Cardiology and Co-Director of the Pediatric Heart Center at CHAM, several prominent specialists with extensive relevant experience recently have joined the team, including Jacqueline Lamour, MD, Director of Pediatric Advanced Cardiac Therapies; Robert Pass, MD, Director of Pediatric Electrophysiology and Director of Pediatric Interventional Cardiology, and Leo Lopez, MD, Director of Pediatric Non-Invasive Imaging. Building on the solid foundation that already existed within the Pediatric Heart Center, the team is taking the patient- and family-centered care for which CHAM is known to the next level.

Among the institution's initial goals was to become the pediatric heart transplantation center for the Bronx, so that patients from this large community could receive the highest quality treatment and a lifetime of follow-up care close to home. The Program has achieved and surpassed that goal, already becoming a transplantation center of choice for patients from Manhattan and out of state.

"Our patient population is unique in that the average age is only 12 months old, well below that found in other transplantation centers," notes Dr. Lamour. "Although we didn't set out with the express intention of focusing our work on infants, the added challenges of performing transplantation on smaller, younger hearts are significant. In these cases, the exceptional services provided by the social workers, nurses, patient care coordinators and other support staff in our Child Life Program are especially important."

National Leadership in Single- and Multi-Center Research Studies

While continuing to expand its clinical practice, CHAM's Pediatric Heart Transplantation Program team is participating in a number of groundbreaking studies that will

Pediatric Heart Transplant Program *(continued from page 4)*

help further improve technology, therapies and outcomes for children with heart failure.

Multi-center efforts include an NIH-NHLBI Pediatric Cardiomyopathy Registry; a Pediatric Quality of Life Inventory™ (PedsQL™); a Pediatric Heart Transplant Study Group database, and an Alloantibodies in Pediatric Heart Transplant (CTOT-C 4) project sponsored by the National Institute of Allergy and Infectious Diseases (NIAID) with co-funding from the NHLBI. Single-center studies focus on infectious disease in pediatric heart transplantation patients and critical states—including vasodilatory shock—following transplantation.

"With the launch of the Pediatric Heart Transplantation Program, we can now offer the full range of evaluation and treatment modalities to a young patient in heart failure, including medical management, the surgical bridge provided by the implantation of a left ventricular assist device, and transplantation," notes Dr. Hsu. "Our mission at the Pediatric Heart Center is consistent with a Montefiore-wide commitment to providing leadership in transplantation services." ♥

To refer a patient to Dr. Hsu, Dr. Weinstein or Dr. Lamour or for more information about CHAM's Pediatric Heart Transplantation Program, please call the Pediatric Heart Center at 718-741-2315 or email: dhsu@montefiore.org, sweinste@montefiore.org or jlamour@montefiore.org.

Rapid Access Unit Promotes Cardiac Patients' Recovery

The Montefiore-Einstein Heart Center expanded services with the opening of Montefiore's first Rapid Access Unit at the Weiler Division.

Patients receive specialized care following invasive cardiac procedures, such as angioplasty and electrophysiology, while enjoying the comforts of nine private rooms equipped with sliding glass doors and flat screen TVs. The new unit also provides rapid access from the Emergency Department, as well as tertiary service transfers from affiliated institutions.

"The new unit offers a high nurse-to-patient ratio, as well as a dedicated team of cardiologists, nurses and physician extenders to ensure a safe and effective recovery," said V.S. Srinivas, MD, Medical Director of the Cardiology Interventional Service at the Weiler Division.

Steven M. Safyer, MD, Montefiore President and Chief Executive Officer (left), cuts the ribbon to Montefiore's new Rapid Access Unit, and is joined by hospital executives and leadership from the Heart Center.

Montefiore-Einstein Heart Center Serves as Model for Prestigious NHLBI CT Surgical Trials Network

Several years ago, the NIH's National Heart, Lung, and Blood Institute (NHLBI) decided to direct all of its cardiac surgery research funding over a five-year period to a small number of premier heart centers. It sent a request for application to every cardiothoracic surgery program in the nation, and selected seven sites to receive grants following a highly competitive and rigorous ranking process. The Montefiore-Einstein Heart Center was one of the first sites chosen.

Dr. Michler leads the cardiac team in a complex mitral valve repair surgery.

The Montefiore continues to set the standard among the slightly expanded group now known as the Cardiothoracic Surgical Trials Network (CTSN). It was the first center to enroll patients in CTSN clinical trials and has the largest number of patients enrolled to date. In addition, Montefiore-Einstein Heart Center is taking a lead role in the direction, coordination and conduct of the trials—as well as in the eventual publication of the findings.

Perhaps even more significant is the fact that both of the research trials Montefiore recommended in its initial application have become templates for the CTSN research currently underway. The studies investigate surgical interventions and outcomes in patients with moderate and severe ischemic mitral regurgitation. Mitral valve repair and replacement are increasingly important therapies for patients with heart disease and represent specialty areas for the surgeons at Montefiore-Einstein Heart Center.

"In its feedback to us, the NHLBI said we showed a unique understanding of the key issues in the field that need to be addressed," explains Robert E. Michler, Surgeon-in-Chief, Professor and Chairman, Departments of Surgery and Cardiovascular and Thoracic Surgery. "Having the imprimatur of the NIH and the NHLBI is great for Montefiore. Ultimately, it's even better for our patients, who will benefit from our enhanced ability to translate research findings from bench to bedside as quickly and safely as possible."

Montefiore-Einstein Heart Center currently is enrolling patients for three CTSN studies. The first compares coronary artery bypass grafting with and without mitral valve repair in patients with coronary artery disease and moderate ischemic mitral regurgitation. The second compares outcomes following mitral valve repair versus mitral valve replacement in patients with coronary artery disease and severe chronic ischemic mitral regurgitation. The third compares the effect of mitral valve surgery alone or in combination with surgical ablation of atrial fibrillation in patients who require mitral valve surgery and also have chronic, persistent atrial fibrillation.

In addition to these multi-center studies, Montefiore-Einstein Heart Center is developing a novel clinical trial for the CTSN that will investigate whether cardiac progenitor cells can be used to stimulate heart muscle regeneration in heart transplantation patients. It hopes to begin recruiting patients for this trial next year.

"We're thrilled to be part of the prestigious CTSN network and to have such a strong endorsement from the NIH/NHLBI, and will continue to collaborate with leading institutions across the country to fulfill the CTSN mission of improving outcomes for patients with cardiovascular disease," says Dr. Michler. "We encourage referring physicians to speak with us about patients with cardiac disease who may benefit from access to the latest investigational therapies." ♥

To refer a patient to one of our clinical trials or to learn more about clinical trials in the Department of Cardiovascular and Thoracic Surgery, please contact Dr. Michler at 718-920-2100 or email: rmichler@montefiore.org.

New Adult Congenital Heart Disease Program to Provide Highest Quality Continuum of Care Throughout Patients' Lives

Many children with congenital heart disease (CHD) fall out of care when they reach their late teens and early twenties, only to re-present in crisis. But the new Adult Congenital Heart Disease Program at Montefiore—only the second of its kind in the New York metropolitan region—is out to change that.

"Our mission is to provide the highest quality continuum of care for our patients throughout their lives and to serve as a model for other medical centers," explains George Lui, MD, who recently joined Montefiore as Director of the Adult Congenital Heart Disease Program. "We'll achieve that by educating children and their families about the importance of staying on top of their care and by tapping into the tremendous talent and resources that exist across the Montefiore network."

Providing Every Available Therapy for Patients with CHD

Montefiore's Adult Congenital Heart Disease Program, which is sponsored jointly by The Children's Hospital at Montefiore (CHAM) and Montefiore Medical Center, currently offers every available cardiac therapy for its CHD patients. This includes 3-D imaging and evaluation technologies and services (cardiac CT, MRI, and echocardiography, angiography); catheterization and arrhythmia services from the area's most experienced cardiac interventionalists and electrophysiologists; all cardiac surgical solutions (valve repair, ventricular reconstruction, and device implantation); heart failure treatment (including transplantation), and national leadership in cardiac clinical research.

"The need for this program was very obvious when—immediately upon Dr. Lui's arrival—our clinics became full with patients referred for surgery, interventional catheterization and complex, multimodality imaging services," notes Samuel Weinstein, MD, Director of Pediatric Cardiothoracic Surgery and Adult Congenital Cardiac Surgery. "Very few physicians have Dr. Lui's experience in treating both children and adults with CHD. We'll be taking advantage of his unique expertise—along with our entire team's shared insight into the underlying pathology of patients living with CHD—to anticipate potential health issues and prevent them from happening."

Helping Patients Take Control of Their Long-Term Health

Central to our plans is the creation of the region's first and only Transitional Congenital Heart Disease Program, which will focus on helping teens and young adults take control of their own long-term healthcare.

"For the first time ever—and thanks to significant advances in medical care—there are more adults than children living with congenital heart disease," explains Daphne Hsu, MD, Chief of Pediatric Cardiology and Co-Director of the Pediatric Heart Center at CHAM. "Our new Adult Congenital Disease Program will set the standard in improving and extending the lives of this rapidly growing population." ♥

George Lui, MD, Receives AHA Outstanding Research Award

George Lui, MD, Director of the Adult Congenital Heart Disease Program at Montefiore, received the American Heart Association's prestigious Outstanding Research Award in Pediatric Cardiology in 2009 for his investigations into pregnancy outcomes in women with CHD. A manuscript of his findings is being prepared for publication in the near future.

Conditions Treated Include:

- Congenital Heart Disease
- Atrial Septal Defect
- Patent Ductus Arteriosus
- Ventricular Septal Defect
- Tetralogy of Fallot
- Transposition of the Great Arteries
- Single Ventricle
- Hypoplastic Left Heart Syndrome
- Arrhythmias
- Heart Failure

To refer a patient to Dr. Lui or Dr. Weinstein, or for more information, please call the Adult Congenital Heart Disease Program at 718-920-6700 or email: glui@montefiore.org or sweinste@montefiore.org.

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Groundbreaking Cardiologist Joins Montefiore-Einstein Heart Center

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Over the course of his 25-year career, Dr. Garcia has earned international renown as a leader in the development and clinical implementation of the most advanced, non-invasive cardiac diagnostic technology used around the world today. His clinical and research interests—which have been funded by the NIH, NASA, the US Department of Defense and industry, among others—include ongoing advances in the diagnosis of coronary artery disease, diastolic heart failure, cardiomyopathies, valvular heart disease, and even telemedicine.

Dr. Garcia joins Montefiore from Mount Sinai Medical Center, where he served as Director of Cardiovascular Imaging and Professor of Medicine and Radiology at Mount Sinai Medical School. From 1996 to 2006, Dr. Garcia was Director of Cardiovascular Imaging and Echocardiography and a staff cardiologist at the Cleveland Clinic, where he conducted much of his groundbreaking work in cardiovascular CT.

Dr. Garcia is the author of several medical textbooks, book chapters, and many peer reviewed journal articles, and has served on the boards of the American Society of Echocardiography, The American Society of Nuclear Cardiology, and the Society of Cardiovascular Computed Tomography, where he was also a founding member. He is fluent in English and Spanish.

"Dr. Garcia and I share a commitment to selecting the most appropriate diagnostic techniques and course of treatment for each of our patients, whether it be purely medical, purely surgical, or a hybrid approach," says Robert E. Michler, MD, Surgeon-in-Chief, Chairman of the Departments of Surgery and Cardiovascular and Thoracic Surgery and Co-Director, Montefiore-Einstein Heart Center. "Dr. Garcia elevates cardiology to a premier level at this institution, and I look forward to working closely with him to help define and perfect a new standard of care for cardiac patients everywhere." ♥

To refer a patient, please contact Dr. Garcia at 718-920-4172 or mariogar@montefiore.org.