Mercy Heart Institute
CARDIAC MONITOR
For healthcare professionals
Fall/Winter 2005

Mercy General first Medicare-approved site for carotid stenting in Sacramento

By Paul Akins, MD, PhD, Medical Director, Mercy Stroke Center

Atherosclerosis affecting the carotid arteries was not recognized as a major cause of stroke until the 1950s. When C.M. Fisher, MD, noted that some patients would have transient blindness in one eye and then develop stroke symptoms in the opposite face/arm/leg, he deduced that the carotid artery could be the culprit (the first branch of the internal carotid artery is the ophthalmic artery to the retina). He examined the carotid arteries in the neck and was rewarded by a high frequency of atherosclerotic lesions found in stroke patients.

The mainstay of treatment for blockages of this artery has been carotid endarterectomy. Initial efforts to treat the blockages by angioplasty and later carotid stenting were successful in alleviating the blockages, but some patients had procedural strokes due to dislodged atheromatous material during the procedure. The development of devices placed above the blockage to capture material that might be dislodged during the stenting was a major advance.

The FDA approval of carotid stents and the corresponding distal protection devices in 2004 prompted Medicare to review its policy and define terms of coverage. The carotid stents have come to market as an alternative to surgery in patients deemed "high risk" for carotid endarterectomy due to concommitant risk factors such as contralateral carotid artery occlusions, age>80, or severe pulmonary or cardiac conditions. Mercy General Hospital convened a multidisciplinary team combining the skills of neurology, vascular surgery, radiology and cardiology to design the Mercy Carotid Stent program, with Medicare approval in July 2005.

Before carotid stent.

After carotid stent.

Patient study

The most recent patient treated at MGH with carotid stenting had suffered a myocardial infarction, ventricular fibrillation arrest and a transient ischemic attack. Evaluation revealed a 90%+ carotid artery narrowing in addition to coronary artery disease. The patient underwent treatment for coronary artery disease with coronary artery stenting and defibrillator installation, and then had successful treatment of the severe carotid artery stenosis with carotid stenting using distal protection (see photos). Remarkably, she returned home with her family without any impairments, and the only incision she had was from the defibrillator placement. She is an excellent example of the benefits of a multidisciplinary team of doctors, nurses and healthcare specialists with broad training and skills.

As chairman of the committee, I am delighted that our patients with carotid artery disease and stroke symptoms, who are at "high risk" for surgery, now have access to the latest treatment for this devastating disease with carotid stenting. Whether carotid stenting will expand to treat patients without "high risk" factors for surgery will depend on results of ongoing clinical trials such as the NIH-funded CREST.

Vision Statement

In conjunction with the Sisters of Mercy, our cardiovascular care team is dedicated to providing patients with compassionate, quality, cost-effective care through state-of-the art advancements in research, diagnostic screening, surgical and interventional procedures, clinical education and preventive/wellness programs for the improvement of cardiovascular health.

Cardiac Monitor — a resource for you

Distribution of *Cardiac Monitor* is intended for cardiologists and primary care physicians. The information included in this newsletter is provided as an educational service. Mercy Heart Institute respects your privacy. If you prefer not to receive any further communications from us, please send a brief note to Candice Brooks, Mercy Heart Institute, 3939 J Street, Suite 220, Sacramento, CA 95819, and include the mailing label from this newsletter if possible. It may take up to 30 days to process your request.

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CARDIAC MONITOR

CARDIOLOGY AND PRIMARY CARE

Technology breakthrough — 64-slice CT scanner helps diagnose heart disease

By David Magorien, MD

Computed Tomography (CT) is about 30 years old. In 1998 the four-slice CT was introduced. Over the past decade the speed and capability of the CT scanner has dramatically improved, and now both Mercy General Hospital and Mercy San Juan Medical Center have installed a 64-slice CT scanner.

This latest generation imaging device can obtain images throughout the body, with a computer processing the information to show a cross-section of various body tissues and organs. Although the technology will be helpful in identifying many different types of disease processes, it will be particularly useful in diagnosing diseases involving the cardiovascular system.

Heart motion has historically made it challenging to image the heart and the coronary arteries using earlier generation CT scanners. Previously patients would have to undergo coronary angiography to identify the coronary anatomy. With the 64-slice CT scanner, many patients will benefit from a less invasive type of angiography. This device produces three-dimensional, high-definition pictures of the heart and coronary arteries in a matter of seconds. With the 64-slice CT scanner, the resolution is greatly enhanced because the scanner captures 192 images per second. The images are fed directly into the Picture Archiving and Communication System (PACS). The images are stored digitally, resulting in easier retrieval and transfer, and superior archiving of the images over the long term.

Patient candidates

The 64-slice CT scanner requires the injection of contrast media in order to adequately visualize the coronary arteries. In addition, the patient does receive a moderate amount of radiation during the study. Not everyone is a candidate for this type of study. The scanner table cannot support more than 450 pounds and therefore will not accommodate morbidly obese patients. Patients who have moderate or heavy calcification of the coronary arteries are not suitable for this technology because the calcium obscures visualization of the lumen of the arteries. Patients who have previously undergone intracoronary stent deployment may also not be an ideal candidate for this type of test. Serial tests using the 64-slice CT are not recommended because of the amount of radiation involved.

Currently this technology is recommended for patients who are believed to be at the lowest risk. An example would be a young individual who is felt to be at low risk for coronary artery disease that presents with atypical chest pain and has an abnormal stress test. These patients are less likely to have calcification of their arteries. What remains to be determined is if the CT scan will provide the precise and accurate information that is reliably obtained with a heart catheterization.

The 64-slice CT scanner represents a huge advancement in technology, and we are just beginning to understand how it will aid in the diagnosis and treatment of cardiovascular disease.

Mercy receives quality designations

Mercy General's Cardiac Conditioning program has received certification from the American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR) for providing the highest quality patient care. AACVPR also praised Mercy General's program as a "Best Practice," which could be emulated at other hospitals and facilities around the country.

At the same time, **Mercy General Hospital** has been successful in meeting the high quality standards for cardiac care set forth by both Blue Shield of California and Blue Cross of California. Mercy General is among an elite group of California hospitals to meet the quality criteria of both organizations. **Mercy San Juan Medical Center** also has received "Best Practice" recognition from Blue Shield.

Mercy General and **Mercy San Juan** offer around-the-clock comprehensive cardiac care that includes rapid chest pain assessment and treatment, state-of-the-art cardiac catheterization labs, cardiac surgery, cardiac rehabilitation and trademarked disease management programs such as CHAMP® for congestive heart failure patients.

PHARMACY CORNER

Nitroglycerin guidelines before STEMI revised to speed care

By Seung Chun, Pharmacy Student, University of the Pacific

In the 2004 update for the management of ST-Elevation Myocardial Infarction (STEMI), the ACC/AHA has revised the algorithm for patients' response to angina. The update for nitroglycerin use is consistent with its goal to have patients more quickly seek emergency medical service leading to more timely definitive care. Disability and death can be reduced by providing care within the first hours of symptom onset. However, according to the Global Registry of Acute Coronary Events project, the average patient takes 4.7 hours from symptom onset to seek medical care.

The new algorithm recommends only one sublingual dose of nitroglycerin before seeking emergency medical service. If angina persists or is worsened in five minutes after the first nitroglycerin dose, the patient should dial 9-1-1 immediately. Aspirin is now recommended only after emergency services are contacted.

Since nitroglycerin is the only step before emergency medical services, it is crucial for patients to understand its use. They should be reminded not to swallow but to keep the dose under a moist tongue. If swallowed, the dose should be repeated. For improved efficacy, patients should not eat, drink, smoke or chew while using the medication. Possible side effects include dizziness or syncope, flushing of the face or neck, sudden headache, arrhythmias, palpitations, nausea and vomiting. Patients will not require medical attention if these symptoms occur but angina is relieved.

To receive punctual medical services while preventing unnecessary hospital admissions, it is imperative for patients to recognize early signs of STEMI. Symptoms vary greatly and may include chest discomfort with radiation to the arm(s), back, neck, jaw or epigastrium; shortness of breath; fatigue; diaphoresis; nausea; and lightheadedness. When educating patients, healthcare providers should also take the opportunity to explore other barriers to treatment.

Patients may doubt the capabilities of the healthcare system if prior hospitalization with STEMI has been unsatisfactory. Healthcare providers should reinforce the value of early treatment and encourage patients to act promptly. A plan should be developed with family and caregivers in preparation for future events, including transportation by ambulance. This will empower patients to take control of their response and should improve outcomes in future events.

Newsworthy

The following Mercy General Hospital healthcare professionals recently had articles published in national medical journals:

Gearoid O'Neill, MD, Medical Director, Electrophysiology

"Trial to Evaluate the Management of Paroxysmal Supraventricular Tachycardia During an Electrophysiology Study with Tecadenoson," *Circulation*, American Heart Association, June 21, 2005.

Arjun Sharma, MD, Electrophysiology

"A Comparison of the AVID and DAVID Trials of Implantable Defibrillators," *The American Journal of Cardiology*, June 15, 2005.

"Percent right ventricular pacing predicts outcomes in the DAVID trial," *HeartRyhthm*, August 2005.

James Palmieri, PharmD, Director, Pharmacy

"Implementing the National Cholesterol Education Program's Update to the Adult Treatment Panel III Report," *Managed Care Interface*, September 2005.

"Goal Attainment in Patients Referred to a Telephone-Based Dyslipidemia Program," *American Journal of Health–System Pharmacy*, August 2005.

New Cath Lab opens at Mercy General

Mercy General Hospital celebrated the grand opening of its third Cardiac Cath Lab in June, providing greater access to care for urgent and emergency patients. Pictured from left are: Sue Kelman-Harr, Vice President of Cardiovascular Services; Denny Powell, Hospital President; Michael Chang, MD, Medical Director; and Mike Smith, Manager, Cardiac Cath Lab.

RESEARCH NEWS

Acute MI therapy trial shows reduction in infarct size

Mercy Heart Institute is participating in a second clinical trial by TherOx Inc., which seeks to show that delivering oxygen dissolved in saline directly to the coronary artery responsible for the acute MI, immediately after angioplasty, will reduce the size of the MI and improve heart function.

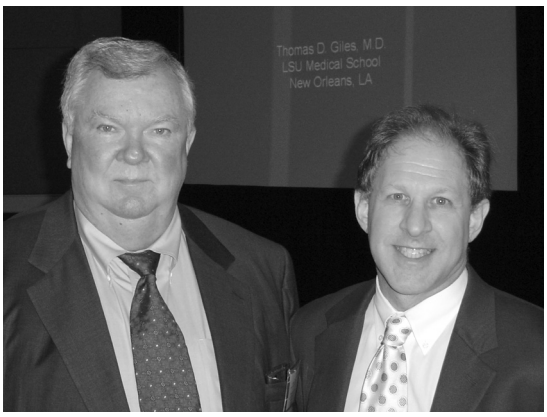
In the first trial, patients presenting with an acute MI within 24 hours of symptom onset underwent standard angioplasty-stenting, and some were randomized to receive the new saline-oxygen infusion as well. The study treatment is a 90-minute infusion of a supersaturated oxygen solution while the patient is in the Cath Lab, using the same catheter used during the angioplasty to withdraw the blood, mix it with the supersaturated oxygen solution, then reinfuse the hyper-oxygenated blood back to the patient's coronary artery. All patients were evaluated with echocardiograms, as well as a nuclear sestamibi scan at 14 days post-procedure, to evaluate the heart function. Results showed that patients presenting with an MI occurring in the anterior within six hours of symptom onset had a 60% reduction in the size of their heart attack, and a 38% improvement in heart function.

Mercy is now participating in the follow-up to this clinical trial by enrolling patients that present with an acute anterior MI within six hours of symptom onset.

Referral Resources

The following Mercy programs are available for physicians to refer their patients for help managing heart disease.

Heart Smart and CHAMP®	(916) 564-2880
Anticoagulation Clinic	(916) 733-5350
Cardiac Conditioning:	
Mercy General Hospital	(916) 453-4521
Mercy San Juan Medical Center	(916) 537-5296
Smoking Cessation	(916) 453-4927
Mercy Mall Walk Program	(916) 564-2880
ICD Support Group	(916) 733-6966
Mended Hearts Support Group	(916) 773-5263



Cardiology Symposium 2005

More than 200 participants attended the 15th Annual Cardiology Symposium 2005: Concepts & Controversies on Oct. 14 and Oct. 15 in Sacramento. Shown here with program director Scott Baron, MD, is Thomas Giles, MD, from LSU Medical School, New Orleans (at left).

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