

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 respects your privacy. If you prefer not to receive any further communications from us, please send a brief note to Candice Brooks, Mercy Heart & Vascular 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.

New hypothermia protocol being used in cardiac arrest treatment

Mercy General Hospital and Mercy San Juan Medical Center are the only hospitals in the Sacramento area using a new hypothermia protocol for select patients who either have cardiac arrest in the field or who arrest in the hospital. The protocol involves “freezing” the patient, or lowering the patient’s body temperature in order to halt the body’s natural inflammatory response that can cause the death of brain cells post cardiac arrest.

The body temperature is lowered by using chilled IV saline, cooling blankets and ice packs. The goal of therapy is to reduce the patient’s body temperature to 33 degrees Celsius and maintain mild hypothermia for 18 to 24 hours, then re-warming the body slowly. The process involves collaboration among physicians and nurses in the Emergency Department, Cath Lab and ICU for optimal outcomes.

Both hospitals have successfully treated patients using the new cooling protocol since its initiation in February, under the leadership of physician champions Donald Rifas, MD, Peter Murphy, MD, and Scott Baron, MD.

History of hypothermia treatment

As long ago as 450 BC, Hippocrates packed injured people in snow and noted that they had improved survival. In 1814, Baron Larrey, a battlefield surgeon in the time of Napoleon, noted that if the injured soldiers were moved closer to the fire that they were more likely to die and allowed “cold to act on the living parts.”

In the last 10 years, two studies using moderate hypothermia (32-34 degrees Celsius) have shown neurological improvement in patients post cardiac

arrest: the Hypothermia after Cardiac Arrest Study, 2002 (Europe) and the Treatment of Comatose Survivors of Out of Hospital Cardiac Arrest with Induced Hypothermia by Bernard et. al. (Australia).

The American Heart Association and the International Committee of Resuscitation have adopted hypothermia as consideration for select patients post resuscitation since 2003.

Three kinds of hypothermia treatment include:

Surgical hypothermia — is clinical cooling **prior** to a planned ischemic event to protect against neurological events, ischemia reperfusion injury and prolonged ischemia.

Accidental hypothermia — is **unplanned**, such as drowning or environmental exposure. The outcome is generally negative; however, there have been isolated cases of survivors that have had no neuro-logical injury despite hours of CPR.

Therapeutic or resuscitative hypothermia — is cooling **after** the ischemic event. Target temperatures are different than pre-cooled patients.

Who to cool

Mercy’s Hypothermia Protocol is targeted to post-resuscitative treatment of ventricular fibrillation (VF) patients, with specific inclusion criteria. As the process becomes more popular, more groups are being studied nationwide and may be included in the future.

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Zi-Jian Xu, MD**Mercy Cardiovascular Services**Doris Frazier, RN, MS,
Vice President**CARDIOLOGY
AND PRIMARY
CARE****Multi-detector technology enhances
cardiac diagnostic capabilities***By Howard Dinh, MD, Mercy Heart & Vascular Institute*

Coronary artery disease (CAD) is the most common type of heart disease and the leading cause of death in the United States for both men and women.

According to the American Heart Association, nearly 1.2 million Americans will have a first or recurrent coronary attack this year and about 452,000 of these people will die.

Awareness of the patient's risk factors and early detection of the disease, along with lifestyle modification and appropriate medication, can help prevent or treat CAD in most people.

Risk factors for coronary artery disease

Risk factors for coronary artery disease include:

- High cholesterol
- Family history of heart disease
- Diabetes
- High blood pressure
- Smoking
- Overweight
- Physically inactive

As patients age, their risk for CAD increases with the increase of plaque development. Based on the NHLBI Framingham Heart Study, the lifetime risk of developing CAD after age 40 is 49% for men and 32% for women.

Improving diagnostics

The initial diagnostic method for coronary artery disease includes a detailed patient history, a complete physical examination and an electrocardiogram. Laboratory blood tests, stress testing and coronary angiography may be necessary to obtain further insight. While cardiac catheterization is most often used for angiography, select patients may benefit from a less invasive type of angiography.

The innovative 64-slice CT scanner provides *non-invasive coronary imaging*, producing three-dimensional, high-definition pictures of the heart and coronary arteries in a matter of seconds. Coronary CT angiography can provide important insights into the extent and nature of plaque formation with or without any narrowing of the coronary arteries. Coronary CTA also can exclude narrowing of the

arteries as the cause of chest discomfort and detect other possible causes of symptoms — all without the risks associated with an invasive diagnostic procedure.

In addition, coronary artery calcium (CAC) scoring adds independent and predictive power to traditional risk factors. State-of-the-art CT methods are the most sensitive approaches to detecting coronary calcification from atherosclerosis, before symptoms develop. More coronary calcium indicates more coronary atherosclerosis, suggesting a higher risk of future cardiovascular events.

Patient candidates

Not everyone is a candidate for this type of study. The scan carries some risk from X-ray exposure and contrast dye exposure. Currently, coronary CTA is recommended for patients who have symptoms but have a low to intermediate risk, including:

- Patients with atypical symptoms but with some risk factors for coronary disease
- Patients with unclear or inconclusive stress-test results
- Suspected coronary anomalies
- New onset heart failure

Coronary artery calcium scoring is recommended for:

- Asymptomatic patients with intermediate risk of coronary artery disease
- Symptomatic patients with equivocal stress test results, unable to exercise or with intermediate risk

**Benefits of coronary CT angiography
and calcium score screening at Mercy**

- Non-invasive test shows soft plaque
- Early detection of asymptomatic patient
- Exam and report in the same day
- Rule out coronary stenosis with high accuracy
- Visualize cardiac and coronary anatomy
- Detection of coronary anomalies
- Assess calcified and non-calcified plaque burden
- Defines bypass graft anatomy and patency

Call 916.733.6961 to schedule patient appointments.

Reports of drug's demise exaggerated

By James Palmieri, PharmD

News reports earlier in the year were highly critical of the drug Vytorin[®], a combination product containing simvastatin and ezetimibe. These reports referenced the ENHANCE trial that was designed to determine the impact of Vytorin[®] on carotid intima-media wall thickness (CIMT) in patients with familial hypercholesterolemia (FH). CIMT is growing in popularity as a surrogate marker for cardiovascular event risk.

The reports stated that there was no evidence that Vytorin[®] was beneficial to patients, and a trend toward increased CIMT in patients treated with the drug vs. simvastatin alone lead to questions about the drug's safety. This created much anxiety among many patients who had read the reports and were taking the drug. What was not pointed out in the news reports, however, was that the studied patients had previously been treated with lipid-lowering therapies, and that the mean wall thickness in both groups was substantially lower than that in treatment-naïve patients with FH. Further, the difference in CIMT between the treated groups was statistically non-significant.

The American College of Cardiology, in a statement released in January that corresponded with a congressional inquiry into the handling of the ENHANCE trial, attempted to quell the uproar by reminding patients that "this is not an urgent situation and patients should never stop taking any medication without first discussing the issue with their healthcare professional." A subsequent editorial in the *New England Journal of Medicine* reminded us that CIMT is only a surrogate marker and that the publication of ongoing trials such as IMPROVE-IT, which is designed to assess clinical outcome, should clarify the benefit of ezetimibe in the medication armamentarium against cardiovascular disease.

Results from IMPROVE-IT should be available by 2011. In the meantime, some experts recommend maximizing the dose of statins, or combining statins with other proven therapies such as niacin or fibrate drugs, before resorting to ezetimibe to achieve the cholesterol targets.

New hypothermia protocol being used in cardiac arrest treatment

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Hypothermia inclusion criteria

- Return of spontaneous circulation
- Adults
- Non-pregnant women
- Comatose
- Core temperature not hypothermic already (can indicate prolonged down time)

Hypothermia exclusion criteria

- Active bleeding
- Known coagulopathy
- Pregnant females
- Terminal illness
- DNR status
- Other reasons for coma or severe neurological dysfunction pre-arrest
- Hemodynamic instability

For the best outcome, induction of hypothermia should be started as soon as possible, without delays for procedures, tests or lines. Maintaining the target temperature is critical to success and physiological changes in the body such as uneven cooling, shivering and electrolyte imbalances must be accounted for appropriately.

The total time for the hypothermia therapy is 24 hours from initiation. It can take several hours to get to goal, with re-warming started at 18 hours from initiation. During re-warming, the patient's temperature is methodically increased by 0.5 to 1 degree Celsius per hour. It is a deliberately slow process because if a patient is re-warmed too quickly, rebound hypothermia can occur.

For a copy of the protocol or more information, contact Patty Garrity-Jasper, Hypothermia Clinical Facilitator at Mercy General, at (916) 733-6923 or patty.garrity-jasper@chw.edu, or contact Jennifer Deveza, RN, at Mercy San Juan, at jennifer.deveza@chw.edu.

Landmark study of young women with heart disease

Mercy Heart & Vascular Institute will participate in the NIH-sponsored VIRGO study, which will be the largest, most comprehensive study to date of young women who have heart attacks. The study will begin in the next few months.

The VIRGO (Variation in Recovery: Role of Gender on Outcomes in Young AMI Patients) study is a national, prospective study to determine causes for premature heart disease in women, and why they experience worse outcomes than men of similar age with heart disease.

Despite the perception that young women are protected from heart disease, it is one of the leading causes of death in women age 55 and younger. The VIRGO study will enroll 2,000 women and 1,000 men (ages 18-55) across 120 centers in the United States. Those who participate will be given questionnaires to fill out and will be interviewed by telephone at four weeks and 12 months after discharge. The telephone interviews will be conducted by trained study personnel at Yale University School of Medicine.

This prospective study may continue for up to 20 years, with periodic telephone interviews. All patients enrolled will be asked to come back to the Mercy Heart & Vascular Institute for a one-time blood draw at four weeks post discharge for biomarker analysis.

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Cardiology & Arrhythmia Symposium

Sept. 26–27, 2008
Sheraton Grand Sacramento
1230 J Street, Sacramento
For more information,
call (916) 733-6966.



Mercy General hosts EMS barbeque

Sacramento-area Emergency Medical Services (EMS) personnel enjoyed the EMS Appreciation BBQ at Mercy General on May 15. The annual BBQ is sponsored by Mercy General's Emergency and Cath Lab Departments in thanks for the valuable and often life-saving service provided by EMS. In addition to a delicious meal, guests received an appreciation T-shirt and prize drawings were held throughout the day. On hand to serve was Cardiologist Michael Chang, MD, center.

Newsworthy

Mercy cardiac care in the news

- An article in *Sacramento* magazine's April issue covered local hospitals and their reputations for cutting-edge care in different specialties. The article, "In Good Hands," highlighted Mercy's excellent cardiac care and featured a photo of Mercy General Cardiac Surgeon **Allen Morris, MD**, with one of his patients.
- Mercy Medical Group Cardiologist **Jack Casas, MD**, was featured on the cover of the February/March issue of *M.D. News* magazine. He's shown in the Mercy General Cath Lab with a Spectranetics Laser and was interviewed for the article, "Powerful New Laser and Skillful Cardiologist Treat Peripheral Artery Disease."

Excellence in heart attack treatment at Mercy San Juan

During April, the Emergency Department and Cath Lab at Mercy San Juan Medical Center responded to an above-average number of cardiac alerts. The average door-to-balloon time (the time from the patient's arrival to completion of a cardiac catheterization procedure) was 47 minutes, almost half of the nationally mandated 90 minutes. Three cardiac alerts ended with door-to-balloon times of less than 28 minutes.



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