MERCY HEART INSTITUTE

CARDIAC MONITOR

For healthcare professionals

Spring 2005

Mercy General provides new options for atrial fibrillation treatment

By Gearoid O'Neill, MD

Atrial fibrillation is the most common cardiac arrhythmia prompting hospitalization. It is associated with a doubling of mortality due principally to the related stroke risk and development of heart failure. Symptoms of atrial fibrillation, including fatigue, dyspnea and palpitations, can have a profound impact on quality of life.

Rhythm maintenance

The mainstay of treatment is stroke prevention and the strategic choice of rate or rhythm control. High-risk patients should receive coumadin anticoagulation. An alternative of plavix plus aspirin is currently undergoing evaluation in the ACTIVE trial. The oral direct thrombin inhibitor ximelegatran held great promise on the basis of the SPORTIF trials. However, the FDA advisory committee, at a meeting in September 2004, recommended that the drug not be approved citing concerns regarding liver toxicity and bleeding complications.

Drug therapy is usually the first-line strategy for maintenance of sinus rhythm. One of the most commonly used agents is amiodarone. Though not actually FDA approved for this indication, it is widely used because of its efficacy and ease of use. However, amiodarone is associated with very significant and potentially lethal toxicities. It is now required that patients receiving the drug be given written information about the risks. It is felt that the toxicity of the molecule is due to the iodine moiety in the compound. A new amiodarone-like compound — but without the iodine — is currently undergoing evaluation at Mercy in the MIAI trial.

Ablation strategies

Some of the most exciting recent developments involve ablation strategies designed to "cure" atrial fibrillation. The most popular approaches are "segmental pulmonary vein isolation" and "circumferential pulmonary vein ablation." In the former, strands of myocardial fibres coming from the outside sleeves of the pulmonary veins are interrupted using radiofrequency ablation (RF). In the latter, wide circles are drawn with RF, enclosing each pair of pulmonary veins without necessarily setting out to prove electrical disconnection of the veins to the left atrium. In addition, a line is drawn from the bottom of the circle surrounding the left pair of veins to the mitral valve. In some centers an additional line is drawn across the roof of the left atrium. Both techniques are more effective in patients with paroxysmal rather than persistent atrial fibrillation. Success is seen in 60% to 70% of patients, though frequently a second procedure is required.

A number of procedure-specific complications have been recognized. Pulmonary vein stenosis can be very severe and result in pulmonary hypertension. The physiological effect can be the same as severe mitral stenosis. Recently, reports have appeared regarding atrio-esophageal fistulae, which usually result in fatal sepsis. It is felt that these complications may relate to the disruptive effects on the collagen matrix of the heat energy from the RF.

Cryoablation and Maze procedure

Mercy General's EP Lab has launched a trial (ICE-PAF) of cryoablation to accomplish pulmonary vein isolation. Instead of using heat energy, tissue is frozen to –80 C. Preliminary data indicate

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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 Andrea Blankenship, Administrative Secretary, 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

RESEARCH NEWS

ICDs and implications of recently reported clinical trials

By Gearoid O'Neill, MD

Few innovations have had such a profound effect on survival as the Implantable Cardioverter Defibrillator (ICD). This device can recognize the onset of ventricular fibrillation or tachycardia and immediately deliver corrective electrical therapy. Its value in secondary prevention is long established. Unfortunately, this group represents only the tip of the iceberg as far as sudden death victims are concerned.

The major thrust over the last 5 years has been primary prevention. We have sought to identify those individuals at high risk of malignant arrhythmic events and implant the device before the first event occurs.

The MUSTT (at Mercy General) and MADIT trials were the first to identify groups at risk. These studies identified patients with CAD, LVEF <35% and inducible VT as high risk and showed the survival value of the ICD. More recently, the MADIT2 study showed a 27% survival advantage for ICDs when implanted in patients with prior myocardial infarction and residual LVEF <30%. The regulatory authorities (CMS) approved ICD implantation in this group but limited payment for the implants to the group with QRS duration >120msec. A retrospective analysis had shown a greater magnitude of effect in patients with a wider QRS.

In January 2005, the SCDHeFT trial was reported in the *New England Journal of Medicine*. Mercy was among the highest enrolling centers in the United States. The study looked at patients with heart failure of any etiology and LVEF <35% and compared ICDs to amiodarone and placebo. Amiodarone produced no survival benefit when compared to placebo. In contrast, the ICD produced a 23% reduction in mortality. CMS has since approved the implant of ICDs in this population.

The bottom line as far as this data is concerned is that any patient with an LVEF <35% should be considered for prophylactic ICD implantation.

Biventricular pacing

A new twist on device implants relates to the development of biventricular pacing devices. This therapy has had a profound beneficial effect on the treatment of some heart failure patients. Resynchronization therapy is accomplished by pacing the left ventricle at the same time or slightly before the right ventricle. The usual technique involves placing a lead into the coronary sinus and advancing it to a lateral branch vein under fluoroscopic guidance. Patients with long QRS duration (>130msec) were studied first. A marked improvement in functional status and reduction in hospitalization for heart failure was seen in 70% of treated patients. Mercy General enrolled patients in a number of pivotal trials evaluating this therapy, including COMPANION and RHYTHM-ICD.

Unfortunately, it has not been possible to accurately predict the patients who might benefit. We do know that positioning the LV lead on the lateral wall provides the best prospect for benefit. Also, we are questioning whether a wide QRS is a necessary requirement for benefit. It is known that mechanical desynchrony can occur even with a normal QRS. Tissue Doppler imaging is a new echocardiographic technique that allows non-invasive evaluation of the phenomenon. Studies soon will be under way to examine the benefits of resynchronization in the population with normal QRS duration.

Atrial fibrillation

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that the ultra structural changes noted with RF are not seen when the freezing probe is used. Thus, this may translate into a lower risk of pulmonary vein stenosis or atrio-esophageal fistula.

Maze surgery has been part of the therapeutic armamentarium at Mercy for many years. The procedure requires open chest exposure and thus has been mostly limited to patients requiring bypass or valve surgery. However, a new technique using a thorascopic approach is being offered at Mercy. Through port holes on both sides of the chest the surgeon can introduce a flexible ablating catheter to surround the pulmonary veins.

PHARMACY CORNER

Acute Myocardial Infarction

JCAHO core measure returns for another year

By James Palmieri, PharmD

The Fiscal Year 2005 CHW Care Management Indicator and Benchmarking Project once again includes Acute Myocardial Infarction (AMI) as one of its core measures for quality improvement. The focus of this core measure is adult inpatient medication management for AMI.

The care management indicators for AMI embed evidence-based medicine principles and incorporate the results of scientific research and expert opinion. Adherence with these practices is expected to lead to safe and effective use of medications for AMI patients and result in a significant reduction in the morbidity and mortality associated with AMI. The AMI indicator has been selected from the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) list of quality improvement core measures, and compliance with the project is required for accreditation by JCAHO.

There are five indicators that comprise the AMI core measure:

- Use of aspirin within 24 hours before or after admission for AMI
- Use of aspirin on discharge post-AMI
- Use of angiotensin converting enzyme inhibitors (ACE-I) for those with resulting left ventricular systolic dysfunction (LVSD)
- use of beta blockers (BB) on discharge post-AMI
- use of BB within 24 hours of hospital admission for AMI

It is expected that use of these medications by each CHW facility compares favorably with both CHW's and JCAHO's nationwide median. Universally excluded from comparison are patients that lack a DRG specification, age less than 18, patients transferred to another facility for care or who have left against medical advice or been discharged to hospice, or those with contraindications to the medication.

Clearly, these medications are not for every patient. However, it is incumbent on ordering physicians to document a contraindication for the medication in order for that prescription to be excluded from the performance assessment. For the first time this year, angiotensin receptor blockers (ARBs) are acceptable alternatives to ACE-I use.

CHW's participation in the quality initiatives of various accrediting bodies is not only required but is embraced as a means to continually improve the care of our patients. Please take a moment to consider the use of these medications in all of your patients admitted with AMI, and to document the rationale behind their use or contraindication.

Our physicians tell a great story

Mercy General Hospital has now submitted its application to the City of Sacramento to build the Alex G. Spanos Heart Center. Over the last few years, we have been in continuous conversations with our East Sacramento neighbors as well as Sacred Heart Parish School, which is located next to the hospital. We have conducted several neighborhood meetings, completed a year of work with a formal Neighborhood Task Force and are in negotiations toward an agreement with the school.

While much progress has been made, and the construction plans have changed because of this community feedback, there are many challenges ahead in completing this project. To make this building a reality, we need your support.

We need the support of our physicians

While the City of Sacramento is more than a year from making its final decision about our construction proposal, we need your support for the project today. In the months to come, we will keep all Mercy physicians apprised of our project progress and provide opportunities for you to share your support with the community, our city leaders and others. If you are interested and willing to support Mercy General in this way, please complete the enclosed postcard and mail it back to Mercy General. If you have any questions, please contact our Neighborhood Liaison, Sandra Meyers, at (916) 453-4432 or via e-mail at smeyers@chw.edu.

Thank you for your support!

Noteworthy

Enhanced cardiac care services at Mercy General

- Mercy General is piloting a new "chest pain observation unit." Designed for incoming patients with chest pain complaints that are not clearly cardiac in origin, the new unit will provide a place to go where they can be observed and further testing can be done. The goal is to have the patient either "ruled in" or "ruled out" for an MI or acute coronary syndrome within 8 hours of arrival.
- A third Cardiac Cath Lab is planned to open in mid-April. The addition of the third room will mean greater access to care for urgent and emergency patients.
- The new Cardiovascular Intensive Care Unit (CVICU) opened on March 14. This six-bed unit serves as the primary unit for cardiovascular patients who need a more critical level of care.

AMI newsletter

A new bi-monthly newsletter has been developed to provide ongoing information and education surrounding the care of acute MI patients at Mercy General Hospital. *MGH AMI News* is geared toward strengthening the collaboration between the Emergency Department, Cardiac Cath Lab and Mercy Heart Institute. To receive a copy of the newsletter, of if you have suggestions or comments, contact Deirdre Harris, RN, BSN at 733-6290 or by e-mail at Deirdre.Harris@chw.edu.

Mercy Heart Institute
1-877-9HEART9
www.CHWhealth.org/MercyHeart

Mark Your Calendar

Arrhythmia 2005: Ideas and Innovations
Gearoid O'Neill, MD
April 15–16, 2005
Hyatt Regency Sacramento
Call 733-6966 for information.

15th Annual Cardiology Symposium 2005: Concepts & Controversies
Scott Baron, MD
Oct. 14–15, 2005
Hyatt Regency Sacramento
Call 733-6966 for information.

Nursing education
Mercy Heart Institute
Cardiovascular Surgery Update #1
May 9, 2005; 4 contact hours.

Cardiovascular Wound Care Update
April 18 and May 16, 2005; 4 contact hours.

Cardiovascular Surgery Update #2
Oct. 10, 2005; 4 contact hours.

Cardiac Interventional Class
Oct. 27, 2005; 8 contact hours.

All classes held at Mercy General Hospital.
Call 733-6330 to register.

Cardiac surgeons Richard Kaplon, MD (left), and John Dein, MD, join Sister Kathleen Horgan on stage during Mercy General's fall gala celebrating 30 years of cardiac surgery. More than 700 guests attended the event at the Sacramento Convention Center.

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