

Central Maine Medical Center

Physician Update



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FIELD ACTIVATION OF CARDIAC CATHETERIZATION LAB SPEEDS TIME TO TREATMENT FOR EMERGING HEART ATTACKS



By Kevin M. Kendall, M.D., F.A.C.E.P.,
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Kevin M. Kendall, M.D.

Prehospital cardiac catheterization laboratory activation for ST elevation myocardial infarction (STEMI) is a proven approach to heart attack management being used by increasing numbers of hospitals throughout the country. The value of this ap-

proach was recognized by Central Maine Medical Center (CMMC) and the Central Maine Heart and Vascular Institute (CMHVI), where groundwork for such a program began more than three years ago.

In March 2004, CMMC and CMHVI initiated a feasibility study in conjunction with United Ambulance, a paramedic level ambulance service in the greater Lewiston-Auburn area. Since all of United's paramedics were trained in 12-lead EKG interpretation, the study's planners decided to conduct a review of all EKGs done by the paramedics over an 18-month period.

The study revealed that the paramedics were assessing heart attack patients with a remarkably high degree of accuracy. They did not miss the diagnosis of even one STEMI patient, and had only a small false positive or "overcall rate." In fact, the performance of United Ambulance paramedics exceeded figures reported in national studies.

In August 2005, United Ambulance became the first service in the Lewiston-Auburn area permitted to activate the CMHVI Cardiac Catheterization lab from the field when paramedics detected STEMI during a prehospital EKG. Activation of the cath lab from the field saves valuable minutes by mobilizing the interventional cardiologist and cath lab personnel to be ready for the patient's arrival.

With the United Ambulance paramedics' ability to diagnose STEMIs in the field clearly demonstrated, the cath lab field activation program was extended to other paramedic level services. After assuring that these services were trained and tested in prehospital 12-lead EKG STEMI recognition, they were permitted to activate the cath lab from the field. Presently nine services in three counties are permitted to activate the CMHVI cath lab from the field. In addition to United Ambulance, the following EMS services now activate – these include Turner Rescue, Poland Fire and Rescue, Lisbon Emergency, Monmouth Rescue, Winthrop Ambulance, United, Topsham EMS, Oxford Rescue and LifeFlight of Maine.

Preliminary results of this evolving prehospital policy have been outstanding. The benefit to the patient increases with the distance between CMHVI and the location where the heart attack occurs. Door-to-balloon times for patients are dramatically lower than the national average, and many lives have already been saved.

Yet, despite the proven benefit of this life-saving service, there are still barriers to overcome. The greatest problem facing both patients and their EMS care providers is that too few patients call 911 quick enough when they are having heart attack symptoms. Some two-thirds of patients having heart attacks are driven to the hospital by a family member or friend – some patients even drive themselves! When potential heart attack patients do not call 911, they forego the many life-saving benefits that EMS can offer, including field activated cardiac catheterization. Efforts at the state level are underway to educate the public about the importance of calling 911 when heart attack symptoms are recognized.

The prehospital catheterization lab activation program at CMMC and CMHVI continues to expand with additional services presently in the training or testing phases. In just two years, CMHVI and CMMC have raised the bar for expedient and exceptional STEMI hospital and pre-hospital care.

The Central Maine Heart and Vascular Institute is located at Central Maine Medical Center in Lewiston, Maine. 207-753-3900 or 1-800-760-6622.

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CENTRAL MAINE HEART AND VASCULAR INSTITUTE RESEARCH ACTIVITIES INCLUDE SEVERAL CLINICAL TRIALS



By Robert J. Weiss, M.D., Medical Director, Central Maine Heart and Vascular Institute, Lewiston, Maine



Robert J. Weiss, M.D.

Cardiovascular diseases such as hypertension, hypercholesterolemia, peripheral vascular disease, and coronary disease have many accepted treatments, but they continue to cause significant illness and death. The Central Maine Heart and Vascular Institute in Lewiston,

a program probably best known for invasive heart disease treatments such as angioplasty and bypass surgery, has begun investigating these problems through clinical trials in both primary and secondary prevention.

Participating in a clinical trial can have benefits and risks for patients. Participants are protected, closely monitored and receive expert medical care. In some types of trials, patients may be among the first to benefit from a new treatment or new knowledge about a current treatment. However, there may be risks to being in a clinical trial. As researchers, we hope the studies we assist with will yield results with far-ranging benefits, but this is not always the case. Treatments may not turn out to be better than, or even as good as, standard treatment. Whatever our research reveals, one thing is for certain: patients who participate in clinical trials help others

by contributing to advances in medical and scientific knowledge.

Some of the research programs presently underway, or being developed, at the Central Maine Heart and Vascular Institute include:

- Clinical trials for darusentan, an endothelin inhibitor specifically designed for patients with resistant high blood pressure who have not responded to standard treatments. Hypertension affects 50 percent of Americans over the age of 50 and only 25 percent of patients are treated adequately.
- Clinical trials for a squalene synthetase inhibitor that, when used in conjunction with statins, lowers cholesterol and may decrease myalgias. CMHVI physicians are also using an antisense apo B-100 agent that directly affects the body's ability to transport high LDL-cholesterol. In addition, CMHVI is working on a no-flush niacin that will more readily permit the aggressive treatment of low HDL. High cholesterol is a very common health issue and while patients may be on statins they are often not treated to goal.
- Patients who have peripheral vascular disease have little medical therapy available. CMHVI is testing two new agents that vasodilate arteries via either the nitric oxide or serotonin pathways.
- Patients coming to the emergency department complaining of chest pain often require many expensive tests that help

physicians diagnose the problem. CMHVI will soon be working with a new type of simple nuclear imaging test that may help identify patients with high-risk chest pain without stress testing.

- CMHVI is testing a new medicine called pasugrel that may work faster and more completely than clopidogrel, which is commonly prescribed for patients after stent implantation. Another new medicine under investigation may decrease some of the risks associated with open-heart surgery by decreasing peri-operative infarction.
- CMHVI will soon help investigate two new medications that appear to lead to significant weight loss and improve the treatment of high blood pressure and diabetes.

The Central Maine Heart and Vascular Institute's goal is to support a full service cardiac center that pushes into the future by assisting with the development of new treatments while at the same time delivering excellent cardiac care in the present.

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MEDICATIONS AND PERCUTANEOUS CORONARY INTERVENTIONS EACH HAVE ROLE IN CHEST PAIN TREATMENT

A study published recently in the *New England Journal of Medicine* captured headlines with its suggestion that many angioplasty or coronary stent procedures (what we call percutaneous coronary interventions – or PCI) are unnecessary.

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William J. Phillips, M.D.

By William J. Phillips, M.D., F.A.C.C., Director of Cardiology, Central Maine Heart and Vascular Institute

The study looked at about 35,000 heart patients with recurrent chest pain and, after excluding many patients who didn't meet distinct criteria, randomized the treatment of

2,300 patients between medicine or PCI. At the end of five years there were just as many people in the medicine group alive as there were among the patients selected for PCI.

DOES THIS MEAN THAT PCI IS NOT BENEFICIAL?

PCI has not been shown to save lives in patients with stable angina. This is because most people with stable heart pain have a fairly low risk of dying. In fact, patients with stable angina have about a three percent risk of having a heart attack in the course of a year. Since less than one out of three people who have a heart attack die, that means they have only about a one in 100 chance of dying in the next year from a heart attack.

Unfortunately, there is no perfect treatment for heart disease. The risk of dying from open-heart surgery is more than one in 100, and the risk of dying from an elective PCI is about one in 200. So it's not surprising that it would be tough to prove that you'd live longer with a PCI than with medicines. There is excellent evidence that changes such as smoking cessation, lowering cholesterol and blood pressure, and controlling diabetes, will actually extend your life and reduce your risk of stroke or heart attack. Everyone with heart disease should know this.

DOES THIS RECENT STUDY OFFER NEW INFORMATION?

Guidelines developed by the American College of Cardiology and the American Heart Association have recommended PCI in elective patients only if they have significant symptoms not alleviated with medicines, have proven circulation problems in their heart, and have the type of blockage that has an excellent chance of responding well to PCI. This recent study reaffirms those guidelines.

However, the study suggested that 85 percent of all PCI in the United States is being done electively for patients with stable angina. While that might be true in some areas, data from the Northern New England Cardiovascular Disease Study Group indicates that only 25 percent of PCI procedures in that region are elective. The majority are urgent or emergency proce-



The Cardiac Catheterization Lab at the Central Maine Heart and Vascular Institute in Lewiston, Maine.



The study looked at about 35,000 heart patients with recurrent chest pain and, after excluding many patients who didn't meet distinct criteria, randomized the treatment of 2,300 patients between medicine or PCI.

dures for patients with unstable symptoms or actual heart attacks. PCI has proven benefits in those patients. In the current study, approximately 30 percent of patients initially treated with medicines “crossed over” to PCI in order to treat intractable symptoms. This is surprisingly consistent with the number of elective PCI procedures in the Northern New England data registry.

WHO SHOULD HAVE A PCI?

PCI is the best and most successful treatment when performed emergently for people in the first hours of an acute heart attack! It is also the most effective treatment for people who have high-risk unstable angina, or what we now call acute coronary syndrome. Coronary bypass surgery is preferable for people who have multiple severe blockages, or whose blockages cannot safely be treated by PCI, especially if their heart muscle is already weakened. For patients with stable angina, PCI is reasonable and appropriate if they have ongoing symptoms in spite of medications, or if medication is not likely to be effective, AND they have the type of blockages

where a high likelihood of success can be expected. When those criteria are met, PCI is better than medications at relieving angina discomfort.

The recent publication of this study is valuable information to help explain the proper role of both medications and PCI in the treatment of patients with heart disease. However, patients should feel reassured that the overall recommendations of the study are

consistent with many of the current practices in our region.

It is also very exciting to learn that another major study following over 44,000 heart patients between 1999 and 2006 showed that treatment protocols using both medications and procedures resulted in substantial improvement in survival and significant reductions in the rates of stroke, heart attack, and new heart failure over this rather short time span. This means that not only are newer heart treatments effective, but that their benefits are being extended to more people.

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*“Decline in rates of death and heart failure...”
Fox, A.A., et al, JAMA, May 2, 2007, Vol. 297, No. 17 from the Global Registry of Acute Coronary Events.*



William J. Phillips, M.D., explains cardiac anatomy to a patient at the Central Maine Heart and Vascular Institute.



SMALL CHANGES CAN IMPROVE QUALITY IN THE ECHOCARDIOGRAPHIC LABORATORY

By Jim Parker, M.D., F.A.C.C., Non-Invasive Cardiology Director, Central Maine Heart and Vascular Institute



James P. Parker, M.D.

The quality of echocardiography data is measured not only in the images that sonographers obtain, but also how it is reported. At the Central Maine Heart and Vascular Institute (CMHVI), a few simple changes in the way this information is processed have re-

sulted in a demonstrable increase in quality.

The diverse training and experience of the CMHVI cardiology staff had led to inconsistent reporting despite the generally good echocardiography images provided by the technical staff. The problem came to light when several of Central Maine Medical Center's hospitalist physicians commented that the echo reports differed, depending on which physician had read the study.

With the concurrence of the cardiology staff, it was determined that the American Society of Echocardiography's standardized format should be adopted. This format structures the report so clinicians know where to look for specific types of information. The adoption of this standard was a step in the right direction, but it didn't fully resolve the problem

The biggest improvement came with the initiation of monthly echo conferences that include the sonographers. By attending the conferences, the technologists can earn educational credits while developing a better understanding of how echo images augment the physicians' diagnostic skills. For physicians, the conferences have contributed to standardization of report language and structure, and thus, better reports.

Another major effort is gaining echocardiographic laboratory accreditation from the International Commission on Accreditation of Echocardiographic Laboratories (ICAEL). This accreditation is a signpost of quality amongst echo laboratories and may someday be required for reimbursement. One change resulting from this effort was the creation of a technical director role to serve as a resource for physicians and technologists alike.

The echo laboratory's protocols were revised and are now a model part of Central Maine Medical Center's Joint Commission on Accreditation of Healthcare Organizations portal. Echo techs wrote the protocols, basing them on current standards from accredited echo labs. This updating process helps ensure that patients get the appropriate standard of care. Emergency procedures were also reviewed within the department.

In addition, imaging physicians must show that they have attained 30 hours of echo continuing education in the last three years. These are nationally recognized quality benchmarks.

Lastly, ICAEL requires internal review of performance. At CMHVI, we now review each other's work for quality assurance on a monthly basis. Physicians receive a letter describing what another imaging specialist thinks of their report. This process has contributed to further standardization of reports as physicians have adapted to this feedback.

The drive for quality care at CMHVI has taken us down the road to improving reports, enhancing the sonographers' knowledge base, and honing individual skills to maintain a quality echocardiographic program that is nationally recognized.

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