

New Look at Heart Disease

The sophisticated imaging techniques available today allow physicians to distinguish between healthy and damaged cardiac tissue. This begs the question:

What exactly does heart disease look like?

An irregular CAT scan may signal a need for treatment—as would heart defects viewed during an echocardiogram. But thanks to a recent joint venture between Lahey Clinic and Shields Health Care Group, patients at **Lahey Clinic Northshore, Peabody**, now have access to the most cutting-edge detector of heart disease: cardiac MRI.

“Cardiac MRI allows us to better identify those patients who would benefit from treatment, as well as those who shouldn’t be treated, so we can avoid surgery when it’s not necessary,” says George A. Holland, MD, Diagnostic Radiology.

A recent study in the journal *Lancet* reported that cardiac MRI can detect small areas of heart cell death—called microinfarcts—that are not detected through traditional cardiac imaging techniques. “Microinfarcts are often hidden beneath the surface of the heart, and are very difficult to view using techniques other than MRI,” says Holland.

During cardiac MRI (magnetic resonance imaging), the patient lies within a tunnel that uses magnetic fields and radio waves to create an image of the heart. The technology is different than CAT scans in that contrast is higher, the patient is not exposed to X-ray radiation, and doctors may

view the heart beating in “real time.” In addition, tissue and bones do not interfere with the image, as they do in echocardiography.

“With cardiac MRI, we can better differentiate between hibernating and dead heart muscle. This helps surgeons avoid performing unnecessary bypass surgery on areas of tissue that are dead. Hibernating heart muscle is worth bypassing, because it can recover function. But if the muscle is already dead, there is no reason to perform bypass,” says Holland.

A heart attack occurs when blood supply to the heart muscle—the myocardium—is severely reduced or stopped. The condition is most often attributed to a clot forming in the coronary arteries that feed the heart. These typically occur in regions clogged by plaque (cholesterol). Cardiac MRI is useful in determining where a blockage has occurred, as well as the extent of damage done to the heart muscle and lining.

The procedure can also be used to determine how well the heart is pumping—the “ejection fraction”—with great accuracy. The ejection fraction, or the percentage of blood emptied from the lower chambers of the heart with each contraction, is normally about 65 percent. Any lower percentage might indicate heart dysfunction or impairment.

New clinical data suggests that the majority of heart attacks are actually caused by the presence of soft “vulnerable” plaque at the site where clotting occurs. “Cardiac MRI is more effective than traditional methods in assessing the condition of the coronary arteries,” says Holland. “We may eventually use it to look for the presence of vulnerable plaque, which would help us determine whether or not to treat the patient, although this is a work in progress.”

For more information about Shields MRI at Lahey Clinic Northshore, Peabody, or to schedule an appointment, please call 1-800-258-4674, ext. 3360.

FALL 2003

www.lahey.org

Lahey
CLINIC

Lahey Clinic
41 Mall Road
Burlington, MA 01805-0105

NONPROFIT
U.S. POSTAGE
PAID
Westboro, MA
Permit No. 100