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EXERCISE TOLERANCE IS GOOD MEASURE OF LIKELY PROGRESSION OF MITRAL REGURGITATION (MR)

Study from Howard Gilman Institute of Valvular Heart Diseases, Weill Cornell Medical College, Determines Conventional Treadmill Testing is Prognosticator for MR

Prediction by Exercise Duration on Treadmill Better Than Any Other Measure

New York, NY, October 15, 2007 — A study from the Howard Gilman Institute of Valvular Heart Disease of Weill Cornell Medical College shows that exercise tolerance — determined by conventional exercise testing on a treadmill — is a good measure of likely progression to heart failure in patients with leaking mitral heart valves — mitral regurgitation (MR). The study was published in the October 15th issue of the *American Journal of Cardiology*.

“We’ve known for a long time that exercise tolerance testing (ETT) is useful in uncovering symptoms and predicting outcome in patients with coronary artery disease,” said Jeffrey S. Borer, MD, co-director of the Gilman Institute. “However, this is the first time that ETT has been identified as a prognosticator for MR.” Dr. Borer is Gladys & Roland Harriman Professor of Cardiovascular Medicine, Weill Cornell Medical College and Chief, Division of Cardiovascular Pathophysiology, NewYork-Presbyterian Hospital Weill Cornell Medical Center.

Researchers evaluated patients to see if exercise testing would predict the likelihood of patients needing surgery and detect the presence of clinically “silent” coronary artery disease.

The study included 38 asymptomatic patients — predominantly middle-aged men — with chronic, isolated, severe MR. None had reached criteria for mitral valve surgery based on standard tests. Approximately one-third regularly took cardiac drugs. A comparator group consisted of patients who already had reached indications for surgery.

Patients underwent ETT in the hospital at the beginning of the study. They also had other tests — echocardiography (at rest) and radionuclide cineangiography (at rest and during exercise). The study analyzed exercise duration (measured in minutes on the treadmill), as well as changes in heart rate with exercise and heart rate return to normal after exercise.

ETT was performed in each patient approximately annually. Health status was evaluated each year by personal or telephone interview, as well as by review of medical and vital records.

Subjects were followed to the end of the study, if they remained asymptomatic, or until they developed heart failure symptoms. Twenty-five patients (68 percent) developed heart failure during the study, three to nine years after their initial evaluation. Surgery was performed either when heart failure developed or, if the subject remained asymptomatic, when other conventional tests showed that risk without surgery was unacceptable.

Using a special “multivariate” statistical analysis, the Institute determined that exercise duration during the initial ETT predicted the development of heart failure, even if patients had no symptoms at the time. Prediction by exercise duration on the treadmill was better than any other measure (heart rate, echocardiography, etc.).

However, the ETT provided no useful data about the presence of silent coronary artery disease; for this, coronary angiography was necessary prior to surgery.

The data indicate that asymptomatic patients with chronic severe MR — that is not due to coronary artery disease — can expect a very slow rate of progression to symptoms if they have excellent exercise tolerance on initial evaluation. Patients with even modestly deficient exercise tolerance progress much more rapidly and will soon need surgery.

This finding has important implications for the timing of additional testing to determine the appropriateness of surgery in patients with MR.

The Howard Gilman Institute for Valvular Heart Diseases, Weill Cornell Medical College, helps cardiologists, cardiothoracic surgeons and other physicians take advantage of the most current concepts in the evaluation and treatment of heart valve diseases and provides state-of-the-art patient care. The Institute’s co-directors, Jeffrey S. Borer, MD and O. Wayne Isom, MD, are leaders in their fields and direct a team of clinical cardiologists, surgeons and research scientists who are at the cutting-edge of this emerging public health concern. For more information, visit www.gilmanheartvalve.org.

Weill Cornell Medical College—Cornell University’s Medical School located in New York City—is committed to excellence in research, teaching, patient care and the advancement of the art and science of medicine, locally, nationally and globally. Weill Cornell, which is a principal academic affiliate of NewYork-Presbyterian Hospital, offers an innovative curriculum that integrates the teaching of basic and clinical sciences, problem-based learning, office-based preceptorships, and primary care and doctoring courses. Physicians and scientists of Weill Cornell Medical College are engaged in cutting-edge research in such areas as stem cells, genetics and gene therapy, geriatrics, neuroscience, structural biology, cardiovascular medicine, AIDS, obesity, cancer, psychiatry and public health—and continue to delve ever deeper into the molecular basis of disease in an effort to unlock the mysteries behind the human body and the malfunctions that result in serious medical disorders. The Medical College—in its commitment to global health and education—has a strong presence in such places as Qatar, Tanzania, Haiti, Brazil, Salzburg, and Turkey. With the historic Weill Cornell Medical College in Qatar, the Medical School is the first in the U.S. to offer its M.D. degree overseas. Weill Cornell is the birthplace of many medical advances—from the development of the Pap test for cervical cancer to the synthesis of penicillin, the first successful embryo-biopsy pregnancy and birth in the U.S., the first clinical trial for gene therapy for Parkinson’s disease, the first indication of bone marrow’s critical role in tumor growth, and, most recently, the world’s first successful use of deep brain stimulation to treat a minimally-conscious brain-injured patient. For more information, visit www.med.cornell.edu.

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