Can your doctor correctly read a critical heart test?

October 31 2008

You have a burning chest pain and a doctor looks at a squiggly-lined graph to determine the cause. That graph, an electrocardiogram (ECG or EKG), can help the doctor decide whether you're having a heart attack or an acid attack from last night's spaghetti. Correct interpretation may prompt life-saving, emergency measures; incorrect interpretation may delay care with life-threatening consequences. Currently, there is no uniform way to teach doctors in training how to interpret an ECG or assess their competence in the interpretation.

To address the lack of uniformity, a team of physicians from the University of Maryland School of Medicine and the American College of Cardiology has developed the first Web-based training and examination program for reading ECGs. It is an interactive computer program to teach and assess the competence of doctors in training. Details of the new tool will be revealed on October 31, 2008, during the annual meeting of the Association of Program Directors in Internal Medicine, in Orlando.

"We hope this tool helps increase expertise among general practitioners in the interpretation of a very commonly used screening test that's part of nearly every adult examination," says team leader R. Michael Benitez, M.D., associate professor of medicine at the University of Maryland School of Medicine in Baltimore and director of the Cardiovascular Fellowship Training Program. "There is no mechanism now for establishing competency among internists or family physicians or for an interim analysis of how a trainee is performing," says Dr. Benitez, who is

also a cardiologist at the University of Maryland Medical Center.

Two major medical accrediting bodies, the Accreditation Council for Graduate Medical Education's Residency Review Committee for Internal Medicine and the American College of Physicians, recognize the importance of establishing competent ECG interpretation during Internal Medicine residency. But there is no consensus on how competence should be achieved, documented or even defined.

A physician who wants to specialize in cardiology must pass electrocardiographic interpretation as part of the initial certifying process; failure of the ECG section means failure of the entire exam. However, physicians who will practice general internal medicine do not have to pass an ECG interpretation section in order to pass their board examination, according to Dr. Benitez.

General practitioners are often the first to detect a person with an underlying cardiac disease during a general screening evaluation. "They need to correctly identify and diagnose problems that can significantly and imminently affect the health of their patients," says Dr. Benitez.

The New ECG Training Program

The Web-based computer module, called ACCIS (American College of Cardiology In-Service), includes both an assessment section and a "Teaching Materials" section. The test-taker is presented with 50 electrocardiograms that focus on 12 key categories of ECG interpretation. Test-takers and training program directors receive the test results. In the case of an incorrect diagnosis, the test-taker is referred to more than 100 case studies with additional teaching materials for self-directed learning. The results will be followed over time to determine if the training program actually improves ECG knowledge and will be used to set benchmarks of competency in ECG interpretation.

ECG Background

An electrocardiogram shows the heart's electrical activity. An ECG can indicate heartbeat irregularities and pinpoint heart muscle abnormalities. There are 120 codes used to define events detected through 12 leads attached to the chest. Doctors in internal medicine are expected to learn how to read the ECG to identify a potential heart problem; cardiologists are expected to be experts at ECG readings, pinpointing specific or rare problems.

"A lot of memorization is necessary to learn how to read an ECG," says Dr. Benitez. "The rules include such things as: what is the voltage in a particular lead or a combination of leads or what is the axis of the vector of this electrical signal?" Pattern recognition is also part of the learning process.

Citation: "A Novel Method for Assessment of Resident Competency of Electrocardiographic Interpretation with Linked Guide to Self-Improvement." Benitez RM, Southall N, Wolfsthal SD, Galiatsatos L, Raimist D, Lewis RP. Poster, Association of Program Directors in Medicine, 10/31/2008.

Source: University of Maryland Medical Center