HEART Score Predicts Chest Pain Outcomes

BY BRUCE JANCIN

BARCELONA — A new scoring system for categorizing patients who present with chest pain to the emergency department—called the HEART score—proved to be a strong discriminator of acute coronary syndrome and the risk of major adverse cardiac events within the next 6 weeks in a Dutch multicenter validation study.

HEART is designed to be faster, simpler, and more intuitive than the acute coronary syndromes (ACS) risk scoring systems physicians now have, such as TIMI (Thrombolysis In Myocardial Infarction) and GRACE (Global Registry of Acute Coronary Events), Dr. Barbra Backus explained at the annual congress of the European Society of Cardiology.

"TIMI and GRACE ignore patient history, and are time consuming and complex. Although the use of the GRACE score in emergency rooms is recommended in the European guidelines, it's not widely done," according to Dr. Backus of St. Antonius Hospital, Nieuwegein, the Netherlands.

"The HEART score is analogous to the Apgar score for newborns. It's easy to use, easy to remember, and easy to communicate," she added.

The score takes less than 2 minutes to calculate and doesn't require any costly, time-consuming imaging studies.

HEART is an acronym for the five elements that make up the score: History, ECG, Age, Risk factors, and Troponin level. Each element is assigned 0-2 points depending upon how abnormal it is. This yields a total HEART score ranging from 0 to 10.

For example, a patient who presents with a classic history that's highly suspicious for ischemic chest pain gets 2 points for history; a somewhat suspicious history earns 1, and a nonsuspicious history for coronary heart disease gets 0 points.

Similarly, significant ST-segment deviation earns 2 points for the ECG element, nonspecific ECG changes get 1 point, and a normal ECG gets none. Patients get 2 points for being above age 65, 1 for being age 45-65, and 0 for being younger than age 45. An individual with three or more coronary risk factors or a history of treatment for atherosclerosis gets 2 points for the risk factor element; a patient with one or two risk factors earns 1 point.

Dr. Backus presented a retrospective HEART score validation study involving 910 consecutive patients who presented with chest pain to four Dutch emergency departments. Thirty were lost to follow-up.

A major adverse coronary event—acute MI, percutaneous coronary intervention, coronary artery bypass surgery, or death—occurred in 18% of patients within 6 weeks of presentation. This was the case for just 3 of 303 patients (0.1%) with a HEART score of 0-3, 48 of 413 (12%) with a score of 4-6, and 107 of 164 (65%) with a score of 7 or higher.

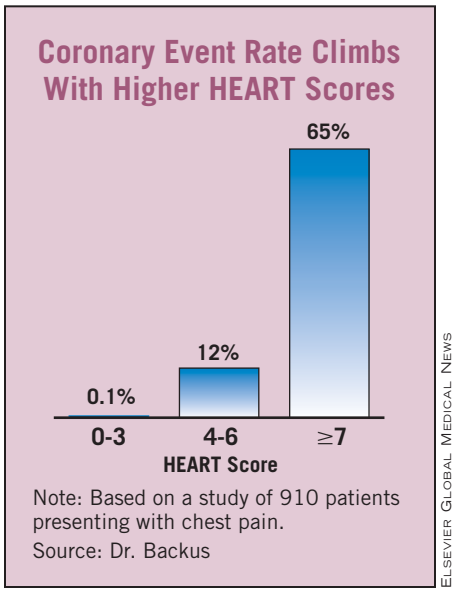
The mean HEART score in patients who experienced a cardiac end point was 7.2, significantly more than the mean of 3.8 in individuals who did not.

"We believe it's possible to base clinical decisions on the HEART score. Patients with a HEART score of 0-3 can be discharged from the emergency room immediately. Patients with a score of 4-6 require additional investigation. Patients with a HEART score of 7 or above should be admitted to the coronary care unit," Dr. Backus continued.

She and her coinvestigators performed subanalyses in diabetic patients, elderly patients above age 80, and in women. The HEART score performed as well in these groups as in the general population.

Asked if all five elements of the HEART score carry equal predictive power, Dr. Backus replied that actually they don't. The sensitivity and specificity of history, ECG, and troponin level were slightly stronger than age and risk factors, but not enough to warrant assigning those elements weighted values. That would make the HEART score more difficult to remember and to use in busy emergency departments, thus defeating the whole purpose of the new scoring system, she explained.

A prospective multicenter validation study of the HEART score is ongoing. ■



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