Taking Ambulance Cuts Time to Cath Lab 26%

BY CAROLINE HELWICK

FROM THE ANNUAL MEETING OF THE AMERICAN COLLEGE OF CARDIOLOGY

NEW ORLEANS – Patients with suspected ST-elevation myocardial infarction who called an ambulance received lifesaving care in half the time as patients who got to the hospital by other means, according to a study conducted at two San Francisco hospitals.

"Patients who take an ambulance get a prehospital ECG," said lead investigator Dr. James M. McCabe of the University of California, San Francisco, at the meeting. "These patients move through the emergency room and get to the cath lab much faster."

"We found that almost half of patients referred for a potential heart attack don't take an ambulance but come in on their own, and it turns out they are doing themselves a great disservice," Dr. McCabe said.

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Major Finding: After adjustment for multiple risk factors, severity of illness and extent of ECG changes, patients with suspected STEMI who did not arrive by ambulance at the emergency department spent 62% more time in the emergency department before undergoing catheterization.

Data Source: A study of 356 consecutive patients referred for emergent cardiac catheterization for a suspected STEMI by emergency physicians at a tertiary care hospital and a county hospital in San Francisco in 2009.

Disclosures: Dr. McCabe and Dr. Wright reported no relevant conflicts of interest.

The study analyzed 356 consecutive patients referred for emergent cardiac catheterization for a suspected STEMI by emergency physicians at a tertiary care hospital and a county hospital in 2009. Of the 356 patients, 199 (56%) arrived by ambulance and 157 (44%) did not.

Variables affecting the time interval from the inciting ECG to STEMI pager activation, and door-to-balloon time, were analyzed in univariate and stepwise multivariate regression models.

All components of care were affected.

"The ultimate metric, door-to-balloon time, was reduced by 26% in patients taken by ambulance," Dr. McCabe reported. This highly significant finding is important because studies show mortality risks are higher when door-to-balloon times exceed 90 minutes, he added.

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Patients who arrive by ambulance at the ED get to the cath lab faster than do those arriving by other means.

The investigators then broke down the door-to-balloon time into its various components and compared the groups. After adjusting for demographic factors, traditional cardiovascular risk factors, severity of illness and extent of ECG changes, merely not presenting by ambulance to the emergency department (ED), and therefore not receiving a prehospital ECG, significantly lengthened by 62% the total time in the ED before undergoing catheterization.

Among patients arriving by ambulance, "each interval that occurred within the emergency room was reduced by more than 50%," he reported.

The procedural time for revascularization, however, did not vary based on how the patient arrived at the hospital. This finding supports the conclusion that care was made more efficient prior to the catheterization itself, he said.

The one observable difference was that patients arriving by ambulance were more critically ill. They had more cardiac arrests, and required more cardiopulmonary resuscitation and intubation. "While these patients are sicker and require more care in the ER, they are still getting through the ER faster, after adjusting for multiple risk factors and elements in the decision-making process," Dr. McCabe noted. "Taking the ambulance results in efficiency, and this translates into faster ER throughput and shorter door-to-balloon times."

Of some concern to the researchers was that calling 911 did not ensure that patients with suspected STEMI arrived at the hospital with ECG results in hand. Among the 356 patients in the study, 68% did not receive an ECG, either because they did not travel by ambulance or because, in 43% of the cases, they were not given an ECG en route.

Dr. McCabe suspects that patients who did not receive an ECG in the ambulance may have had vague presenting symptoms when paramedics arrived. Of patients with symptoms more indicative of an MI, 78% got an ECG in the ambulance, he said.

"Our community is diverse, and we feel that barriers in communication with non–English speakers may also have played a role," he added.

He further noted that in San Francisco, paramedics did not have the technology to forward the ECGs electronically to the receiving hospital. San Francisco will be implementing citywide remote transmission of ECGs soon, and the investigators plan to study whether this makes for even more efficient transfer of STEMI patients to the cath lab.

"These data suggest better triage systems may be necessary for patients with likely STEMIs, particularly for [more than] 40% of patients who do not arrive by ambulance," Dr. McCabe concluded.

Dr. Janet Wright, ACC senior vice president of science and quality, said that "This is a safety message for patients: 'Your local ER wants you to come by ambulance!' And for physicians and health care systems, the message is that there are critical intervals within the overall pattern of care that need scrutiny," said Dr. Wright, a cardiologist in Chico, Calif. "The person who arrives by private transportation may languish within those time intervals," she said. "The message is to focus on every handoff. They accumulate in precious minutes." ■

UA/NSTEMI Guidelines Add Prasugrel, Quicker Angiography

BY JENNIE SMITH

FROM THE JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY

The American College of Cardiology Foundation and the American Heart Association have published updated guidelines for managing patients with unstable angina/non–ST elevation myocardial infarction, taking into consideration the use of a newer agent, prasugrel, as an alternative to clopidogrel, and recommending diagnostic angiography sooner for patients at high risk, among other changes.

The guidelines (Am. J. Cardiol. 2011 March 28 [doi:10.1016/j.jacc.2011.02.009]) are based on the most recent clinical trial evidence available. They update recommendations from 2007, and include several changes clinicians should be aware of, the guidelines' lead author, Dr. R. Scott Wright of the Mayo Clinic in Rochester, Minn., said in an e-mail interview. These are, in order of importance:

► The timing of invasive therapy in medium- and high-risk patients.

► The role of triple- vs. dual-antiplatelet therapy in patients at medium and high risk.

► The role of invasive therapy in patients with chronic kidney disease.

► The importance of participating in quality improvement processes.

► The role of prasugrel in non–ST elevation acute coronary syndrome.

Clinicians face tough decisions about when to use an invasive strategy such as diagnostic coronary angiography – whether within hours of presentation or days, Dr. Wright and his colleagues wrote in their analysis. Immediate catheterization with revascularization of unstable coronary lesions may prevent ischemic events that would otherwise occur during medical therapy – but pretreatment with antithrombotics "may diminish thrombus burden and 'passivate' unstable plaques," improving the safety of the procedure and reducing the risk of ischemic complications.

The new guidelines, based on three randomized controlled trials evaluating the timing of angiography, recommend an early invasive strategy (12-24 hours after presentation) over a delayed invasive strategy (more than 24 hours after presentation) for initially stabilized high-risk patients with UA/NSTEMI.

"For patients not at high risk, a delayed invasive approach is also reasonable," Dr. Wright and his colleagues wrote.

Several changes to earlier recommendations for antiplatelet therapy are contained in the new guidelines, including altered loading doses for clopidogrel to counter the potential for the drug to be less effective in some patient groups, and the addition of prasugrel, which was approved by the Food and Drug Administration after the last guidelines were published.

Prasugrel, in a randomized controlled trial comparing it with clopidogrel, was shown to be superior in reducing clinical events but at the expense of an increased risk of bleeding, the guideline writers noted. In March 2010 the FDA issued a warning that in some patient groups clopidogrel is less effective than it should be because of a genetic variant that inhibits the body's conversion of the prodrug to the drug.

However, Dr. Wright and his colleagues stopped short of endorsing prasugrel as a first choice over clopidogrel because of the higher bleeding risk and other considerations. People aged 75 years or older, those with a history of transient ischemic attack or stroke or with active pathological bleeding, and people weighing less than 60 kg saw no benefit and/or net harm from prasugrel, they noted.

Dr. Wright and his colleagues also changed recommendations involving glycoprotein IIB/IIIa inhibitors, noting that recent studies "more strongly support a strategy of selective rather than provisional use of GP IIb/IIIa inhibitor therapy as part of triple-antiplatelet therapy," due to concerns about the potential bleeding risks.

Dr. Wright declared no conflicts of interest. Several of Dr. Wright's coauthors, including Dr. Jeffrey L. Anderson, the writing committee's vice chair, disclosed consultant relationships with pharmaceutical firms Sanofi-Aventis, Bristol Myers-Squibb, Lilly, and Daiichi. Members with conflicts were not permitted to vote on recommended drug therapies. ■