Biomarker assessment in suspected ACS could be practice-changing: BIC-8 results

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An emergency department strategy that uses two biomarkers to triage patients with suspected acute coronary syndrome (ACS) can increase the rate of early, safe hospital discharge, according to results of the Biomarkers in Cardiology 8 (BIC-8) trial.

"This biomarker strategy using a state-of-the-art quantitative troponin assay in combination with an ultrasensitive copeptin assay has the potential to change clinical practice with high patient safety," said lead investigator Martin Möckel, MD, PhD, from Charité - Universitätsmedizin Berlin, in Berlin, Germany.

"This is the first interventional trial to study whether it is safe to discharge suspected ACS patients who test troponin and copeptin negative at admission. Using this strategy, a high proportion of patients could be discharged early, thus unnecessary treatments and resources could be saved, causing a substantial benefit for patients and health care providers."

Emergency departments worldwide face increasing overcrowding and patients with signs and symptoms which might be caused by an acute coronary syndrome are very common, even though only around 15% of these patients are ultimately diagnosed with an acute myocardial infarction as the underlying disease, explained Dr. Möckel.

"Rapid rule-out of acute myocardial infarction (MI) is therefore a major clinical need, saving the health care system time and resources and patients unnecessary stress, anxiety and other risks associated with hospitalization."

Current guidelines recommend that patients receive serial troponin testing to confirm that hospital discharge is appropriate, but this testing delays definitive action, he said.

"The new biomarker copeptin has been shown to be elevated in patients first presenting with acute MI, and when combined with the cardiac troponin biomarker has an excellent negative predictive value for acute MI. However, an early discharge strategy based on combining these two tests has never been assessed prospectively."

BIC-8, a multicentre, open, randomized, controlled clinical trial included 902 patients with an initial negative troponin test to assess this strategy.

In the experimental arm (n=451), patients with a negative copeptin test (less than 10 pmol/L) were discharged into ambulant care, with a scheduled outpatient visit within 72 hours, while those with a positive copeptin test received standard treatment according to current guidelines.

Among patients in the standard arm (n=451), copeptin results were not available to treating staff and patients were treated according to current guidelines.

At 30 days of follow-up the rate of major adverse cardiovascular events (MACE) was similar in both groups (5.46% in the experimental arm vs 5.5% in the standard arm), but emergency room discharge rates were significantly higher in the experimental arm (66% vs 12%; P

The results support the consideration of a new treatment algorithm in low-to-intermediate risk patients with suspected ACS, said Dr. Möckel.

"Patients with a negative troponin and a negative copeptin result at admission can safely be discharged if the final clinical assessment is consistent with this decision, as long as a timely diagnostic work-up is done in the outpatient setting," he said.

However, the clinical judgment of the treating physician is of utmost importance, he stressed.

"If his or her final clinical assessment excludes

discharge due to high suspicion of ACS, perhaps due to recurrent symptoms or an updated history, the patient should not be discharged despite negative biomarker results."

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