

The Incremental Value of Troponin-I Testing in Patients with Intermediate Risk Unstable Angina

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Summary

Background: Classification of patients with unstable angina (UA) by Agency for Health Care Policy and Research (AHCPR) guidelines in the emergency department reliably stratifies risk of death or myocardial infarction (MI) for triage to outpatient evaluation (low-risk), hospitalization (high-risk), or additional testing (intermediate-risk). Cardiac troponin-I elevation may identify patients at higher risk, but the incremental value may vary with AHCPR clinical risk.

Hypothesis: The objective of this study was to determine whether cardiac troponin-I had any additional value beyond triage based upon history, physical examination, and electrocardiogram, in the evaluation of patients with UA.

Methods: In all, 212 consecutive patients with UA and normal serum creatine kinase (CK)-MB levels and elevated troponin-I were risk stratified by AHCPR guidelines to evaluate the incremental value of adding routine troponin-I measurements to our current model for risk stratification.

Results: Primary events (death/nonfatal MI) occurred in 35% of high-risk, 15% of intermediate-risk, and 0% of low-risk patients ($p < 0.001$ by chi-square for trend). High troponin-I (≥ 2.0 ng/dl) occurred in 48% of high-risk, 21% of intermediate-risk, and 19% of low-risk patients. The remaining patients in each risk group had indeterminate troponin-I levels ($\geq 0.4 < 2$ ng/dl). Of those with high troponin-I, a primary event occurred in 36, 42, and 0% in the respective high-, intermediate-, and low-risk groups ($p < 0.001$). High troponin-I levels corresponded with a statistically significant increased rate of primary events only in patients at AHCPR intermediate risk: 42.4 vs. 7.3%, $p < 0.001$.

Conclusion: The AHCPR guidelines risk stratify patients with UA. High troponin-I adds significant ($p < 0.001$) prognostic value in the patients at AHCPR intermediate risk and should be evaluated further in larger trials of such patients.

Key words: troponin, acute myocardial infarction, chest pain, unstable angina

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