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The Utility of Non-Specific ECG Findings in the Setting of Low High-Sensitivity Cardiac Troponin Levels

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Objective: Our objective was to assess the relationship between non-specific ischemic electrocardiogram (nsi-ECG) findings and the occurrence of major adverse cardiac events (MACE) within a 30-day timeframe among patients in the Emergency Department (ED) with low high-sensitivity cardiac troponin (hs-cTnI) levels.

Methods: We conducted a secondary analysis of the RACE-IT trial, a randomized trial performed across 9 EDs from July 2020 through March 2021 that looked at the effectiveness of hs-cTnI in evaluating the risk for acute myocardial infarction (AMI). Our study assessed the association between nsi-ECG findings (left bundle branch block, ST-segment changes, or T-wave inversions) and 30-day MACE (death, AMI, heart failure hospitalization, or coronary revascularization) in patients who had AMI ruled out based on low hs-cTnI levels.

Results: 16,606 patients were included in this analysis. Combined, there were 3345 patients with potentially ischemic ECG findings. Thirty-day death or AMI occurred in 66 patients. Death within 30 days occurred in 47 patients, of whom 38 were adjudicated as non-cardiac. There was no difference in MACE events based on potentially ischemic findings (OR 1.38, 95% CI 0.79 - 2.39, p=0.257). The presence of ST-segment changes, however, had a trend towards greater odds of MACE (OR 2.53, 95% CI 0.92 - 6.99).

Conclusion: Non-specific ischemic ECG findings in the setting of low hs-cTnI are not associated with greater MACE events within 30 days of discharge for patients with possible AMIs. The use of nsi-ECG findings should be considered in the context of hs-cTnI levels when evaluating risk for coronary disease.