Impact of accompanying dyspnea on diagnosis and outcome of patients with suspected acute coronary syndrome

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On behalf: Advantageous Predictors of Acute Coronary Syndrome Evaluation (APACE) Investigators

Topic(s):
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Background: Accompanying dyspnea is common in chest pain patients on the emergency department (ED), but its impact on differential diagnoses and outcome is not well understood.

Purpose: To assess the impact of dyspnea on differential diagnoses, outcome, and diagnostic performance of ECG criteria and recommended 0/1h-algorithms for MI.

Methods: We prospectively enrolled unselected patients presenting to the ED with symptoms suggestive of myocardial infarction. Final diagnoses were adjudicated by two independent cardiologists including all available information including cardiac imaging. High-sensitivity cardiac troponin (hs-cTn) T/I concentrations were measured at presentation and after 1h. Patients were stratified by presence of accompanying dyspnea. Primary diagnostic endpoint was differential diagnosis in patients with versus without dyspnea. Secondary diagnostic endpoint was the performance of the ECG and 0/1h-algorithms. Primary prognostic endpoint was all-cause mortality at 30-days and two-years.

Results: Among 3917 patients, prevalence of MI was similar in patients with vs. without dyspnea (19.5% vs. 18.9%, p=ns). Patients with dyspnea more often had cardiac, non-coronary disease (17.1% vs. 11.5%, p<0.001) and hs-cTnT/I concentrations were significantly higher with presence of dyspnea in patients with other final diagnoses than MI (p<0.001). Diagnostic accuracy of hs-cTnT/I concentrations at presentation for diagnosis of MI was very high and not affected by presence of dyspnea (AUC 0.90-0.92 in both groups). The hs-cTnT/I 0/1h-algorithms performed excellent in both groups (NPV 99.9% [95%CI, 99.4-100] for rule-out in patients with vs. 99.8% [95%CI, 99.1-99.9] without dyspnea, p=ns). Dyspnea remained an independent predictor for all-cause death within two years of follow up (HR 1.80 [95%CI, 1.35-2.29, p<0.001) and mortality rates were significantly higher in patients with dyspnea at two years (8.5% vs. 3.6%, p<0.001).

Conclusion: Accompanying dyspnea is associated with cardiac, non-coronary disease such as heart failure. Diagnostic performance the 0/1h-algorithms is excellent in both groups, while accompanying dyspnea is associated with much higher risk of two-year all-cause mortality.
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