

## **Diagnostic Accuracy of cardiovascular Risk Factors for Acute Myocardial Infarction**

**Aim:** We ought to assess the diagnostic performance of cardiovascular risk factors (cvRF) in patients presenting to the Emergency Department (ED) with suspected acute myocardial infarction (AMI).

**Methods:** In a prospective multicenter study, we enrolled 1860 consecutive patients without known coronary artery disease presenting to the ED with acute chest pain. The diagnostic accuracy of hypertension, hypercholesterolemia, smoking, diabetes mellitus, obesity and family history was evaluated in the early diagnosis of AMI.

**Results:** AMI was the adjudicated final diagnosis in 17% (n=319) of patients. Among all AMI patients, 98% had at list one cvRF at presentation to the ED ( $p < 0.001$ ). 4 of 6 cvRF were associated with a final diagnosis of AMI, with odd ratio (OR) ranging from 1.50 to 2.87 in the univariate analysis. In the multivariate analysis just 2 of them remained significantly associated, hypercholesterolemia and smoking history, with ORs 3.02 and 2.30 respectively. The diagnostic accuracy of number of cvRF (as an established quantitative measure of the overall cardiovascular risk profile) for AMI quantified by the area under the receiver-operating-characteristics curve (AUC) was limited (AUC 0.61; 95% confidence interval (CI) 0.58-0.65) and significantly lower compared to high sensitivity cardiac troponin (hs-cTn) T at presentation (AUC 0.94; 95% CI 0.93-0.96) ( $p < 0.001$ ). Furthermore the use of number of cvRF did not provide incremental diagnostic value over hs-cTnT alone (AUC 0.92; 95% CI 0.90-0.94). (Figure)

**Conclusion:** Few cvRF are associated with a final diagnosis of AMI among patients presenting to the ED with acute chest pain. However the performance to diagnose

AMI is very poor. Therefore, the absence of cvRF does in no way negate the need for 12-lead ECG and hs-cTn testing in patients with acute chest pain.

Figure

