Association of ST-elevation and non-ST-elevation presentation on ECG with transmurality and size of myocardial infarction as assessed by contrast-enhanced magnetic resonance imaging.

Abstract:

It is the general perception, that ST-elevation myocardial infarction is associated with transmural ischemia while Non-ST elevation myocardial infarction is found in non-transmural subendocardial ischemia. This association, however, derives primarily from post mortem studies. A total of 220 patients with acute myocardial infarction (MI) who had PCI on admission and contrast-enhanced cardiac magnetic resonance imaging (CMR) within one week were included into the study. Size and transmural extent of MI was quantified by CMR and correlated with the ECG on admission. Based on the ECG findings, 57% were classified as STEMI and 43% as NSTEMI. CMR infarct size was significantly larger in STEMI than NSTEMI (23.2 vs. 14.2 LV%, p<0.001). As assessed by CMR, STEMI patients were transmural in 63% as compared to 27% of patients with NSTEMI (p<0.001). In a multivariable logistic regression model, total infarct size was significantly associated with presence of STEMI (OR: 1.045, 95% CI [1.014-1.077], p=0.004) whereas the number of transmural segments did not significantly add further information for a STEMI/NSTEMI classification (p=0.054, change of c-index from 0.69 to 0.70). The electrocardiographic STEMI/NSTEMI classification does rather characterize...
the total size of MI than the transmural extent as assessed by CMR.