Microvascular obstruction in patients with non-ST-elevation myocardial infarction: a contrast-enhanced cardiac magnetic resonance study.

The aim of the study was to assess the frequency and predictive factors of microvascular obstruction (MVO) in patients with non-ST-segment elevation myocardial infarction (NSTEMI). This study included 190 consecutive patients with NSTEMI who underwent percutaneous coronary intervention (PCI) within 24 h after admission and cardiac magnetic resonance (CMR) imaging, 4.1 days after angiography. MVO was defined using the CMR criteria. MVO was detected in 26 of 190 patients (13.8%). Patients with MVO had higher peak high-sensitivity troponin T, creatine-kinase and creatine kinase-myocardial band levels and higher proportions of those with baseline thrombolysis in myocardial infarction (TIMI) flow grade 0-1, absence of collateral circulation, post-PCI TIMI flow grade<3, myocardial blush grade<3 and angiographic no-reflow than patients without MVO. Patients with MVO had larger initial area at risk [median (25th-75th percentiles), 23.9% (17.4-33.9%) vs. 16.1% (7.8-27.7%), P = 0.018] and infarct size [11.4% (6.6-19.2%) vs. 1.4% (0-4.7%) of the left ventricle, P< 0.001] than patients without MVO. In multivariable analysis, the culprit lesion localization in the circumflex coronary artery [adjusted odds ratio (OR) 13.71, 95% confidence interval 2.91-64.58, P<
and the infarct size [adjusted OR 3.37 (1.80-6.29), P< 0.001, for each 5% of the left ventricle] were independently associated with the increased risk for MVO. In patients with NSTEMI undergoing early PCI, the MVO defined by CMR imaging was present in 13.8 % of the patients. The localization of culprit lesion in the circumflex coronary artery and larger infarct size were independently associated with the increased risk for MVO.