Value of new regional dysfunction in echocardiography in the investigation of chest pain at the emergency room

Hospital PróCardíaco, Rio de Janeiro, RJ, BRAZIL

Background: Proper management of chest pain in patients with suspected acute coronary syndromes (ACS) can reduce wrongful discharges and unnecessary hospitalizations. The echocardiogram (ECHO) is a noninvasive and fast method that helps stratification of ACS. Regional dysfunction of left ventricular contractility (RDysf) occurs in ACS, but is also present in ptes with prior history of infarction. Few studies have quantified the occurrence of new regional dysfunction and its association with ACS in the emergency room.

Purpose: To evaluate the association between new RDysf at the ECHO and the occurrence of ACS in the emergency room.

Methods: Case series of 2048 consecutive ptes admitted to the emergency room in which there was suspicion of ACS. Patients underwent serial assessment of EKG and troponin I on admission and after 6 hours. The indication for ECHO was: presence of moderate or high probability of ACS and request of the attending physician. The established criteria for RDysfwere the detection of akinesia, hypokinesia or dyskinesia in some of the 16 LV segments on ECHO that was not present in ECHO performed in the last 12 months. The diagnosis of ACS was conducted by ischemia detection in provocative tests or presence of significant obstructions in coronary angiography. Statistical analysis used Student's t test and chi square.

Results:ECHO was performed in 62.2% of pts. New RDysf occurred in 34 patients, with mean age of 65.1$\pm$12,5y and male prevalence (79.4%). All patients with newRDysf evolved with adverse cardiovascular events (17 ST-Elevation ACS, 16 non ST-Elevation ACS and 1 Takotsubo) while the incidence of ACS in the group with no newRDysf was significantly lower (18.5% vs 98.6 %; p <0.001). Positive predictive value (PPV) and negative (NPV) for new AltSeg were respectively: 97% and 78.6%.The ptes with new RDysf had higher frequency of typical chest pain (91.2% vs 40.1%; p <0.001). Among patients who had ACS, there was a predominance of ST-Elevation ACSin the group with new RDysf when compared to the group without new SegDysf(48.5% vs 16.1%; p <0.001).

Conclusion: New RDysf are highly associated with the occurrence of ACS in the emergency room and occur in more severe ptes with typical clinical presentation and high incidence of ST-Elevation ACS. Further studies should assess the impact of routine incorporation of ECHO to chest pain protocols.