Abstract

Background: Right vnetircular (RV) infarction is accompanied with approximately 30%-50% of inferior wall myocardial infarction (MI). The early diagnosis of RV infarction complicating inferior wall MI can reduce morbidity and mortality.

Aim of the Work: The objective of our study is to assess the usefulness of tissue Doppler imaging in evaluation of RVMI in patients with a first acute inferior MI in comparison to First Pass Radionculide Angioraphy (FPRNA) which is the gold standard method. And finally to make a confirmative study by coronary angiography.

Patients and methods: Twenty five patients with inferior wall MI as defined by elevated cardiac markers, chest pain, and ECG evidence of inferior MI (elevated ST segment of \geq 1m in leads II, III, aVF) were subjected to full history of CAD, full clinical examination, left 12-leads ECG, right chest leads, cardiac markers, TDI (to measure MPI and Sm), 1st pass radionuclide angiography (to measure RVEF) and coronary angiography to define the occluded vessel and to localize the occlusion of RCA either before or after the RV branch.

Results: Based on the nuclear study (FPRNA) our 25 pts divided to 13 pts with RVEF \geq 45% (57.38±5.9) and 12 pts with RVEF <45% (37.08±3.2) from the 1st 13 pts 12 showed by TDI, MPI <0.7 (0.48±0.07) and Sm \geq 12 cm/s (13.89±1.02 cm/s) and one pt. showed MPI \geq 0.07 and Sm <12 cm/s. From the 2nd 12 pts 10 exhibited by TDI, MPI \geq 0.7 and Sm <12 cm/s (0.81±0.4 and 9.27±1.7 cm/s respectively) and 2 exhibited normal MPI and Sm (<0.7 and \geq 12 cm/s respectively). Based on the coronary angiography our 25 pts divided to 11 pts in whom the acute occlusion was the RCA before the RV branch and 14 pts in whom the acute occlusion was in coronary vessel other than the RCA before the RV branch (Lt. Cx, LAD, RCA after the RV branch). From the 1st 11 pts, 10 showed by TDI, MPI \geq 0.7 and Sm <12 cm/s and 1 showed normal MPI and Sm. From the 2nd 14 pts 13 showed by TDI normal MPI and Sm and 1 showed MPI \geq 0.7 and Sm <12 cm/s

Conclusion: There is a significant correlation between TDI and FPRNA in the ability to detect RVMI by a sensitivity 90.9% and specificity 85.7% P value 0.0001. There is a good correlation between the TDI and coronary angiography in the ability to detect RVMI by a sensitivity 90.9% and specificity 92.9% P value 0.0001. In comparison to FPRNA as a calibration method to assess RVEF, TDI is considered a new, easy, bed side and less expensive technique in assessment of RVEF.

Kew word: Tissue Doppler Imaging, Peak myocardial systolic velocity, Myocardial performance index, First pass radionuclide angiography, Right ventricular myocardial infarction, inferior wall MI