Nitrate-Augmented Myocardial Perfusion Imaging for Assessment of Myocardial Viability

Background: The identification of myocardial viability in patients with coronary artery disease and left ventricular dysfunction, is an important issue because it can be improved by revascularization in regions with poorly perfused but viable myocardium. Several techniques have been described to assess myocardial viability. 201 Tl and 18 F-fluorodeoxyglucose are not available in our country. 99m Tc sestamibi is widely available. Nitrate-augmented myocardial perfusion imaging has been demonstrated to improve the detection of myocardial viability and accurately predicts recovery of left ventricular function.

Methodology: A clinical case is presented. This is the first patient wherein assessed myocardial viability by nitrate augmented myocardial perfusion SPECT with 99m Tc Sestamibi in our centre.

Results: 55 year old type 2 diabetic patient, with a recent anteroseptal acute coronary syndrome. 90% stenosis of the DA with a failed PTCA. Left ventricular dysfuntion with 30% ejection fraction. Patient underwent a 99m Tc Sestamibi SPECT study, at rest and after sublingual nitrate administration (0.5 mg NTG), for evaluation of myocardial viability.

Viability was defined as the presence of > or = 2 segments with preserved tracer uptake (> or = 55% of peak activity), with a semiquantitative analysis of 20 steps.

The SPECT showed a dilated left ventricular cavity with a intense and big ASA perfusion defect. SRS: 33, TPD: 32%, 37% extent. There was no significant viability in this territory. After nitrate image he had 55% or more tracer uptake in medium and basal anteroseptal segments as well as in inferoseptal.

Conclusion: Use of nitrate augmented 99mTcMIBI protocol in Cardiac SPECT imaging results in improved detection of viable but hypoperfused segments.

Country/Organization invited to participate
Costa Rica

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