ORIGINAL ARTICLE

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Dobutamine stress tetrofosmin SPECT; evaluation of short rest-stress protocol and head to head comparison with MIBI in detection of coronary artery disease

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Objective: The purpose of the present study was to evaluate the feasibility and diagnostic accuracy of same day short rest-dobutamine stress Tetrofosmin (TF) SPECT imaging protocol and to compare TF SPECT results with MIBI SPECT in the same subjects who were unable to perform treadmill exercise or were unsuitable for pharmacological vasodilator stress. ***Methods:*** The study group consisted of 19 patients (2 female and 17 male, with a mean age of 53.8 ± 7.9 yrs) in whom coronary artery disease (CAD) had been proven or excluded at coronary angiography (CA). MIBI SPECT imaging was performed first. TF SPECT images were obtained one week after MIBI imaging. Immediately after the rest SPECT imaging in both of the MIBI and TF studies, patients underwent dobutamine stress tests. Rest-stress radiotracer doses and dobutamine doses were the same for both TF and MIBI studies. While 60 min waiting periods were applied for MIBI study, only 30 min waiting periods were applied for TF study after the rest and stress injections. Images were evaluated by visual and quantitative analysis. ***Results:*** Dobutamine stress parameters were similar for both studies. Although in TF study, the time between radiopharmaceutical injection and imaging was shorter than in MIBI study, there was no significant difference between heart-to-liver (H/Li) and heart-to-lung (H/Lu) ratios. According to CA results, diagnostic accuracy was similar for TF and MIBI. While sensitivity, specificity and accuracy for TF study were calculated as 82%, 84% and 82%, respectively, the corresponding values for MIBI were 82%, 88% and 84%, respectively. This clinical study has shown comparable diagnostic performance for the detection of CAD between MIBI and TF. Good correlation was found between segmental analysis for both studies. ***Conclusion:*** MIBI and TF showed similar perfusion defects and good segmental correlation during dobutamine stress with the same quality images. Both radiopharmaceuticals may be acceptable with this imaging protocol. Besides this, TF study showed better reversibility degree (55%) in a shorter time when compared to MIBI study (25%) in perfusion defects (especially in segments with severely decreased perfusion or no uptake).

Key words: sestamibi, tetrofosmin, dobutamine, SPECT, coronary artery disease