resulting in an excellent overall concordance (163/171, 95%) of viability between PET and HSA SPECT. Furthermore, there was good agreement for LVEF measurements by gated SPECT and MRI (n=95).

Conclusion: ECG-gated FDG/MIBI DISA SPECT permits simultaneous assessment of myocardial glucose metabolism, perfusion and function in a single study. Because the acquisition procedure can be completed within 20 minutes, this imaging protocol may be suitable for clinical routine.

1213-64 Accuracy of Gated Perfusion Single-Photon Emission Tomography for Left Ventricular Ejection Fraction Assessment in the Presence of Large Perfusion Defects: Correlation With Cardiac Magnetic Resonance

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Background: Gated perfusion single-photon emission computed tomography (SPECT) assessment of left ventricular ejection fraction (LVEF) and volumes has been well validated, but there is controversy about its accuracy in the presence of large perfusion defects. We aim to validate the accuracy of gated SPECT measurements in the presence of large perfusion defects, using cardiac magnetic resonance (CMR) as the gold-standard.

Methods: 22 male subjects (mean age 53 ± 11 years; mean MR LVEF 40.9%, range 9% to 70%; 15 had prior myocardial infarcts; 11 had large non-reperfused defects > 20% of left ventricle on SPECT) who underwent gated perfusion SPECT (25 mCi technetium-99m tetrofosmin, dual header detector, 64 steps, 25 acquisition frames) were enrolled. MRI (1.5T MR, cine with segmented fast low-angle shot pulse sequence) was performed on each subject within a week. LVEF, left ventricular end-diastolic (LVEDV) and end-systolic (LVESV) LV volumes were determined using automated software (AutoQuant) for gated SPECT and semi-automated software (Argus) for MR imaging.

Results: There was excellent correlation (r = 0.94; p < 0.0001) between LVEF assessed by gated SPECT and MR (mean LVEF 41.6% ± 40.8%, respectively). The mean difference was 1.1% (95% CI -1.6% to 4.0%), and was not statistically different (p = 0.077) for patients with small perfusion defects (< 10% of LVEF) and patients with large defects (> 30% of LVEF). By Bland-Altman analysis, no significant trend in difference was found between the two methods across the range of LVEF values.

Conclusion: ECG-gated SPECT and CMR permit simultaneous assessment of LVEF and volumes, with excellent correlation and limits of agreement were excellent for LVEF, but were wider for LVEDV and LVESV. Analysis (-38.2 ml to 80.4 ml; -30.2 ml to 60 ml) were considerably wider. The independent effects of PL and WM on sensitivity/specificity and spec were compared to baseline values derived from blind readings of supine SPECT images.

1213-65 Accuracy of Dynamic SPECT Acquisition for To-99m Teboroxime Myocardial Perfusion Imaging: Preliminary Results

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Background: To-99m teboroxime is a myocardial perfusion tracer with a high extraction fraction and fast clearance, optimal for flow imaging. A dynamic SPECT acquisition, where 30 s dual detectors are framed every 30 s for up to 4 minutes, was implemented. All the framed projections were mathematically combined to yield a "static" acquisition to reduce artifacts by accounting for both changing concentration and increasing liver activity. The purpose of this investigation is to test the quality and accuracy of the images from this protocol.

Methods: Patients were imaged using a thallium-201 / teboroxime-stress protocol (20 mCi fanning with adenosine stress) and correlated with results from conventional myocardial perfusion rest-stress protocols. Either the conventional SPECT studies or the patients’ likelihood of CAD were used as the gold standard. The observer interpreted the teboroxime studies and another independent observer blinded to the results interpreted the rest-vascular territories. The observers agreed on the coronary territories.

Results: SPECT studies showed high technical quality by protocol. 99% of the images showed good to excellent quality and the observers agreed on the coronary territories. The observers agreed on the coronary territories.

Conclusion: These preliminary results show that dynamic SPECT imaging acquisition and processing of To-99m teboroxime can yield high quality, accurate studies for diagnosing coronary artery disease. These results should be verified in a larger, prospective clinical trial.