

Role of Tc-99m SPECT-CT Myocardial Perfusion Imaging (MPI) is Sensitive & Accurate In the management of Coronary Artery Disease (CAD)

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Abstract

Myocardial Perfusion Imaging in Nuclear cardiology is a head-way specialty that is convenient from technological and radiopharmaceutical point of view. It is found that there has been an increase in the accuracy & sensitivity of myocardial perfusion imaging (MPI) with gated single photon emission computed tomography (SPECT) using 99mTc- sestamibi for assessing the diagnosis and prognosis of coronary artery disease. Furthermore, SPECT/CT with ECG gating allows the simultaneous assessment of both myocardial perfusion imaging (MPI) and left ventricular function (LVF). With rising concern for early detection of CAD and its effective treatment, MPI is ideally placed to provide complete functional assessment for the patient, regardless of their treadmill capacity. On the basis of Myocardial Perfusion Studies of 166 patients in one year with moderate to severe coronary artery disease (CAD) performed at All India Institute of Medical Sciences Raipur India, using (99m)Tc-methoxy-isobutyl-isonitrile ((99m)Tc-MIBI). Out of which TMT stress positive findings are 45 and 48 patients were normal and in pharmacological stress 37 were positive and 13 were normal. Also there were only rest scans in which 15 were positive and 8 were normal. The aim of this study was to find the accuracy and sensitivity in the management of coronary artery disease (CAD). Acquisition parameters for stress and rest phases to achieve the highest sensitivity and accuracy rate for (99m)Tc-MIBI SPECT. Myocardial perfusion imaging (MPI) with SPECT was performed on the basis of one-day protocol with stress- and rest-phase images obtained at 45 to 60 minutes after injection of 8 mCi & 22mCi (99m)Tc-MIBI respectively. According to the parameters of image acquisition at stress/rest phases, sensitivity and specificity of one-day protocols for MPI with (99m)Tc-MIBI is represented in following table respectively.

Results

Statistic	Value	95% CI
Sensitivity	90.43%	82.60% to 95.53%
Specificity	83.33%	72.70% to 91.08%
Positive Likelihood Ratio	5.43	3.22 to 9.13
Negative Likelihood Ratio	0.11	0.06 to 0.22
Disease prevalence (*)	56.63%	48.73% to 64.29%
Positive Predictive Value (*)	87.63%	80.80% to 92.26%
Negative Predictive Value (*)	86.96%	78.03% to 92.60%
Accuracy (*)	87.35%	81.31% to 92.00%

Biography

Prof. Dr.KaranPeepre, has completed his MBBS,MD,DNM at the age of 32 years and 42 years from The University of Jabalpur, University of Mumbai and Devi Ahilya University,Indore, India. He has been trained in SPECT-CT, PET-CT, Nuclear Medicine, Nuclear Cardiology from AIIMS,New Delhi, World number One Emory University, School of Medicine, Atlanta,USA and Nuclear Medicine Centre,BARC,TMC, Mumbai. He was Professor and Head of Department of Nuclear medicine and Superintendent of Sultania lady Hospital,Gandhi Medical College,Bhopal,India. He has retired as Hospital Medical Superintendent and Professor and Head, Department of Nuclear Medicine and PET-CT, All India Institute of Medical Sciences, Raipur, India. He has presented many research papers & delivered lectures in national and international conferences and chaired scientific sessions(Atlanta-America,paris-France,Tehran-Iran,Romania,Dharan-Nepal,Shanghai-China,bali-Indonesia), He has published more than 15 papers in reputed journals.3-Gold medals are in his credit.



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