

Diagnostic Properties of Exercise or Pharmacological Stress Myocardial Perfusion Scintigraphy in Per-Vessel Basis: A Clinical Validation Study

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Abstract : Background: Various stress tests have been proposed yet to assess patients with suspected coronary artery disease. However, their diagnostic properties in terms of sensitivity, specificity, and accuracy are variable and their applicability remained somewhat vague. The aim of this study is to validate per-vessel diagnostic properties of 3 types of stress myocardial perfusion scintigraphy in gated SPECT (Single-Photon Emission Computed Tomography) using either exercise or pharmacological stress testing with dipyridamole or dobutamine. Materials and Methods: Hospital records of 314 patients who referred to Imam Khomeini hospital of Tehran between September 2015 and January 2017 were completely reviewed in this study. All patients underwent coronary angiography within 3 months after stress myocardial perfusion scan. Eventually, the results were analyzed in per-vessel basis to find the proper modality for each involved vessel or scanned site. Results: The mean age of patients was 62.15 ± 4.94 years (30-85) and 35.03% were women. The overall sensitivity, specificity, and accuracy were calculated as 56.59%, 54.24%, and 55.09%, respectively. These values were 56.43% and 53.25%, 54.46% and 47.36%, 56.75% and 54.83% for dipyridamole and exercise, respectively. Ischemia of the anterior wall through exercise stress testing has the highest diagnostic accuracy in detecting LAD (Left Anterior Descending artery) involvement. Inferior wall hypokinesia and anterolateral wall ischemia during exercise stress testing have the highest diagnostic accuracy in detecting RCA (Right Coronary Artery) and LCX artery (Left Circumflex Artery) stenosis, respectively. Conclusion: Stress myocardial perfusion scan should be carried out on the basis of the findings of the preliminary investigations on suspicion of a specific coronary artery or involved myocardial wall.

Keywords : dipyridamole, dobutamine, single-photon emission computed tomography, stress myocardial perfusion scintigraphy

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