

Normal values of left ventricular functional indices in gated ^{99m}Tc -MIBI myocardial perfusion SPECT

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Abstract

Introduction: Although left ventricular (LV) function parameters measured by gated myocardial perfusion SPECT (GSPECT) have been validated, experimental data have revealed that the calculated LV function parameters using GSPECT are affected by patient populations as well as particular acquisition and processing conditions. We tried to determine the normal values of GSPECT in an Iranian population. **Methods:** We studied 200 Iranian patients who underwent GSPECT in an outpatient setting. To develop normal limits of LV functional indices using GSPECT, 148 patients with a low (<5%) likelihood of coronary disease and normal tomograms were selected. No one of 148 patients had known coronary artery disease, typical angina, history of hypertension, diabetes mellitus, and smoking, any abnormality in echocardiography or hyperlipidemia. They were not taking any medication known to affect LV function at least 7 days before the study. End diastolic volume (EDV), end systolic volume (ESV) and LV ejection fraction (LVEF) were calculated in rest GSPECT using iterative reconstruction and QGS (quantitative gated SPECT) software. **Results:** Mean EDV, ESV and LVEF were 83.8 ± 20.2 , 14.3 ± 10.8 and $70.0 \pm 9.6\%$ respectively. These data showed a Gaussian distribution, so mean \pm 1SD would show the upper or lower limits of normal for LV functional parameters. There were the marked sex differences in mean LVVs and LVEF measurements. BMI index had not effect on the measurement of the LV functional parameters. We noticed that 40.4% of our subjects had $\text{ESV} < 20$ ml while most of them were women (112/123, 91%). **Conclusion:** From a clinical viewpoint, each institute should use a standard protocol for the specific patient population and for the mode of SPECT acquisition and reconstruction. Normal thresholds using GSPECT, OSEM reconstruction and QGS algorithm in men and women were $\text{EDV} > 120$, $\text{ESV} > 00$ & $\text{LVEF} < 02\%$ and $\text{EDV} > 77$, $\text{ESV} > 26$ and $\text{LVEF} < 12\%$ respectively.

Reaxys Database Information

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