

COMPARATIVE STUDY OF SINGLE INJECTION, SINGLE
ACQUISITION GATED Tc-99m-MIBI SPECT AND STRESS-REST
PERFUSION SPECT FOR EVALUATION OF MYOCARDIAL
VIABILITY AFTER BYPASS SURGERY IN CORONARY ARTERY
DISEASE.

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In patients without previous myocardial infarction, single injection stress perfusion/rest function(SISPRF) approach using Tc-99m-MIBI gated SPECT can substitute for conventional stress-rest (S-R) myocardial perfusion imaging for assessment of myocardial viability.(JACC,1994;23:1107-1114) This study compares pre-CABG single injection, single acquisition Tc-99m-MIBI ECG gated SPECT and conventional stress-rest image for prediction of myocardial viability in patients who performed CABG surgery as a revascularization procedure.

Rest Tl-201 SPECT followed by stress-Tc-99mMIBI gated SPECT was performed in 20 patients (9 with previous myocardial infarction(MI) and 11 without previous MI). This study was performed before and at 3 months after CABG. And viability assessment was confirmed by wall motion improvement after CABG. A 4-point scoring system(0 to 3 for normal to absent tracer uptake) for 17 segments of the left ventricular myocardium was used for assessment of stress and rest uptake. Wall motion, thickening and perfusion status were analyzed by semi quantitative visual assessment. Criteria for viability on gated SPECT was defined as when definite perfusion defect was showed, but wall motion or thickening showed normal or mild improvement.

Analysis of gated Tc-99m-MIBI SPECT in previous MI revealed a significant difference between pre-CABG($42 \pm 11\%$) and post- CABG($46 \pm 7\%$, P value <0.05) LVEF determination. This analysis in without previous MI revealed also a significant difference between pre-CABG($44 \pm 16\%$) and post- CABG($50 \pm 12\%$, P value <0.05). In patients with previous MI, each positive predictive values of S-R reversibility and SISPRF approach were 91% and 90%. And each negative predictive values were 25% and 18% . In patients without previous MI, each positive predictive values of S-R and SISPRF approach were 70% and 61%. And each negative predictive values were 63% and 14% .

It was concluded that SISPRF SPECT approach showed similar result with conventional S-R to predict wall motion improvement in previous MI patients but this approach showed limited value to predict myocardial viability in patients without previous MI due to lower predictive value.