Prognostic Value of Myocardial Perfusion Imaging in Predicting Mortality: A 10-Year Follow-up Study

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Background: The clinical utility of stress myocardial perfusion imaging (MPI) in predicting cardiac death and composite cardiac end points is well established. However, information regarding the association of perfusion abnormalities with mortality during long-term follow-up is scarce. Moreover, there is only limited data regarding the prognostic value of MPI in Israel. Therefore, we sought to ascertain whether stress MPI provides independent information for the prediction of all-cause mortality during long-term follow-up in patients with unknown CAD in the Israeli population.

Methods: Using the heart institute computerized database we identified 15506 (mean age 64±12 years, 52% male) consecutive MPI studies of patients without known CAD between January 2000 and October 2008. Demographic, clinical and MPI data were extracted. Patients with abnormal study (n=3543) defined modified SSS>2 were compared with patients with normal study (n=11963). End point during follow-up was death from any cause. Logistic regression was used to assess the associations between abnormal MPI study and mortality after adjusting for risk factors.

Results: The adjusted survival rate is shown in figure 1. The total mortality rate was 11.7% and 9.2% and 20.0% for the normal and abnormal MPI respectively (p<0.001). Age, male gender, diabetes mellitus, hypertension and abnormal MPI study were each associated with HR of 1.08, 1.20, 1.72, 1.35 and 1.68, respectively, (p<0.01). The 1-year, 2-year, 5-year and 10-year HR were 2.1, 1.8, 1.7, and 1.6, respectively (p<0.01 for all models).

Conclusion: Abnormal stress myocardial perfusion imaging in the Israeli population is independently associated with higher early, intermediate and late mortality rate.