

Prognostic Factors Related to Long-Term Survival in Patients with Known Ischemic Heart Disease Depending on Myocardial Perfusion Imaging Outcome

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Aim: ^{99m}Tc-sestamibi myocardial perfusion imaging (MPI) is widely used for evaluating worsening of symptoms in patients with known coronary artery disease (CAD), i.e. patients with prior myocardial infarction and/or prior coronary revascularisation. This study evaluates clinical variables as prognostic factors for long-term survival in such patients depending on the outcome of MPI.

Materials & Methods: 390 consecutive patients underwent a two-day ^{99m}Tc-sestamibi cardiac perfusion imaging protocol. The stress test was performed either as symptom-limited bicycle exercise or with dipyridamol for pharmacological stress. Mean follow-up was 121 ± 22 months. Information on causes of death was obtained from death certificates. Data on patients' diagnoses and medical history before and after MPI were retrieved from patient hospital files followed by a search in the Danish National Register of Patients. Survival was described in terms of cardiac death. Cox regression analyses for different outcomes of MPI were performed on the following variables: gender, age, dipyridamol at stress test, misuse of alcohol, smoking, diabetes, hypertension, use of β-antagonists, calcium antagonists, ACE-

inhibitors, digitalis and diuretics, as well as atrial fibrillation or left bundle branch block on ECG.

Results: Among patients with both reversible and fixed perfusion defects on MPI (N = 163; 66 deaths), there was significantly higher relative risk (RR) of death with increasing age (P < 0.05; RR 1.03 per year), use of ACE-inhibitor (P < 0.001; RR 2.5), and left bundle branch block on ECG (P < 0.05; RR 1.9). On the other hand, hypertension was inversely related to increased mortality in these patients (P = 0.02; IRR 2.1). Increasing age (P < 0.001; RR 1.1 per year), misuse of alcohol (P < 0.01, RR 3.7), and administration of diuretics (P = 0.002; RR 5.1) were predictive of increased mortality in patients with a reversible perfusion defect (N = 74; 20 deaths). In patients with fixed perfusion defects on MPI (N = 81; 31 deaths), age (P < 0.001; RR 1.08 per year) and use of ACE-inhibitor (P < 0.05; RR 2.1) were predictive factors of increased mortality. There were no variables, which were associated with increased risk of death in patients with normal MPI (N = 72; 19 deaths).

Conclusions: Surprisingly, hypertension seems protective in patients with known ischemic heart disease and both reversible and fixed perfusion defects on MPI. This finding demands further investigation. Increasing age in patients with abnormal MPI is an overall risk factor of increased mortality. Use of ACE-inhibitor is a risk factor related to increased mortality in patients with fixed perfusion defects. Otherwise, clinical factors regarding long-term survival in patients with known ischemic heart disease vary with different outcomes of myocardial perfusion imaging.