



Imaging

RELATIONSHIP BETWEEN DIABETES MELLITUS AND CHRONOTROPIC INCOMPETENCE IN PREDICTION OF ALL-CAUSE MORTALITY

Poster Contributions

Poster Sessions, Expo North

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Background: Diabetes mellitus (DM) and chronotropic incompetence, measured by % heart rate (HR) reserve achieved (%HRR), are predictors of all-cause mortality (ACM). We studied the prognostic relationship between DM and %HRR in patients (pts) undergoing exercise myocardial perfusion SPECT (MPS).

Methods: 12,291 consecutive pts not on β blockers underwent symptom-limited exercise MPS. %HRR was defined as $(\text{peak HR} - \text{rest HR}) \times 100 / (220 - \text{age} - \text{rest HR})$, with $< 80\%$ defined as low. Cox proportional hazard analysis was used for survival modeling.

Results: 519 ACM deaths occurred during a follow-up of 1182 + 827 days. Of 12,291 pts, 1,423 (11.6%) had DM and 3,579 (29.1%) had low %HRR. Pts with DM were more likely to have a low %HRR (45% vs. 27%, $p < 0.001$). After adjusting for age, sex, family history of CAD, symptom, exercise duration, and MPS defect extent and severity, %HRR and DM were predictive of ACM death. Adjusted survival stratified by %HRR and DM is shown in the Figure. In pts with either %HRR $< 80\%$ or DM, the risk was almost identical (Hazard Ratio=1.7; confidence interval (CI) 1.4-2.1 vs. 1.7, CI 1.2-2.3). In pts with %HRR $< 80\%$ and DM the risk was higher (Hazard Ratio=2.3, CI 1.8-3.1).

Conclusion: The presence of impaired heart rate response may be equivalent to diabetes as a predictor of all-cause mortality, and the presence of both is additive prognostically.

