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RISK MODELS FOR THE PREDICTION OF CARDIAC AND NON-CARDIAC MORTALITY FOLLOWING PERCUTANEOUS CORONARY INTERVENTION

Oral Contributions
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Background: Current risk models for predicting long-term mortality after percutaneous coronary intervention (PCI) are restricted to all-cause mortality. We aimed to develop models to predict cardiac and non-cardiac mortality after PCI.

Methods: We retrospectively evaluated patients who underwent index PCI at Mayo Clinic from 2003-2008. Long-term deaths were ascertained through scheduled prospective surveillance. Cause of death was determined via telephone interviews, medical records, autopsy reports and death certificates. Cox proportional hazards models were used to model cause-specific survival. Candidate variables and interactions were chosen a priori and no variable selection methods were used, except for a single test for significance of interactions. Models for cardiac and non-cardiac death consisted of 24 and 9 risk factors and 5 and 3 interaction terms respectively. Resulting models were mapped to an integer-based risk score. Risk scores were evaluated with bias-corrected c-statistics and comparisons of observed/expected mortality rates.

Results: The study comprised 6636 patients followed over a median of 62 months (IQR 45-77). There were 1488 deaths, of which 518 (35%) were cardiac, 938 (63%) non-cardiac and 32 (2%) unknown. The integer score for cardiac death consisted of 17 risk factors and 5-year predicted cardiac mortality ranged from 0.8% to 99.6%. The model discriminated very well (corrected c-statistic 0.82). Risk factors for cardiac death included age, BMI, EF and history of congestive heart failure. The integer score for non-cardiac death consisted of 6 risk factors (age, medicine index, BMI, current smoker, non-cardiac Charlson index and cardiac Charlson index) and accommodated significant age-based interactions for smoking and the 2 Charlson indices. Predicted non-cardiac mortality at 5 years ranged from 0.1% to 88.1%. Discriminatory ability for non-cardiac death was very good (corrected c-statistic 0.77).

Conclusions: We report, for the first time, parsimonious risk models to predict cardiac and non-cardiac long-term mortality after PCI. These cause-specific models may help guide individual revascularization decisions and targeting of follow-up care.