Comparison of various score systems for risk stratification in heart surgery.

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Introduction
It's important to predict patients having highest risk of surgery. Risk stratification systems need to be tested in different surgical populations and whether they are or not appropriate to our population remains unknown.

Objectives
To test various risk stratification systems for our region population having cardiac surgery in our institution during 2002.

Materials and methods
Between January 1, 2002 and November 1, 2002, all adult patients undergoing heart surgery with cardiopulmonary bypass in our institution were included in the study and scored using the EuroSCORE, Parsonnet, Ontario, and QMMI. Study was completed in 444 patients. We analyzed score systems predicting characteristics by assessing receiver operating characteristics (ROC).

Results
Observed mortality was 25 (5.63%). Mean score for alive and dead patients for EuroSCORE was -7.8±3.1 and 10.8±3.2, p < 0.005; Parsonnet - 14.2±11 and 32.5±13.8, p < 0.0005; Ontario - 3.6±2.7 and 6.4±3.5, p < 0.005; QMMI score - 10.4±6.9 and 20.3±8.7, p < 0.0001. ROC curve analysis for mortality showed best predicting characteristics for the Parsonnet and QMMI, best accuracy for QMMI score -84.4%.

Conclusions
Most (71.2%) of our investigated patients having heart surgery are at high-risk group for death. All investigated score systems have significance in mortality prediction. Among the investigated score systems, the QMMI score and Ontario score systems yielded the highest predictive value in our patient population. Highest accuracy of prediction patient population showed QMMI score. Our study highlighted over prediction of mortality for Parsonnet score and EuroSCORE systems for our population.

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