

P99. One-year Survival Following Isolated Aortic Valve Replacement: A Comparison Of 4 Risk Prediction Models

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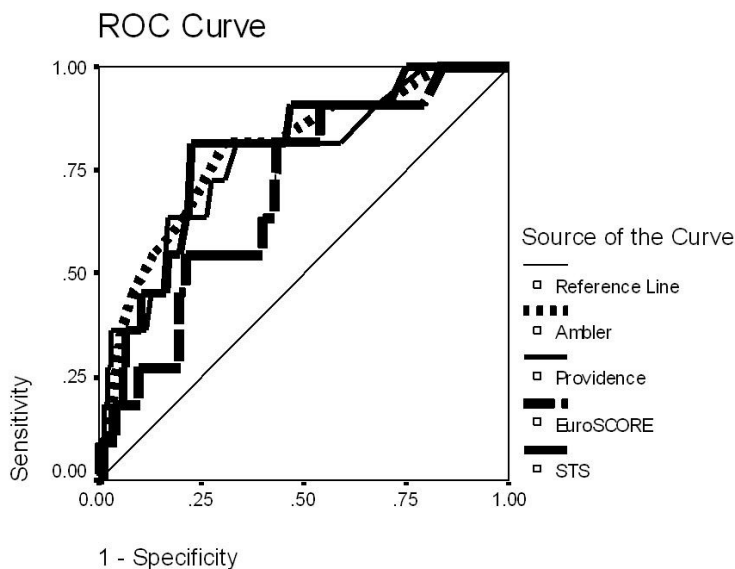
OBJECTIVES: Risk prediction algorithms are becoming very important particularly when evaluating the operative risk for aortic valve replacement (AVR). It is clear that especially in high risk patients, mortality rates remain high during the first postoperative year. Therefore, we sought to compare the performance of four models used to predict one-year mortality.

METHODS: 487 consecutive patients who underwent isolated AVR in the past 5 years were identified. Patients were stratified into tertiles based upon predicted operative mortality (low 0-5%; intermediate 5-10%; high >10%) calculated with the EuroScore logistic, STS Predicted Risk of Mortality (STS-PROM), Ambler Risk Score, and Providence Health Systems models. Performance of each model was compared with receiver operating characteristic (ROC) curves. Vital status at one-year was determined using the National Death Index.

RESULTS: Overall operative mortality was 15 of 487 (3.1%). One-year mortality was 11 of 472 (2.3%). ROC curves (Figure 1) demonstrated that the best performing models were the Ambler Risk Score (AUC .796, 95% CI: .661-.931) followed by STS PROM (AUC .793, 95% CI: .670-.916). Ambler Risk Score was more specific in high-risk patients for predicting one-year mortality than STS-PROM: low- (1.08% vs. 1.31%), intermediate- (4.05% vs 6.25%), and high-risk (13.79% vs 7.69%).

CONCLUSIONS: STS-PROM and Ambler Risk Score are excellent models for predicting one-year mortality following AVR. Published data report high one-year mortality following percutaneous or transapical AVR. Therefore future studies should focus on prediction of long-term survival in this high-risk group to improve the management of these patients and utilization of technology more efficiently.

ROC Analysis of 4 Risk Prediction Models



Area Under the Curve

| Test Result Variable(s) | Area | Std. Error ^a | Asymptotic Sig. ^b | Asymptotic 95% Confidence Interval | |
|-------------------------|------|-------------------------|------------------------------|------------------------------------|-------------|
| | | | | Lower Bound | Upper Bound |
| STS | .793 | .063 | .001 | .670 | .916 |
| EuroSCORE | .695 | .071 | .027 | .555 | .835 |
| Providence | .775 | .073 | .002 | .632 | .919 |
| Ambler | .796 | .069 | .001 | .661 | .931 |