Assessment of perioperative mortality risk in patients with infective endocarditis undergoing cardiac surgery: performance of the EuroSCORE II, PALSUSE, STS risk score for IE and modified AEPEI score

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Topic(s):
Infective Endocarditis: Surgery

Citation:
Introduction and aim:
Infective endocarditis (IE) is a complex and heterogeneous disease which might lead to cardiac surgery. For such cases, several perioperative risk predictive tools have emerged. We aimed to validate the recently developed PALSUSE, STS risk score for IE and modified AEPEI score and to compare their performances with the established EuroSCORE II.

Methods:
We retrospectively accessed 128 patients from a single center registry who underwent heart surgery for active infective endocarditis between January 2007 and November 2014. Discrimination and calibration of models were assessed by receiver operating characteristic curve analysis and Hosmer-Lemeshow test.

Results
Perioperative mortality was 16.4% (n = 21). The median EuroSCORE II, PALSUSE, STS risk score for IE and modified AEPEI score were 6.6% [IQR 3.5 – 18.2], 5 [IQR 3 – 7], 25 [IQR 16 - 32] and 1 [IQR 0 - 1.8], respectively. Discriminative power was numerically higher for EuroSCORE II (AUC of 0.83, 95% CI, 0.75-0.91) followed by STS risk score for IE (AUC of 0.75, 95% CI 0.64-0.86), PALSUSE (AUC of 0.74, 95% CI 0.64-0.86) and modified AEPEI (AUC of 0.68, 95% CI 0.57-0.788) – figure 1. The Hosmer-Lemeshow test showed good calibration for EuroSCORE II (p = 0.08) and STS risk score for IE (p = 0.03) but not for PALSUSE (p = 0.65), modified AEPEI (p = 0.12).

Conclusion
All scores adequately stratified peri-operative risk in active infective endocarditis, however EuroSCORE II in the overall comparison performed better in this population. Heterogeneity of performance of risk scores in different cohorts of infective endocarditis highlights the complexity of this disease.
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