Accuracy of EuroSCORE II versus Society of Thoracic Surgeons Score in predicting in hospital outcome of Egyptian patients undergoing valvular heart surgery

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For a love, unconditional.....
For a support, undeterred.....
And for a trust, unfailing.....

This work is dedicated to
My Mother and Father.
In gratitude beyond limits and affection beyond words.....

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Abbreviations & Acronyms

ACEF, Age, Creatinine, Ejection Fraction 58
AF, atrial fibrillatioin 65
AUROC area under the receiver operating characteristic curve 67
AVR, aortic valve replacement 71
AVR, Aortic valve replacement 33
BNP, Brain natriuretic peptide 54
BP, blood pressure 27
CABG coronary artery bypass grafting 11
CABG, coronary argery bypass grafting 71
CC, creatinine clearance 50
CCS, Canadian Cardiovascular Society 62
CI confidence interval 79
CI, cardiac index 27
DSWI, Deep Sternal Wound Infection 64
EACTS, European Association Of CardioThoracic Surgery 6
EuroSCORE, European System for Cardiac Operative Risk Evaluation 5
HCFA Health Care Financing Administration 11
HCFA, Health Care Financing Administration 21
HF, heart failure 29
IABP intra-aortic balloon bump 62
ICU, intensive care unit 107
IDDM, Insulin-dependent diabetes mellitus 55
IV, intravenous 27
LA, Left Atrium 66
LV, Left Ventricle 63
LVEDD, Left Ventricualr End Diastolic Diameter 66
LVESD, Left Ventricular End Systolic Diameter 66
MI, myocardial infarction 63
MI, Myocardial infarction 52
MVR, mitral valve replacement 71
MVR, Mitral valve replacement 33
MVRepair, Mitral valve repair 33
NCD, National Adult Cardiac Surgery Database 22
NYHA, New York Heart Association 62
O/E, observed over expected ratio 23

PA, Pulmonary artery 54
PAP, pulmonary artery pressure 71
PCI, Percutaneous Coronary Intervention 66
QMTF, STS Quality Measurement Task Force 24
RAMR, Risk-adjusted mortality ratio 51
RCT, randomized controlled trail 9
STS, Society of Thoracic Surgeons 5
TAVI, transcatheter aortic valve implantation 13
TB, tuberculosis 10
TIA, transient ischemic attacks 30
US, United States 59

Abstract

Background: Risk stratification models are increasingly important in the current clinical practice. Valvular heart surgery is quite a distinctive group as regard risk assessment. Two widely used risk factors are the updated European System for Cardiac Operative Risk Evaluation (EuroSCORE II) and the Society of Thoracic Surgeons (STS) risk score. We aimed to compare both scores regarding in-hospital morbidity and mortality. We also sought whether some other risk variables could be of value in predicting the postoperative outcome.

Methodology: Two hundred and fifty five patients were included in the study. All patients underwent cardiac valve surgery with or without coronary artery bypass grafting. The data necessary for both EuroSCORE II and STS score were collected, in addition to data about proposed variables; left atrial (LA) diameter, Left ventricular end diastolic diameter (LVEDD), left ventricular end systolic diameter (LVESD), and presence of left atrial thrombus.

Discrimination of the each scoring system was assessed by the area under Receiver Operating Characteristics curve (AUROC), calibration was assessed by the Hosmer-Lemeshow test, where a P value > 0.05 was considered significant. For dichotomous variables, a correlation test was applied.

Results: The overall in hospital mortality was 3.5%. EuroSCORE II and STS both provide equivalent discrimination and calibration in predicting mortality in Egyptian population. They also performed similarly in predicting morbidity. The performance of the EuroSCORE II was weaker in the higher risk group, and in predicting some morbidities. The proposed variables insignificantly predicted the mortality.

Conclusion: EuroSCORE II and STS score are similar in predicting the outcome of cardiac valve surgery in Egyptian patients. Further studies are needed, with establishment of complete database, to develop a score which can cover for the areas of weakness of other scores when applied to Egyptian cardiac valve patients.

Keywords: EuroSCORE II, STS score, validation, valve, cardiac, surgery

Introduction and Aim of the work