


References


Conflict of Interest: none declared

eComment. EuroSCORE II and prediction of in-hospital mortality of thoracic aortic surgery

Author: Michael Poullis

Liverpool Heart and Chest Hospital, Liverpool, UK
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Nishida et al. need to be congratulated for achieving an overall mortality rate of 7.2% in 461 patients undergoing aortic surgery [1], however, their manuscript raises a number of issues.

Mortality prediction models are classically assessed via receiver operating curve (ROC) and Hosmer-Lemeshow statistic assessment [2,3]. The use of a 20-year study period is probably too long, due to improvements in surgical, anaesthetic and medical care, hence the recalibration of EuroSCORE to create EuroSCORE II. With such a long study period the chronobiology of aortic dissection may be an important issue [4,5].

We agree with their interpretation that a ROC of nearly 0.8 is impressive for the EuroSCORE II risk model in aortic surgery in their patient group; however their demonstration that in high risk patients none of the models are accurate means clinical usage is limited. Unfortunately no Hosmer-Lemeshow statistic was presented. Failure to achieve an adequate ROC and Hosmer-Lemeshow statistic means adoption cannot be recommended.

The operation types for this study seem skewed, as 220 patients underwent isolated arch surgery, and only 7 patients underwent root and arch surgery. In addition no mention of redo numbers were made in the manuscript.

Risk modelling for CABG or valve surgery requires 10,000 to 20,000 patients per procedure to be operated on in the modern era to avoid being underpowered. As aortic surgery can be simplistically divided into root, arch and descending aorta surgery, risk modelling for aortic surgery is probably beyond any single institution due to number restrictions. An international collaborative project is needed.

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References


eComment. Risk-adjusted mortality ratio for EuroSCORE II in everyday clinical practice

Author: Ovidio A. Garcia-Villarreal

Cardiovascular Surgeon, Department of Cardiac Surgery, Hospital of Cardiology, IMSSE 34, IMSS, Monterrey, Mexico
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I have read with great interest the article by Nishida et al. [1]. The article includes up-to-date information on EuroSCORE II, and the results shown by the authors validate the superiority of the EuroSCORE II over the additive and logistic EuroSCOREs for predicting risk mortality in thoracic aortic surgery. EuroSCORE II is highly recommended for assessing risk in adult cardiac surgery. However, one must not forget that no risk model is perfect, nor do all risk factors appear in all models. EuroSCORE II now offers us the capacity to virtually create a reality. However, this issue must be addressed much more consistently. The variation in outcomes between centres and surgeons should be taken into account [2]. Once a given risk model is in use, all units and surgeons should calculate the risk-adjusted mortality ratio (RAMR) by dividing the actual mortality (observed) by the expected mortality. Then, the predicted mortality calculated by EuroSCORE II is multiplied by the unit’s or the individual surgeon’s RAMR. This reflects in a more faithful manner the current mortality for a given patient in a given surgical unit. If, for example, the unit’s RAMR for thoracic aortic surgery is 2, and the predicted mortality by EuroSCORE II is 7.4%, the corrected mortality rate for thoracic aortic surgery for this hypothetical unit would be 14.8%. In consequence, this is a more effective way to adapt the EuroSCORE II to the ‘real world’.