PREDICTIVE VALUE OF THE BELGIAN OUTCOME IN BURN INJURY PREDICTION MODEL

Nele BRUSSELAERS¹, Stan MONSTREY², Stijn BLOT¹

¹General Internal Medicine, ²Plastic Surgery-Burn Unit, Ghent University Hospital, Ghent, Belgium

Severe burn injuries are still responsible for a considerable morbidity and mortality, and therefore risk assessment is pivotal in research, resource allocation and clinical decision making. Our aim was to develop and apply a practical mortality prediction model for patients with severe burn injury.

The Belgian Outcome in Burn Injury (BOBI) prediction model was developed on basis of a multi-centre Belgian cohort (1999-2003, n=5246), and consists out of a 0-10 point score based on 3 major predictors for mortality: increasing age and total burned surface area, and the presence of inhalation injury¹. Its accuracy was determined with a Belgian (2004, n=981) and Hungarian cohort (1999-2005, n=2326)¹,², and with the population admitted at the Ghent burn unit (Belgium, 1985-2004, n=1385)³, incl. 2 subpopulations with bloodstream infections - BSI (n=76, 1992-2006) and ventilator associated pneumonia - VAP (n=46, 2002-2010)⁴,⁵.

ROC-curve analysis showed areas under the curve (AUC) between 0.94-0.95 for the Belgian and the Hungarian cohort, and 0.88 and 0.79 for the subpopulations with BSI and VAP respectively. These AUC’s imply a good sensitivity and specificity⁴. The predicted mortality was higher than observed in the BSI and VAP subgroups, which can be due to survival bias. Moreover, the BOBI-model is designed to estimate the risk of death on admission, and does not take into account subsequent events complicating the course of the patient.

To conclude, we developed an easy-to-use prediction model, which proved to be accurate in distinct populations with severe burn injury.

References