EVALUATION OF MORTALITY IN BURN PATIENTS: PREDICTION MODELS (025)

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Introduction: Survival in burn patients has improved considerably over the last century. However, mortality is still the primary outcome measure for burn care. Mortality prediction models yield an expected likelihood of death for each patient.

The aim of our study is to assess the reliability of different models to predict the mortality in burned patient in the Burn Unit of La Paz University Hospital (Madrid) at admission.

Methods: A retrospective collected data was performed in 754 consecutive burn patients who were admitted to the Burn Unit of La Paz University Hospital between January 2008 and December 2014. The following variables were recorded: age, gender, mechanism of injury, total body surface area (TBSA) burned, full-thickness burn, diagnosis of inhalation injury or early requirement of mechanical ventilation, and hospital mortality.

A total of seven models constructed using appropriate methodological standards were used. These include Modified Baux Score, Revised Baux Score, Abbreviated Burn Severity Index (ABSI) and prediction models described by Ryan et al., Coste et al., Galeiras et al. and the Belgian Outcome of Burn Injury (BOBI) study group. Data on sensitivity and specificity were determined for all of these models and plotted into receiver operated curves “ROC” to represent their discriminative power.

Results: The mean age was 47.3 years, and 64.7% were male. The mean TBSA was 13.5%, and inhalation injury was present in 13.9%. Mechanical ventilation were required in 29.2%, and the overall mortality was 9.0%.

The overall study population showed the highest correlation with the ABSI (AUC = 0.95) and Revised Baux Score (AUC = 0.95), although not statistically significant. The best sensitivity as a predictor of mortality were obtained by Coste et al. model (0.97) and Revised Baux Score (0.93), while ABSI got the best specificity (0.97).

The study population by gender showed the highest correlation with Revised Baux Score for men (AUC = 0.95) and with ABSI for women (AUC = 0.94), although not statistically significant.

The study population by age showed the highest correlation with Revised Baux Score for populations between 14 and 65 years (AUC = 0.96). For larger populations than 65 years, highest correlation was obtained with Revised Baux Score (AUC = 0.94), although not statistically significant.

Conclusion: The predicted mortality in our Burn Unit is better adjusted with Revised Baux Score and ABSI for overall study population. Traditional prediction models of mortality are based on a single model grouping all patients, and are less precise at extreme ages and with severe comorbidities. More specific models should be developed to improve an accurate mortality representation in these groups of patients.
References:


Figure legend:

**Figure 1**: Representation of prediction models of mortality in ROC curves for patients of the Burn Unit of La Paz University Hospital.