

## Predicting Mortality among Acute Burn Patients Using BOBI Score vs. FLAMES Score

**Authors :** S. Moustafa El Shanawany, I. Labib Salem, F. Mohamed Magdy Badr El Dine, H. Tag El Deen Abd Allah

**Abstract :** Thermal injuries remain a global health problem and a common issue encountered in forensic pathology. They are a devastating cause of morbidity and mortality in children and adults especially in developing countries, causing permanent disfigurement, scarring and grievous hurt. Burns have always been a matter of legal concern in cases of suicidal burns, self-inflicted burns for false accusation and homicidal attempts. Assessment of burn injuries as well as rating permanent disabilities and disfigurement following thermal injuries for the benefit of compensation claims represents a challenging problem. This necessitates the development of reliable scoring systems to yield an expected likelihood of permanent disability or fatal outcome following burn injuries. The study was designed to identify the risk factors of mortality in acute burn patients and to evaluate the applicability of FLAMES (Fatality by Longevity, APACHE II score, Measured Extent of burn, and Sex) and BOBI (Belgian Outcome in Burn Injury) model scores in predicting the outcome. The study was conducted on 100 adult patients with acute burn injuries admitted to the Burn Unit of Alexandria Main University Hospital, Egypt from October 2014 to October 2015. Victims were examined after obtaining informed consent and the data were collected in specially designed sheets including demographic data, burn details and any associated inhalation injury. Each burn patient was assessed using both BOBI and FLAMES scoring systems. The results of the study show the mean age of patients was 35.54±12.32 years. Males outnumbered females (55% and 45%, respectively). Most patients were accidentally burnt (95%), whereas suicidal burns accounted for the remaining 5%. Flame burn was recorded in 82% of cases. As well, 8% of patients sustained more than 60% of total burn surface area (TBSA) burns, 19% of patients needed mechanical ventilation, and 19% of burnt patients died either from wound sepsis, multi-organ failure or pulmonary embolism. The mean length of hospital stay was 24.91±25.08 days. The mean BOBI score was 1.07±1.27 and that of the FLAMES score was -4.76±2.92. The FLAMES score demonstrated an area under the receiver operating characteristic (ROC) curve of 0.95 which was significantly higher than that of the BOBI score (0.883). A statistically significant association was revealed between both predictive models and the outcome. The study concluded that both scoring systems were beneficial in predicting mortality in acutely burnt patients. However, the FLAMES score could be applied with a higher level of accuracy.

**Keywords :** BOBI, burns, FLAMES, scoring systems, outcome

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