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Outcome Analysis through Predictive Models in Severe Burn Patients

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Abstract

Background: Treatment of severe burned patient in the Service of Burns and Plastic Surgery of the University Hospital Center "Mother Teresa" in Tirana, Albania is improved but despite advances burns remain a frequent cause of traumatic injury, resulting in considerable morbidity and mortality. Severity scoring systems have been developed to evaluate changes over time in the outcome following burns.

Aims: The aim of this study is to compare outcome in severe burn patients in two periods 1998-2008 and 2009-2019 applying ABSI score, BAUX score, Revised BAUX score and Ryan model.

Study design: We retrospectively analyzed the data of all burned patients admitted to our burn 2009-2019. We have applied some prediction models for analyzing outcome.

Methods: SPSS 23 software was used for the conduction of the statistical analysis. T-test was used for comparing two means and Chi-squared test for comparing two proportions. Receiver Operator Characteristic (ROC) Curve was used to test the sensitivity and specificity of different score indexes against each other.

Results: Mortality is reduced from 10.5% in the first decade to 6.8% in the second decade. There is a marked reduction in children from 8.9% to 1.05% with statistical significance. All three scores were excellent in predicting outcome (AUC more than 0.9) but ABSI score showed superiority in accuracy (AUC of 0.966) for

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predicting the outcome.

Conclusion: Our data confirm that the strength of Ryan model is that mortality in the absence of all risk factors is rare but in the presence of all three risk factors mortality is extremely high. Use of prediction models (ABSI, Baux and Revised Baux score) should serve as guidance of the clinical decision because many other factors are associated with an increased mortality risk of the burned patients.

Keywords*:* Thermal injury, Burns, Mortality, Prediction models.