

Application of Abbreviated Burn Severity Index Score in Burns

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Abstract

Burn injuries are highly variable. The outcome of patients is influenced by various factors and requires prompt therapeutic interventions, including fluid resuscitation, for a favorable result. Although having varying shortcomings, many scoring indexes are developed and validated in Western countries to predict mortality in a burn patient. The Abbreviated Burn Severity Index (ABSI) estimates survival expectancy in a burn patient via various negative prognostic factors. This study describes the pattern of burn injuries to validate the ABSI as an outcome predictor in burnt patients.

Keywords: Abbreviated Burn Severity Index (ABSI); Score; Predict; Mortality; Burns.

INTRODUCTION

With an annual fatality rate of 2.1% per 100,000 cases in Western and other developed countries, burn injuries are categorized as a major cause of mortality and life long disability globally. The

socio-economic conditions of burn patients and the patterns of burn injuries differ from place to place. Higher mortality rates can be explained by the higher rate of therapy restrictions for patients with self-inflicted burns. Demographics, such as age and sex, the burned surface area, concurrent inhalation injury, and comorbid conditions, such as diabetes, co-existing trauma, and pneumonia, are risk factors for mortality. Because of enhanced care in well-equipped critical care units, including skin banks and effective silver impregnated bandages with early wound care, survival rates of burn injuries are improving in developed countries but not yet established in developing countries. Even though regular assessments are an important element of burn care, the treating surgeon is nonetheless interested in predicting the outcomes of acute burn patients. This evaluation is critical because it aids in triage, leads management decision making, and allocates resources, which is especially crucial in resource constrained situations in a developing country like India.¹

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MATERIALS AND METHODS

This study was conducted in the Department of Plastic Surgery at a tertiary care centre in South India after getting the departmental ethical committee approval. Informed written consent was taken from the patient's parents. 1.5 year old female

child had accidental scald burns with hot milk. On examination, there are 2nd degree burns involving right arm, axilla and right side of chest (Total body surface area - 14%) (fig. 1). ABSI score was calculated which was 4 (fig. 2) and there is 98% chance of survival (fig. 3). Child admitted to burns ICU under Plastic surgery managed with Antibiotics, IV fluids



Fig. 1: Second degree scald burns involving right arm, axilla and right side of chest, (Total body surface area - 14%)

Calculation of the Abbreviated Burn Severity Index score.

BSA: body surface area

Parameter	Finding	Points
Sex	Female	1
	Male	0
Age (years)	0-20	1
	21-40	2
	41-60	3
	61-80	4
	81-100	5
Inhalation injury	Yes	1
	No	0
Presence of full-thickness burn	Yes	1
	No	0
BSA burn (%)	1-10	1
	11-20	2
	21-30	3
	31-40	4
	41-50	5
	51-60	6
	61-70	7
	71-80	8
	81-90	9
	91-100	10

Fig. 2: ABSI score

and analgesics. Dressings done with regenerative scaffold and Cyclical negative pressure wound therapy. She was posted in under GA for Wound debridement, Regenerative therapy - Autologous Platelet rich plasma (APRP), Low level Laser Therapy (LLLT), regenerative scaffold, Cyclical Negative pressure wound therapy. To prevent abnormal scarring, she underwent Autologous bone marrow aspirate, Autologous lipoaspirate therapy. Child recovered and she was discharged (fig. 4).

RESULTS

As predicted by ABSI score of 4, there was 98% probability of survival, This shows ABSI could predict the survival in the case under study.

The ABSI score and prediction.

ABSI: Abbreviated Burn Severity Index

ABSI	Threat to life	Probability of survival (%)
2-3	Very low	≥99%
4-5	Moderate	98%
6-7	Moderately severe	80-90%
8-9	Serious	50-70%
10-11	Severe	20-40%
≥12	Maximum	≤10%

Fig. 3: Probability of survival (98%) based on ABSI score in the case under study.



DISCUSSION

Several prognostic indices for burn injuries have been created over time. The earliest prediction model was based only on total body surface area (TBSA) involved and age.³ However, this was highly limited in application as several factors modify survival probability.⁸ Other indices formulated include the Baux index which was modified by Osler *et al.* and additionally included inhalational injury.^{4,5,10,9} Other indices include the modified Bull grid which involves age and TBSA, and the Rayan *et al.* model which includes age more than 60, TBSA more than 40%, and presence of inhalational injury.^{6,7} In our study, the patient's ABSI was 4 with a probability of 98% survival. Hence, ABSI was a reliable predictor of mortality in the patient with burns evaluated in this case study.

CONCLUSION

ABSI score may be used as the predictor of mortality/survival of a burn patient. Large randomized controlled study is required to validate our findings.

Declaration & Disclosures

None

Authors' contributions

All authors made contributions to this article.



Fig. 4: Child recovered and wearing compression garments

Availability of data and materials

Not applicable

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Consent for publication

Not applicable

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