

Role of ABSI Score in Burns

Julia Sunil¹, Ravi Kumar Chittoria², Barath Kumar Singh P³

How to cite this article:

Julia Sunil, Ravi Kumar Chittoria, Barath Kumar Singh P/Role of ABSI Score in Burns/J of Global Pub Health. 2023; 5(1): 33–19.

Author's Affiliation: ¹Junior Resident, Department of General Surgery, ²Professor, Department of Plastic Surgery & Telemedicine, Senior Resident, Department of Plastic Surgery, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry 605006, India.

Corresponding Author: Ravi Kumar Chittoria, Professor, Department of Plastic Surgery & Telemedicine, Senior Resident, Department of Plastic Surgery, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry 605006, India.

E-mail: kamalakarou@gmail.com

Received on: 15.09.2022

Accepted on: 25.10.2022

Abstract

Burn injuries can present in multiple ways and in a diverse patient population. Its severity is not only determined by the nature of burn injury or the extent of the injury but also by several patient factors. Mortality in burn injury used to be very unpredictable but now there are various means of predicting morbidity and mortality in a burns patient. The abbreviated burns severity index (ABSI) score is one of such recent tools formulated to aid in predicting outcome in burns patient. In this case study we evaluate the role of Abbreviated Burns Severity Index (ABSI) score in predicting mortality outcome in a patient with thermal burns.

Keywords: Abbreviated burns severity index; ABSI; Thermal burns.

Introduction

Burns is a very serious issue that is prevalent in many low income and developing countries. As many as 200,000 deaths occur due to burns worldwide per year.¹⁻³ Burns mortality depends on type of burns injury, total body surface area involved (TBSA) as well as patient demographic factors like age, gender, comorbidities. Predicting burns mortality helps in planning patient care and counselling the patient and his/her family. It also helps in allocating resources efficiently and making a decision on early escalation of resuscitative efforts. Additionally, it also helps in assessing the performance of a burns centre, which aids in internal auditing and implicating reforms for improvement of the care. Several indices have

been formulated over the past but ABSI score is a more recent scoring system.⁴⁻⁵ In this case study we evaluate the role of ABSI in predicting mortality outcome in a patient with thermal burns.

This study was conducted in tertiary care centre in department of plastic surgery after getting the department ethical committee approval. Informed consent was obtained. The subject was a 16-year-old female who allegedly self-immolated with kerosene sustained 20% burns. She was initially taken to a nearby hospital where she was resuscitated. She was then referred to JIPMER for further treatment after 12 hours. On examination she had 2nd and 3rd degree burns over both lower limbs from ankle to thigh on the anterior, medial and posterior sides. There was a total of 20% surface area involvement (fig. 1). Her

ABSI score was calculated based on 5 parameters (table 1) - female gender (1 point), age (1 points), TBSA (2 points), inhalation injury (0 point), and full thickness burn (1 point). After admission, hydro jet debridement was done along with Autologous Platelet Rich Plasma (APRP) application followed by prolotherapy and collagen scaffolding for wound bed preparation. Then tangential excision with split thickness skin grafting was done after which negative pressure cyclic wound therapy (NPCWT) was initiated. She was found to be pregnant after admission and medical termination of pregnancy

(MTP) was done.

Results

Her ABSI score came to a total of 5 points. Using survival interpretation of ABSI table (table 2), probability of survival came to 98% with moderate threat to life. Intra-operative and post-operative periods were uneventful for the patient. The raw area took up the split thickness skin graft well and burn wounds were healed well (fig. 2). There were no complications post MTP. She was discharged successfully. Discussion

Table 1: Tobiasen's abbreviated burn severity index score (ABSI)

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

Table 2: Survival interpretation for ABSI

ABSI	Threat to life	Probability of survival %
2-Mar	Very low	≥ 99
4-May	Moderate	98
6-Jul	Moderately severe	80-90
8-Sep	Serious	50-70
10-Nov	Severe	20-40
≥ 12	Maximum	≤ 10



Fig. 1: 20% burns over bilateral lower limbs



Fig. 2 & 3: Condition of burn wounds at discharge with split thickness skin graft taken over the deep burn wound site.

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.⁴ However, this was highly limited in application as several factors modify survival probability. Other indices formulated include the Baux index which was modified by Osler et al. and additionally included inhalational injury. 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. In our study, the patient's ABSI was⁵ with a survival probability of 98%. However, one confounding factor which was not considered was the fact that she was pregnant. Pregnancy greatly increases mortality in burns patients. In a study by El Soud, Mostafa Ahmed Abo, et al, there was a 50% difference in actual and predicted survival using ABSI in pregnant patients.⁶ It could be because of the changes in immunological

responses, fluid shifts, higher anabolic state, higher nutritional demand etc. Parikh et al also suggested the possibility of increased total body surface area as a possible cause of increased mortality in pregnant individuals with burns.⁷ In our case study, ABSI was a good indicator of survival probability as the patient's wounds were healed well and she was vitally and nutritionally stable at the time of discharge. Her pregnancy was not factored in but it was unlikely to have significantly altered her survival probability as she was at early pregnancy period (12 weeks) at the time of injury. Hence, ABSI was a reliable predictor of mortality in the patient with burns evaluated in this case study.

Conclusion

Abbreviated Burns Severity Index (ABSI) score is a good predictor of survival in thermal burns.

References

1. World Health Organization (WHO) Global burden of disease: 2004 summary tables. World Health Organization, Geneva Health 24-27.
2. Tahir et al (2009) Prediction of mortality after major burn: physiological versus biochemical measures. *Wounds* 21(7):177-182.
3. Dahal P et al (2015) Baux's and abbreviated burn severity score for the prediction of mortality in patients with acute burn injury. *J Coll Med Sci Nepal* 11(4):24-27.
4. Osler T, Glance LG, Hosmer DW (2010) Simplified estimates of the probability of death after burn injuries: extending and updating the Baux score. *J Trauma* 68(3):690-697.
5. Brusselaers N, Agbenorku P, Hoyte-Williams PE (2013) Assessment of mortality prediction models in a Ghanaian burn population. *Burn* 39(5):997-1003.
6. El Soud MA, Ali RA, Taha AA, Khirfan SM. ABSI scoring system for burns: concerns and modifications in a developing country. *European Journal of Plastic Surgery*. 2019 Apr;42(2):177-182.
7. Parikh P, Sunesara I, Lutz E et al (2015) Burns during pregnancy: implications for maternal-perinatal providers and guidelines for practice. *Obstet Gynecol Surv* 70(10):633-643.