



ASSESSMENT OF EPIDEMIOLOGY AND OUTCOME OF BURN PATIENTS

General Surgery

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ABSTRACT

Background: Burns are crippling injuries and are more common in developing as well as low-and middle-income countries. The present study assessed the epidemiology and outcome of burn patients. **Materials & Methods:** 300 patients receiving treatment for burns at Sri Aurobindo Medical College and P.G. Institute, Indore were recruited. Parameters such as type of burn, suicidal/homicidal, total body surface area, inhalational injury, associated comorbidities, duration of hospital stay, surgical procedures done, cause of death, complications and disability was recorded. **Results:** Out of 300 patients, males were 120 and females were 180. Type of burn was flame seen in 152, electric in 116, thermal in 24, chemical in 8. Etiology was accidental in 246, suicidal in 41 and homicidal in 13. Inhalational injury was seen in 39. Associated co- morbidities were diabetes mellitus in 35, hypertension seen in 25, CAD in 22, Asthma in 17 and hypothyroidism in 12. Surgical procedure performed was debridement in 254, fasciotomy in 190, escharectomy in 132, SSG in 43, LL amputation (U/L) in 30, UL Amputation (B/L) in 27, LL Amputation (B/L) in 16 and UL amputation (U/L) in 14. Cause of death was MODs in 57, sepsis in 38, ARDS in 24, pulmonary arrest in 17 and disability in 88 case. **Conclusion:** Most common type was flame, electric, thermal and chemical. Etiology was accidental, suicidal and homicidal.

KEYWORDS

Burn, sepsis, fasciotomy

INTRODUCTION

Burns are crippling injuries and are more common in developing as well as low-and middle-income countries, where more than 95% of severe burns occur.¹ Burn injuries have serious consequences, such as negative impacts on mobility and loss of extremities, long-lasting psychological effects on patients, scar deformities, contracture deformities, and tissue defects, which may lead to disability. The World Health Organization (WHO) has reported that about 180,000 deaths occur annually due to burn injuries in low- and middle-income countries.²

Furthermore, burn consequences are not limited to the physical health of patients but affect social, economic and physiological domains as well. Reports indicate the success of burn prevention programs in developed countries.³ The lack of a coherent and robust program for the prevention of burns is evident in developing countries.

The epidemiology and outcome of burns are significantly influenced in different parts of the world by cultural factors, civilization and industrialization.⁴ Epidemiological studies are required in each region to design and implement effective preventive programs. Furthermore, due to incomplete and inconsistent burn data in developing countries, they could not be comparable at national and international levels. Thus, there is a need to improve the quality of burn data and to decrease the related ambiguity through data standardization.⁵ The present study assessed the epidemiology and outcome of burn patients.

MATERIALS & METHODS

The present study comprised of 300 patients receiving treatment for burns at Sri Aurobindo Medical College and P.G. Institute, Indore. Study duration is from 1st April 2021 – 30th September 2022. All gave their written consent for the participation in the study.

Demographic data such as name, age, gender etc. was recorded. Parameters such as type of bur, suicidal/homicidal, total body surface area, inhalational injury, associated comorbidities, duration of hospital stay, surgical procedures done, cause of death and disability was recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 300		
Gender	Male	Female
Number	120	180

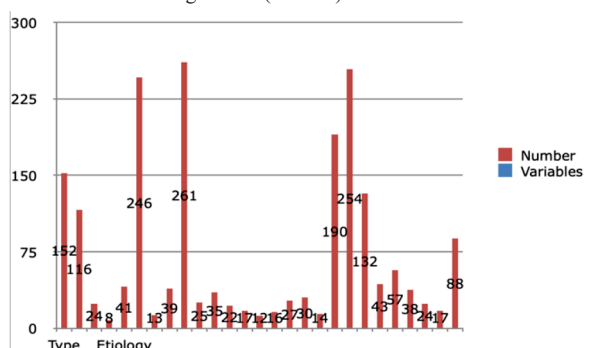
Table I shows that out of 300 patients, males were 120 and females were 180.

Table II Assessment of parameters

Parameters	Variables	Number	P value
Type	Flame	152	
	Electric	116	
	Thermal	24	
	Chemical	8	
Etiology	Suicidal	41	
	Accidental	246	
	Homicidal	13	
TBSA	0-10%	20	
	10-20%	23	
	20-30%	47	
	30-40%	91	
	40-50%	65	
	>50%	54	
Inhalational injury	Yes	39	
	No	261	
Associated co-morbidities	HTN	25	
	DM	35	
	CAD	22	
	Asthma	17	
	Hypothyroidism	12	
Surgical procedure	LL AMPUTATION (B/L)	16	
	UL AMPUTATION (B/L)	27	
	LL AMPUTATION (U/L)	30	
	UL AMPUTATION (U/L)	14	
	Fasciotomy	190	
	Debridement	254	

	Escharectomy	132	
	SSG	43	
Cause of death	MODS	57	
	Sepsis	38	
	ARDS	24	
	Pulmonary arrest	17	
Disability		88	

Table II, graph I shows that type of burn was flame seen in 152, electric in 116, thermal in 24, chemical in 8. Etiology was accidental in 246, suicidal in 41 and homicidal in 13. Inhalational injury was seen in 39. Associated co-morbidities were diabetes mellitus in 35, hypertension seen in 25, CAD in 22, Asthma in 17 and hypothyroidism in 12. Surgical procedure performed was debridement in 254, fasciotomy in 190, escharectomy in 132, SSG in 43, LL amputation (U/L) in 30, UL Amputation (B/L) in 27, LL Amputation (B/L) in 16 and UL amputation (U/L) in 14. Cause of death was MODs in 57, sepsis in 38, ARDS in 24, pulmonary arrest in 17 and disability in 88 case. The difference was significant ($P < 0.05$).



Graph I Assessment of parameters

DISCUSSION

Burns are a major cause of injury worldwide. The World Health Organization estimates that the lifetime incidence of severe burns is 1% and that more than 300,000 people die annually from fire-related burns worldwide.^{6,7} In addition, the prevalence of burns is significantly higher in developing countries than in developed ones.⁸ Due to damage to the skin and other organs, burns can lead to open wounds, disability, death, major economic consequences, severe emotional and psychological complications, and economic burden.⁹ Therefore, burn patients require not only acute primary treatment but also subsequent rehabilitation, reconstruction and long-term anti-scar therapy. Although more than 90% of all burns are preventable, burns remain common and are a major public health problem.^{10,11} The present study assessed the epidemiology and outcome of burn patients.

We found that out 300 patients, males were 120 and females were 180. Li et al¹² investigated the epidemiology and outcomes of burn patients. Of the 6,325 included burn patients, 66.8% were male and 34.7% were 0–6 years old. The incidence of burns peaked in autumn. Scald was the most common cause of burns, which was predominant in patients aged 0–6 years. The mean total body surface area (TBSA) of burns was 13.4%, and patients with burns $\leq 10\%$ TBSA comprised 64.1% of all cases. Patients with full-thickness burns accounted for 40.1% of all patients and 81.0% of operated patients; these burns were primarily caused by flame (34.8%), scald (21.0%), and electricity (20.4%). Fifty-six deaths occurred (mortality 0.9%), and risk factors included full-thickness burns, larger TBSA and older age. The median length of stay was 17 days, and major risk factors included more operations, better outcomes and larger TBSA.

We found that type of burn was flame seen in 152, electric in 116, thermal in 24, chemical in 8. Etiology was accidental in 246, suicidal in 41 and homicidal in 13. Inhalational injury was seen in 39. Associated co-morbidities were diabetes mellitus in 35, hypertension seen in 25, CAD in 22, Asthma in 17 and hypothyroidism in 12. Surgical procedure performed was debridement in 254, fasciotomy in 190, escharectomy in 132, SSG in 43, LL amputation (U/L) in 30, UL Amputation (B/L) in 27, LL Amputation (B/L) in 16 and UL amputation (U/L) in 14. Cause of death was MODs in 57, sepsis in 38, ARDS in 24, pulmonary arrest in 17 and disability in 88 case.

Alipour et al¹³ in their study a total of 3,030 burn patients were

included. A total of 55% of the subjects were males. The largest age group included patients aged 15–44 (61%). The majority of burns were caused by flame (70.5%), and most of them were third-degree burns (73%). Mean affected total body surface area (TBSA) was $43.98\% \pm 30.75\%$ in all subjects and $80.85\% \pm 21.41\%$ in the deceased individuals. Most of the burns were accidental (66.2%), and 37% of them occurred in winter. Mean hospital stay was 4.49 ± 4.67 days. A quarter of all patients admitted to the hospital died (24.9%). The number of admitted patients, mean length of stay (LOS), and the mortality rate showed a decreasing trend from 2007 to 2016. In contrast, the total mortality rate was high. The significant predictors of mortality included being female, flame burns, longer LOS, a larger TBSA, burns of higher degrees, as well as burn complications.

CONCLUSION

Most common type was flame, electric, thermal and chemical. Etiology was accidental, suicidal and homicidal.

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