

Original Research

Epidemiological study of Burn patients and outcome of Management

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ABSTRACT:

Background: The present epidemiological study was conducted on Burn patients to assess the outcome of Management.

Materials & methods: A total of 50 burn patients were enrolled. Complete demographic and clinical details of all the patients were obtained. Details of the patients' age, sex, socio-economic status, education level, area of residence, total body surface area involved, level of burn, type of burn, nature of burn, type of management given and surgery performed, and final outcome were recorded. Data was collected from medical records department of the hospital. A Performa was made to record the findings. All the burn patients were managed using conservative or surgical treatment.

Results: Cause of burn was suicidal in 10 percent of the patients while in remaining 90 percent, it was accidental. In 80 percent of the patients, type of burn was thermal in nature. While assessing the depth of burn, it was deep burn in 60 percent of the patients. Treatment was conservative in 40 percent of the patients while it was surgical in 60 percent of the patients. Mortality occurred in 20 percent of the patients.

Conclusion: Burn management includes various modality of treatment ranging from resuscitation in early period to conservative and surgical management during the recovery phase.

Key words: Burn, Management

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INTRODUCTION

Burn injury is often followed by a profound hypermetabolic response that results in the damage of local tissue and internal organs. The extent of damage and duration of the response is related to the extent of burn injury sustained.^{1- 3} Burn patients have supra-physiological metabolic activities; multi-organ dysfunction; and local and systemic oxidant changes manifested by increased free radical activity and lipid peroxidation, inflammatory cytokines, and acute phase proteins. Burns account for 1% of the global burden of diseases and cause more than 7.1 million's injuries, a loss of almost 18 million disability-adjusted life years (DALYs), and more than 265 000 deaths worldwide annually.⁴ Reports indicate the success of burn prevention programs in developed countries. 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. In a national study, Sadeghian et al. found a significant decrease in the burn-related age-standardized mortality rate from 6.1 in 1990 to 1.7 per 100,000 individuals in 2015.^{5- 7}

MATERIALS & METHODS

The present epidemiological study was conducted on Burn patients to assess the outcome of Management. A total of 50 burn patients were enrolled. Complete demographic and clinical details of all the patients were obtained. Details of the patients' age, sex, socio-economic status, education level, area of residence, total body surface area involved, level

of burn, type of burn, nature of burn, type of management given and surgery performed, and final outcome were recorded. Data was collected from medical records department of the hospital. A Performa was made to record the findings. All the burn patients were managed using conservative or surgical treatment. All the data was tabulated and analysed. Frequency distribution was performed to prepare the table

RESULTS

Out of 50 patients, 52 percent were females while the remaining 48 percent were males. Mean age of the

patients was 37.4 years. Majority proportion of patients were of middle class. 30 percent of the patients were illiterate while 20 percent of the patients were educated upto secondary education. Majority proportion of patients were of rural residence. Cause of burn was suicidal in 10 percent of the patients while in remaining 90 percent, it was accidental. In 80 percent of the patients, type of burn was thermal in nature. While assessing the depth of burn, it was deep burn in 60 percent of the patients. Treatment was conservative in 40 percent of the patients while it was surgical in 60 percent of the patients. Mortality occurred in 20 percent of the patients.

Table 1: Treatment

Treatment	Number	Percentage
Surgical	20	40
Conservative	30	60
Total	50	100

Table 2: Outcome

Outcome	Number	Percentage
Discharged	45	90
Mortality	5	10
Total	50	100

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. In addition, the prevalence of burns is significantly higher in developing countries than in developed ones. 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. 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. To further improve the effects of preventive measures, studies are needed to investigate the epidemiology, etiology and outcomes of burn patient populations.⁷⁻¹⁰ The present epidemiological study was conducted on Burn patients to assess the outcome of Management.

Out of 50 patients, 52 percent were females while the remaining 48 percent were males. Mean age of the patients was 37.4 years. Majority proportion of patients were of middle class. 30 percent of the patients were illiterate while 20 percent of the patients were educated upto secondary education. Majority proportion of patients were of rural residence. Cause of burn was suicidal in 10 percent of the patients while in remaining 90 percent, it was accidental. In a previous study on burn patients conducted by Honnegowda, T. M et al, authors reported that higher number of females (97.5%) sustained burn injuries at

home compared with 36.11% males sustaining injuries outdoors. (P = 0.000). Almost one third of injuries (40.36%) occurred between 4 pm and 8 pm, followed by 28% between 7 am and 12 noon. Synthetic garments were worn by 70% of females at the time of injury, whereas 40% of males had worn mixed clothing (P = 0.000). Flame injuries contributed to 80.1% of burns in females (P = 0.006). The rate of electrical injuries (9.8%) was significantly higher in males (P = 0.005). In almost 40% of males, TBSA was <19%, whereas in 40% of females, TBSA was >68%. (P = 0.004). Microbial profile showed that *Pseudomonas aeruginosa* (n = 260; 35.3%), *Klebsiella pneumoniae* (n = 209; 28.5%), and *Escherichia coli* (n = 145; 22.6%) were the most frequent types of Staphylococci bacterial growths. The cause for burn injury was ignition of clothes in 68.74% females, and in 35.48% males, it was because of an attempt to save other burn injury victims (P = 0.013).¹¹

In 80 percent of the patients, type of burn was thermal in nature. While assessing the depth of burn, it was deep burn in 60 percent of the patients. Treatment was conservative in 40 percent of the patients while it was surgical in 60 percent of the patients. Mortality occurred in 20 percent of the patients. Alipour J et al documented the epidemiologic features and outcomes of burn injuries in South-eastern Iran based on International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10) guidelines. 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%±30.75% in all subjects and 80.85%±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.¹²

CONCLUSION

Burn management includes various modality of treatment ranging from resuscitation in early period to conservative and surgical management during the recovery phase.

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