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Original Research Article

A Clinical Study on Thermal Burns Patients in a Tertiary Care Center

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Abstract:

Background: Burns are a common form of traumatic injury that can result from thermal, chemical, electrical, or radiation sources. They range in severity from minor superficial damage to deep, life-threatening injuries, often leading to significant morbidity and long-term physical and psychological consequences. Understanding the pathophysiology, classification, and modern treatment approaches to burns is essential for effective clinical management and improved patient outcomes.

Aim of the study is to provide an overview of burn injuries, highlighting key aspects of diagnosis, treatment strategies, and recent advances in burn care.

Methodology: This was a Prospective Observational Study done on Thermal Burns who have got admitted to the Department of Plastic Surgery in Burns ICU at Government Medical College and Hospital, Kadapa. Demographic data and Medical progress is assessed regularly and results analyzed.

Results: In the study males (46%) outnumbered females (54%). The most common age group affected was 31-40 years accounting for 48% of cases. Flame was noted in 78%, scald in 19% and contact burns was seen in 3% of cases. Suicidal attempt was the cause in 24%, accidental cause was reason in 74% of cases and homicide was noted in 2% of cases. Mortality was seen in 34% of cases.

Conclusions: The majority of burns were accidental in nature in children, young adults, and females. Flame and scald burns were the most common cause. Preventive measures directed toward burn safety and first aid measures may improve the outcome in burn injuries.

Keywords: Burn, Epidemiology, Treatment.

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Introduction

Burn injuries are a well-known health problem since ages continue to increase in incidence in spite of improved healthcare facilities and awareness among the masses. It is estimated that 1% of the world population will suffer from a serious burn injury sometime in their life. [1,2]

Burns are a significant global health concern, resulting in a substantial number of injuries and fatalities each year. These injuries can range from minor, superficial wounds to severe, life-threatening conditions. Understanding the various aspects of burns, including their types, causes, pathophysiology, classification, and treatment strategies, is crucial for effective prevention and management.

The severity of a burn injury is determined by factors such as the depth of tissue involvement, the extent of the affected area, and the duration of exposure to the causative agent. Burns can lead to systemic effects, including fluid loss, electrolyte imbalances, and inflammatory responses. In severe cases, burns can result in shock, organ failure, and death. Immediate first aid for burns includes removing the source of the burn, cooling the affected area with running water, and covering the burn with a clean, non-stick bandage. For more severe burns, medical treatment may involve pain management, wound care, fluid resuscitation, and surgical interventions like debridement or skin grafting. Rehabilitation is an essential component of burn care, focusing on restoring function, minimizing scarring, and addressing psychological impacts. Multidisciplinary teams, including surgeons, nurses, physical therapists, and psychologists, collaborate to provide comprehensive care.

India with such diverse cultural and climatic conditions has varied epidemiological factors leading to burn injuries. Consequently planning and implementing preventive programs can be made more successful if data can be accumulated from most parts of the country.

Aim of the study is to provide an overview of burn injuries, highlighting key aspects of diagnosis,

treatment strategies, and recent advances in burn care.

Methodology:

This was a Prospective Observational Study done on Thermal Burns who have got admitted to the Department of Plastic Surgery in Burns ICU at Government Medical College and Hospital, Kadapa. Demographic data and Medical progress is assessed regularly and results analyzed.

Patients who sustained burns due to any reason attending casualty were selected by Random sampling technique. Initial resuscitation was done in all cases. Wound care, nutritional support, physiotherapy was given and patients were followed up for 6 months duration.

Results

In this study a total of 100 cases were studied over two years period. In this study 48% of cases were between 31 - 40 years of age, 12% were between 21 - 30 years, 10% of cases were between 41 - 50 years, 30% were above 50 years of age. There was female predominance in the study accounting for 54% and female cases were around 46%.

Flame was noted in 78%, scald in 19% and contact burns was seen in 3% of cases. Suicidal attempt was the cause in 24%, accidental cause was reason in 74% of cases and homicide was noted in 2% of cases. Mortality was seen in 34% of cases. Of the 66% recovered more than 45% of cases needed contracture release and skin grafting in the subsequent follow up. 2% of the cases needed extremity amputations.

Discussion

Worldwide, approximately 2 lakh people die each year from burn injuries. [3] With India's recent socioeconomic growth, health care has improved, but the management of burn patients and their prognosis still remains poor probably due to the lack of trained professionals and specialized burn centers. [4,5] Contributing to this is the high cost related to burn injuries which is unaffordable to most patients as was evident in our study where 26.7% of patients could not complete their treatment due to financial constraints. [6] This study provides a comprehensive analysis of burn injuries over a two-year period, encompassing 100 cases. The findings offer valuable insights into the demographic characteristics, etiological factors, and outcomes associated with burn injuries in this cohort.

Age Distribution: The age distribution of burn victims in this study reveals a significant prevalence in the 31–40 years age group, accounting for 48% of cases. This is consistent with findings from other studies, such as one conducted in Karnataka, India, where a similar age group exhibited a higher incidence of burn injuries. [7] The predominance of burn injuries in this age group may be attributed to increased exposure to occupational hazards and domestic responsibilities. [8]

Gender Distribution: The study observed a female predominance, with 54% of cases involving females. This aligns with global trends, as reported in a study from Serbia, where females accounted for 70.4% of burn patients. The higher incidence in females may be due to domestic roles and increased exposure to household hazards. [9]

Etiology of Burns: Flame burns were the most common, accounting for 78% of cases, followed by scalds at 19%, and contact burns at 3%. These findings are consistent with studies from other regions, such as the one conducted in Serbia, where flame burns were the most prevalent mechanism of injury. The high incidence of flame burns underscores the need for preventive measures, particularly in settings with open flames. [9]

Cause of Injury: Accidental burns were the leading cause, comprising 74% of cases, followed by suicidal attempts at 24%, and homicides at 2%. These proportions are in line with findings from a study in Karachi, Pakistan, where accidental burns accounted for 64.4% of cases, and suicidal burns for 33.3%. The high incidence of accidental burns highlights the importance of public awareness and safety measures to prevent such injuries. [10]

Mortality and Prognostic Factors: The study reported a mortality rate of 34%, which is within the range reported in other studies. For instance, a study from Karachi, Pakistan, reported a mortality rate of 36.12%. Factors contributing to mortality include the extent of burn injury, with larger total body surface area (TBSA) involvement correlating with higher mortality rates. Additionally, the presence of inhalation injuries and delayed medical intervention are known to adversely affect outcomes. [10]

Since burn injuries are a major cause of disease burden in India, studying the epidemiologic factors and identifying potential risk factors affecting mortality in burn patients may help identify patients at higher risk of death. Burns with higher TBSA, females, and burns with inhalation injuries were associated with higher mortality correlating well with many other studies. [6,11,12]

Conclusion

This study underscores the significant public health issue posed by burn injuries, particularly among females and individuals in the 31–40 years age group. The high incidence of accidental burns and

the associated mortality highlight the need for targeted preventive strategies, public education, and improved safety measures to mitigate the burden of burn injuries.

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