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Epidemiological Profile and outcome of hospitalized burns patients in Andhra Pradesh

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ABSTRACT

Background

Trauma due to burns is a significant cause of injury worldwide. Ninety percent of the burn injuries are preventable but in a developing country like India, burn injuries continue to be a challenging problem

Materials & Methods

A retrospective study, on patients admitted in the NWHs of Dr.NTRVST over the period of 2 years from January 2015 to December 2016. Data regarding the patient's age and sex, etiology, timing of burn injury, place of burn, Total body surface area (TBSA) involved, and mortality were collected and analysed.

Results

We observed that flame was the most common cause of the injury (n=213, 78.30%). Highest incidence of burns was seen in the age group 21-30 years (33.09%). Male to female ratio observed in our study was 0.7:1. The mortality rate was 39.33 %, out of 107 deaths, 97(87.85) patients had >45% TBSA burn and 13 patients had 14-45%.

Conclusion

We can conclude that domestic and peri-domestic burn is totally preventable and manageable. This basic education should be imparted from the primary school level and reinforced at every level till graduation of a person. The innovative approaches can include a broad theme "how one can save himself/ herself and others from burns at home or work place.

Keywords: Burn patients, Mortality, Prevention

INTRODUCTION

Trauma due to burns is a significant cause of injury worldwide. The World Health Organization (WHO) estimates that the lifetime incidence of severe burns is 1% [1] and that more than 300,000 people die annually from fire-related burns worldwide [2,3]. In addition, the prevalence of burns is significantly higher in developing countries compared to developed countries. Indian society where 70% of the people are in rural areas and still relies on old means of making food like a stove, using wood, coal and kerosene as the main source of energy etc. These are unsafe and result in frequent-fire explosions [4]. Ninety percent of the burn injuries are preventable but in a developing country like India, burn injuries continue to be a challenging problem due to poor medical facilities, lack of specialist doctors, and absence of public awareness [5]. Due to the damage to the skin and other organs burns can lead to open wounds, disability, death, significant economic consequences, severe emotional and psychological complications to the victims and his family. Also, due to high cost involved for the treatment of burn restricts the family of the victims to take the patient to a higher health centre [5]. Therefore, burn patients require not only acute primary treatment but also subsequent rehabilitation, reconstruction and long-term anti-scar therapy [6]. The aim of this study is to assess the prevalence of various types of burns and to evaluate the causes, manner, and place of occurrence of burns injuries along with its outcome

Materials and Methods

A retrospective study, on patients admitted in the NWHs' of Dr.NTRVST over the period of 2 years from January 2015 to December 2016. The State

Government of Andhra Pradesh is implementing a health scheme known as Dr NTR Vaidya Seva for below poverty line families (BPL) where treatment is given free of cost for 1044 procedures. The trauma care is provided free of cost under this scheme. The medical records of patients who received free cashless treatment under Dr.NTRVST were studied. Data regarding the patient's age and sex, ethnicity, timing of burn injury, place of burn, Total body surface area (TBSA) involved, and mortality were collected and analysed.

Results

The present study data of a total of 272 patients was analysed for the following factors like age, aetiology, TBSA%, mortality etc., and reported in the form of frequencies and percentages. We observed that flame was the most common cause of the injury (n=213, 78.30%) **Fig 1**. Highest incidence of burns was seen in the age group 21-30 years (33.09%). Male to female ratio observed in our study was 0.7:1. Female predominance in burn injuries was noticed in our study where 55.88% patients were Females and 44.11% were males. Majority of the patients suffered burns involving greater than 45% of their Total Body Surface Area (n=163, 59.92%) **Tab 1**. 76.10% patients sustained accidental burns while 22.42% and 1.47% sustained suicidal and homicidal burns, respectively. **Fig 2** The mean hospital stay was consistent with the degree of burns, with patients having > 45% Total Body Surface Area (TBSA) burns having longer hospital stay. The mortality rate was 39.33 %, out of 107 deaths, 97(87.85) patients had >45% TBSA burn and 13 patients had 14-45%. **Tab 2**.

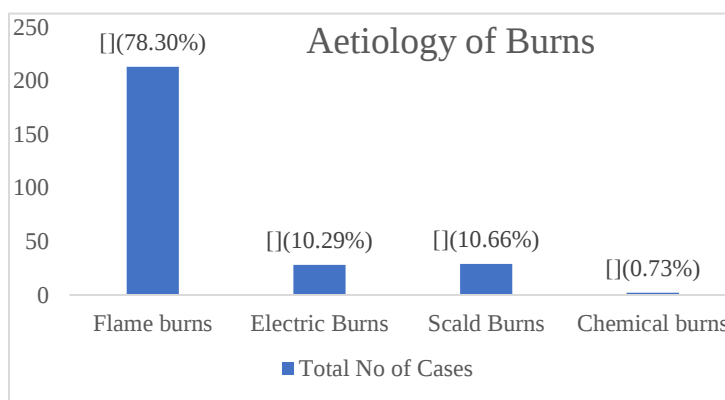


Figure 1 Aetiology of Burns

Table 1 Descriptive Statistics

Gender	Frequency (%)
F	152(55.88)
M	120(44.11)
Grand Total	272(100)
Age	
0-12	26(9.56)
13-20	39(14.34)
21-30	90(33.09)
31-40	59(21.69)
41-50	28(10.29)
51-60	15(5.51)
>60	15(5.51)
Grand Total	272(100)
TBSA	
<15	3(1.10)
15-45	106(38.97)
>45	163(59.92)
Grand Total	272(100)

Table 2 Mortality vs Gender and Total Body Surface Area

TBSA	Mortality	
	No (%)	Yes (%)
<15	4(2.42)	0(0)
>45	69(41.81)	94(87.85)
15-45	92(55.75)	13(12.14)
Grand Total	165(100)	107(100)
Gender		
Female	83(50.30)	69(64.48)
Male	82(49.69)	38(35.51)
Grand Total	165(100)	107(100)

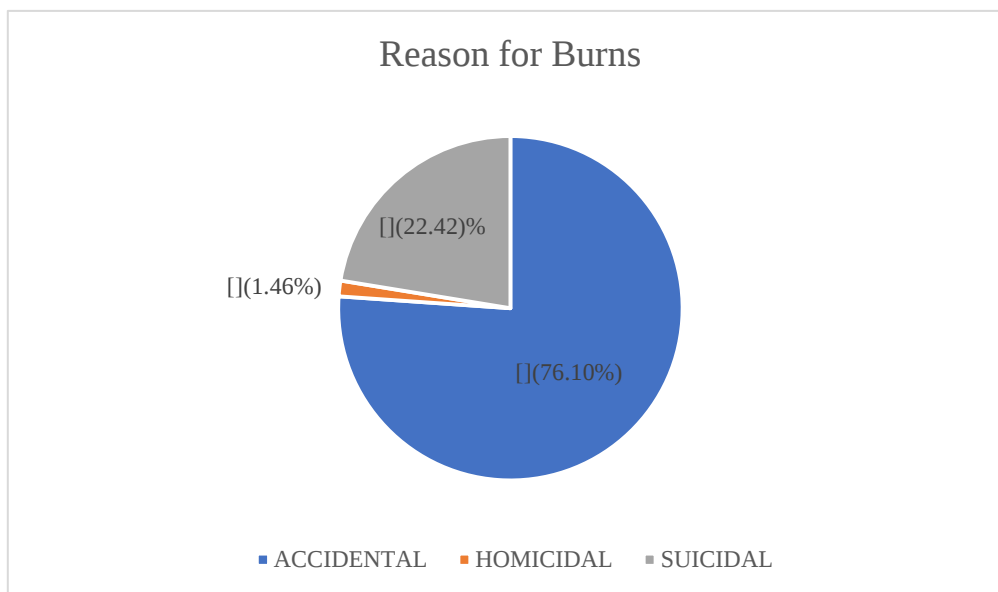


Figure 2 Reason for Burns

DISCUSSION

The aetiology and nature of burn injuries varies significantly by different communities. As India is a country of diverse cultures and societies and every society has, its own epidemiological characteristics. Epidemiological studies become more important in such diversities, so that based on these studies; definitive preventive and educative programs can be started aiming at a target population who is at risk of sustaining burns. The present study was conducted on 272 burn patients admitted in the burn wards of various Network Hospitals of Dr NTR Vaidya Seva in all 13 districts of the Andhra Pradesh. We observed that flame was the most common cause of the injury. In our study highest incidence of burns was seen in the age group 21-30 years. This distribution is similar to those found in Khan AA et al 2007; and Ansari-lari M et al 2003 [8,9]. High incidence in this age group is explained by the fact that they are generally more active and exposed to hazardous atmosphere at home and at work [10]. This age group also involves newly married women who

become victims of bride burning. This can be the result of harassment from parents-in-law or other physical and psychological stresses of marriage [11, 12]. This high incidence of thermal burns is similar to Ahuja R and Bhattacharya S [13]. Male to female ratio observed in our study was 0.7:1. Female predominance in burn injuries was noticed in our study where 55.88% patients were Females and 44.11% were males, similar to the reports from other regions of India. Ghaffar et al and Haralkar et al [14, 15] have reported a male to female ratio of 0.9:1 in Aligarh, Uttar Pradesh, and 0.5:1 in Solapur, Maharashtra. Most of the females involved were housewives who spend most of their time working in kitchen. Moreover, an average Indian family is ignorant about safety measures and still follows old traditional methods of cooking. These entire situation makes women more susceptible to burns [16]. In our study, 76.10% patients sustained accidental burns while 22.42% and 1.47% sustained suicidal and homicidal burns, respectively. These figures are comparable to study by Mashaly AM [17] in Indian set up, suicidal burns in married women are on an

increase probable out of desperation due to marital disharmony or dowry harassment resulting in physical and psychological stresses [18].

Homicidal burning of married females is similarly common, as well. But these women, because of fear from in laws, do not name marital disharmony or dowry as the reason behind burns but instead blame it on some accidental reason as cause of their burns. The interesting finding of this study was change in statements made by the cause of burns. Due to pressure of relatives and because of anxiety, patients initially confess to have sustained accidental burns. But when they realize the seriousness of their illness and fate they are going to meet, patients disclose the real cause of burns [19]. The mean hospital stay was consistent with the degree of burns, with patients having > 45% Total Body Surface Area (TBSA) burns having longer hospital stay. To maintain haematological profile of burns patients, blood transfusions were given wherever indicated. The most common indication for blood transfusion was anaemia, as characterized by haemoglobin levels of less than 10 g/dl %. The most common surgical procedure done in these patients was skin grafting for post burn raw areas. In this study split skin grafting was more commonly performed followed by fasciotomy. Early excision and skin grafting of deep

burns is far superior over conventional treatment. It reduces infective complications, reduces mortality, shortens hospital stay, and improves functional outcome [20]. The mortality rate in our study was 39.33 %, out of 107 deaths, 97(87.85) patients had >45% TBSA burn and 13 patients had 14-45% TBSA burns which was comparable with Gupta M et al. [21].

The major reason for mortality was cardiac arrest and septicaemia which was seen in 52.3% and 25.3% patients, respectively. Burns remains a huge public health problem in terms of morbidity and long-term disability, as patient with septicaemia must undergo amputation to prevent the further spread of infection, contracture, and psychological distress. We can conclude that domestic and peri-domestic burn is totally preventable and manageable. This basic education should be imparted from the primary school level and reinforced at every level till graduation of a person. The innovative approaches can include a broad theme “how one can save himself/ herself and others from burns at home or work place.” There is a need to do more analytical studies into the causes of death and time interval between injury and admission and treatment initiation.

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