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Original Research Article

An epidemiological study of burn cases admitted to a tertiary care centre of Odisha

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ABSTRACT

Background: India, has an estimated annual incidence of 6-7 million burn cases. In the state of Odisha, there are very few epidemiological studies of Burn injuries. Therefore a hospital based descriptive study among the admitted burn cases was conducted.
Methods: The study was conducted among the burn cases admitted to the burn unit of Surgery Department of SCB Medical College and Hospital, Cuttack during the time period from 1st January 2014 to 31st May 2015.A total of 145 patients were included for the study.
Results: Socio-demographic profile of burn cases showed 83 (57.2%) were females and rest 62 (42.8%) were males. Regarding residence, 109 (75.1%) of the burn victims were from rural area and the rest 36 (24.9%) were from urban area. Also 140 cases (96.5%) belonged to low socio-economic status and were having BPL card. Regarding the nature of burn, 108 (74.5%) cases had it accidentally while 33 (22.7%) had burn due to suicidal attempt and the rest 4 (2.8%) had homicidal burn and all these 4 cases were married females. 104 (71.7%) cases were affected by flame, 12 (8.2%) cases were due to scald while 29 (20%) were due to electric burn. Among the burn cases due to flame, kerosene was the most common cause.
Conclusions: The study revealed that thermal burn was the most common type of burn and the victims were in their active productive period of life (21-40 years), married, illiterate and were from rural areas. Among the thermal burn victims, use of kerosene was the most common cause of burns in both the sexes.

Keywords: Burns, Socio-demographic profile thermal burn, Kerosene

INTRODUCTION

Burn injuries result in acute stress for patients and their families. It intensely affects patients physical and mental condition along with financial stress.[1] It happens in epidemic proportions even in developed country like USA so much that Goldman termed it as silent epidemic.[2]

India, the second most populous country in the world with over a billion people has an estimated annual incidence of 6-7 million burn cases, based on data from major hospitals when extrapolated to the whole of the country, which is the second largest group of injuries after road traffic accident.[3] Nearly 10% of these are life threatening and requires hospitalization.70% of the burn

victims are in the most productive age group of 15-40 yrs and most of the patients belong to poor socioeconomic strata.

Women in the south-east Asian region have the highest rate of burns, accounting for 27% of global burn deaths and nearly 70% of fatalities in the region.[4] Around four out of five burn cases are women and children. As many as 80% of cases admitted are due to accidents at home (kitchen-related incidents). Burn injuries in India are formidable headache for health providers due to inadequate medical infrastructure and burn intensive care units.

In the state of Odisha, there is little information about the various factors related to burn injury. Hence it was thought essential to conduct a hospital based descriptive study among the admitted burn cases with the following objectives.

Objectives

1. To study the socio-demographic profile of the burn cases admitted to the burn unit of surgery ward of this hospital.
2. To study various factors associated with burns.

METHODS

A hospital based descriptive study was conducted among the burn cases admitted to the burn unit of Surgery Department of SCB Medical College and Hospital, Cuttack during the time period from 1st January 2014 to 31st May 2015. A total of 145 patients were included for the study. Prior permission was obtained from the hospital authorities as well as from the Professor and HOD, Dept. of Surgery. Permission from the Institutional Ethical Committee was also obtained for the study. Written consent of patients was obtained to collect necessary information like situation leading to burn and other associated factors responsible for the causation of burn. Data collection procedure involved frequent follow up visits to the affected victims, interaction with patient's attendants and obtaining necessary information from bedhead tickets. Each burn victim was interviewed with the help of a predesigned and pretested questionnaire. In case of children or patients who were not well enough as a result of severe burn, relevant data were obtained from guardians or patients' attendants. The data thus collected were entered into excel sheet and was analysed using proportion and chi-square test in the Department of Community Medicine.

RESULTS

Total 145 admitted burn victims were studied. Socio-demographic profile of burn cases (Table 1) showed that 83 (57.2%) were females and the rest 62 (42.8%) were males. The mean age of all the burn cases was 30±14 years and their age range was 1.5 years to 70 years. For the male burn victims it was 34.6±15.6 years and they were between 4 years to 70 years of age. Similarly for females, the mean age was 26.6±11.8 years with minimum age of 1.5 years and maximum 55 years. In age group wise distribution, it was found that 27 cases (18.5%) were less than 20 years of age, 88 cases (60.6%) were in 21-40 years of age, 25 cases (17.2%) were in 41-60 years of age and rest 5 cases (3.4%) were more than 60 years of age. The sex wise distribution also showed that in both the sexes, majority cases i.e. 53.2% among males and 66.2% among females were in the age group of 20-40 years.

Table 1: Socio demographic profile of burn victims.

	Male (%)	Female (%)	Total (%)
Age			
<20 years	9 (14.6)	18 (21.7)	27 (18.6)
21-40 years	33 (53.2)	55 (66.2)	88 (60.7)
41-60 years	15 (24.2)	10 (12.1)	25 (7.3)
>60 years	5 (8)	0	5 (3.4)
Total	62 (100)	83 (100)	145 (100)
Residence			
Urban	16 (25.9)	20 (24.1)	36 (24.8)
Rural	46 (74.1)	63 (75.9)	109 (75.2)
Total	62 (100)	83 (100)	145 (100)
Marital status			
Married	49 (79)	64 (77.1)	113 (78)
Unmarried	13 (21)	19 (22.9)	32 (22)
Total	62 (100)	83 (100)	145 (100)
Religion			
Hindu	60 (96.8)	77 (92.8)	137 (94.5)
Muslim	1 (1.6)	4 (4.8)	5 (3.5)
Christian	1 (1.6)	2 (2.4)	3 (2)
Total	62 (100)	83 (100)	145 (100)

	Male (%)	Female (%)	Total (%)
Educational status			
Illiterate	25 (42.3)	33 (42.9)	58 (42.7)
Primary school certificate	9 (15.3)	18 (23.4)	27 (19.8)
High school certificate	14 (23.7)	23 (29.8)	37 (27.2)
Intermediate/diploma	7 (11.9)	3 (3.9)	10 (7.3)
Graduate/p.g	4 (6.8)	0 (0)	4 (3)
Total	59 (100)	77 (100)	136* (100)

*9 cases were children below 7 years of age and hence they were not included.

Table 2: Distribution of burn cases according to nature of burn.

Nature of burn	Male	Female	Total
Accidental	53 (85.4%)	55 (66.2%)	108 (74.5%)
Non-accidental	9	28	37
Homicidal	0	4	4
Suicidal	9	24	33
Total	62	83	145

P value- 0.009; Chi square – 6.897; df=1

Table 3: Distribution of burn cases according to mode of burns.

	Male	Female	Total
Flame			
Wood fire	2	3	5
Candle fire	1	2	3
Fire cracker	6	1	7
Cloth fire	2	8	10
Cooker fire	0	7	7
Kerosene fire/spillage	19	41	60
Stove burst	3	5	8
Gas fire	1	3	4
	34 (54.8%)	70 (84.3%)	104 (71.7%)
Scald			
(Water, steam, hot oil)	5 (8%)	7 (11.3%)	12 (8.3%)
Electric burns			
Live wire, electric shock	19	4	23
Lightening	4	2	6
	23 (37.1%)	6 (7.2%)	29 (20%)
Total	62	83	145

Regarding residence, 109 (75.1%) of the burn victims were from rural area and the rest 36 (24.9%) were from urban area. Also 140 cases (96.5%) belonged to low socio-economic status and were having BPL card. 113 (77.9%) cases were married and among them 49 (43.3%) were males and 64 (56.6%) were females. The religion wise distribution showed that 137 (94.4%) cases were Hindus followed by 5 (3.4%) Muslims and 3 (2%) Christians.

The educational status of the burn victims showed that out of 136 cases who were above 7 years of age, 58 (42.6%) were illiterate, 27 (19.8%) were educated up to primary school, 37 (27.2%) had high school education and the rest 14 were having college education. 9 children were below 7 years of age. The illiterate patients were almost of the same proportion in both the sexes.

Regarding the nature of burn (Table 2), 108 (74.5%) cases had it accidentally while 33 (22.7%) had burn due to suicidal attempt and the rest 4 (2.8%) had homicidal burn and all these 4 cases were married females. Accidental burn was significantly more among the male burn cases than their female counter part.

Regarding the mode of burn (Table 3), majority of cases were affected due to thermal burn. 104 (71.7%) cases were affected by flame, 12 (8.2%) cases were due to scald while 29 (20%) were due to electric burn. Among the burn cases due to flame, kerosene was the most common cause.

DISCUSSION

In the present study it is observed that majority of cases were in the age group of 21-40 years. The observations are consistent with studies conducted by Sharma and Sarma, maximum number of patients were in the age group between 21-40 years.[4] High incidence in this age group is explained by the fact that this group is more active and exposed to hazardous atmosphere at home and at work.

Among 145 cases, 57.2% were females and 42.8% were males. Studies conducted by Liu et al and Ghuliani et al also observed that females outnumber the males.[5,6] This may be due to gender difference, socio-cultural factors and dowry problems. Secondly most of the women are housewives hence while cooking they might have got exposed to fire accidentally.

Out of 136 cases who were above 7 years of age, 42.6% were illiterate. The present study findings are slightly different from the findings of Jayaraman et al who found that 50% of the cases were illiterate.[7]

Among 145 cases, 77.9% cases were married. Gupta et al and Fernandez–Morales et al had similar findings that married people are predominantly more than unmarried people as burn patients.[8,9]

Significantly more number of burn cases were due to accidental burns (74.5%) followed by suicidal and homicidal burns. Jayaraman et al and Gupta et al in their studies had also observed that accidental burns are more common followed by suicidal and homicidal burns.[7,8] These increased number of accidental burns may be due to ignorance, poor standard of safety measures, cooking at floor level and wearing of sarees or dupatta. All the homicidal cases were married females. This can be due to harassment from in-laws or other physical and psychological stresses of marriage.

CONCLUSION

The study revealed that thermal burn was the most common type of burn and the victims were in their active productive period of life (21-40 years), married, illiterate and were from rural areas. Majority of burn victims were females and were housewives. Significantly more number of cases were due to accidental burns. All the homicidal burn victims were married females. Among the thermal burn victims, use of kerosene was the most common cause of burns in both the sexes. However, electric burn cases were found to be more common among the male victims.

Being a preliminary study it requires more elaborate and detailed follow up study to ascertain the cause of burns so that steps can be taken to reduce the occurrence of such cases.

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