

An Autopsy based Epidemiological Study on Burn Victim

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Abstract: This retrospective study was carried out in a tertiary care medical college at periphery of state of west bengal during January 2014 to December 2016 to assess the epidemiological pattern of burn victim coming for autopsy. Total 300 cases were taken in chronological sequence. There are several social, economic, cultural and psychological factors interplaying which influence the reporting, treatment, management and if the patient dies the further investigations. Most burns were domestic, with cooking being the most prevalent activity. The maximum incidence of burn injuries in males were noted in the age group of 21-40 years. 75% cases who suffered burns were housewives. Maximum burns were of 1st & 2nd degree with 33.33% males and 66.67% females. 30.33% victims suffered from > 90% BSA (BODY SURFACE AREA).

Keywords: burn, death, epidemiological, fatal, incidence.

Date of Submission: 16 -10-2017

Date of acceptance: 27-10-2017

I. Introduction

Burns always have posed a threat to the sensitive human body. Burns constitute a major public health problem, especially in low and middle income population in world. In the United States, there are approximately 2 million thermal injuries every year and 130,000 of them necessitate hospital admission. Approximately 10,000 to 12,000 of these individuals die as a result of thermal injury annually. ^[1] Fire related burns alone account for over 3 lakh deaths per year. However, deaths are only part of the problem, for every person who dies as a result of their burns; many more are left with lifelong disabilities and disfigurements. For some this means living with the stigma and rejection that all too often comes with disability and disfigurement. ^[2] India is moving forward industrially and technologically but this development creates awareness about the lack of safety measures in all walks of life. The loads of overpopulation, illiteracy, poor standards of safety at home and in the industry further add to overwhelming rise in the burn incidents. As everywhere else, the modes of sustaining burn injuries in India are the same i.e. flames, scalds, electrical and thermal. So the study was done to know the epidemiological outcome of burn victims coming for autopsy & the causes for burn injury differ in various communities and understanding this is necessary before preventive action can be planned and implemented.

II. Materials And Methods

The cross sectional retrospective study consisted of 300 cases alleged to have died of burns and brought to mortuary attached to the Department of Forensic Medicine and Toxicology, in a tertiary care medical College from January 2014 to December 2016. All the 300 cases were first thoroughly examined for noting demographic details and other relevant observations. The information was collected from accompanying relatives, hospital records, and police papers to ascertain the incidence, manner and circumstances of burns. The external and internal findings of burns on autopsy were noted along with the examination of clothes.

III. Results & Discussion

A total of 300 burn injury patients were admitted during the study period. More than 50% of the patients were females (66.67%). The male to female ratio was 1:2, The most vulnerable age was 21-40 years. (Table 1). Majority (58%) was educated up to secondary level and 75% were housewives. (Table 2). Around half of the victims are of middle socioeconomic group. (Table 3). Maximum number of females (63.33%) sustained burn injuries at home. (Table 4). Almost one third injuries (30.67%) occurred between 5pm to 11pm followed by 16% between 6am to 1pm. (Table 4). More than 90% BSA involvement is seen in maximum (30.33%) & in less than 20% BSA involvement does not seen in any case. (Table 5) Flame injuries contributed

to 92% of burns in female. A cooking appliance was responsible for 30.67% injuries in females. Electrical injuries (13.33%) were significantly more in males. (Table 6).

Epidemiological studies are a prerequisite for effective burn prevention programs, as each population seems to have its own epidemiological characteristics. In the present study, majority of the patients have been housewives in the age group of 21-40 years. Most of them have sustained injuries at home. These results are similar to other studies [1,3-7] and suggest one's own home can become a death trap as heat generating appliances are regularly used. One third injuries have occurred between 5 pm to 11 pm and were similar to a study conducted in India. [5] This is the period when evening meals are cooked and lighting equipment are used. Indian women wear loose flowing synthetic garments which can catch fire easily and cause extensive burn injury. This finding indicates the caution needed when using equipment causing burns. Flame was the most common agent in 92.5% of the females and similar results have been seen in various studies. [1, 4, 8] Cooking appliance was the most common source of injury in females and this finding indicates that women should be very careful all the time. This finding suggests the necessity of education with regard to emergency steps at the time of an incident. This indicates the need for women at home to be extra careful with their clothes properly tied and the males to know the way to rescue other victims from fire. It also indicates the need for aggressive measures to decrease the mortality due to burns.

Tables

Table-1. Age & sex distribution of burn patients

Age	Male		Female		Total	
	No	%	No	%	No	%
<20 yrs	25	25	46	23	71	24
21-40 yrs	62	62	127	63.50	189	63
41-60 yrs	7	7	11	5.50	18	5
61-80 yrs	5	5	15	7.50	20	7
>81 yrs	1	1	1	0.50	2	1
Total	100	100	200	100	300	100

Table – 2. Education & occupation wise distribution of victims

Occupation	Housewives		Students		Services		Total	
	No	%	No	%	No	%	No	%
<10	144	64	26	57.78	5	18.18	175	58
10-12	51	22.67	13	28.89	11	36.37	75	25
>12	30	13.33	6	13.33	14	45.45	50	17
Total	225	100	45	100	30	100	300	100

Table -3. Economic status of victims

Serial no	Economic class	Total	%
1	Lower (<30,000/yr)	100	33.33
2	Middle (30,000-60,000/yr)	125	41.67
3	Upper (>60,000/yr)	75	25
Total		300	100

Table- 4. Place of occurrence & Time of occurrence

Place of Occurrence \ Time of occurrence	Kitchen	Outside kitchen	Service place	Temple	Total
6 am-1pm	52	23	10	5	90
1pm-5 pm	42	20	6	2	72
5 pm-11pm	76	25	3	2	106
11pm-6 am	20	12	1	1	34
Total	190	80	20	10	300

Table- 5. Body surface area involvement in victims with percentage (As per Wallace rule of nine)

Serial No.	BSA(%)	Total no of victims	Percentage
1	<20	0	0
2	20-<30	3	1
3	30-<40	8	2.67
4	40-<50	34	11.33
5	50-<60	16	5.33

6	60-<70	44	14.67
7	70-<80	47	15.67
8	80-<90	57	19.00
9	>90	91	30.33
Total		300	100

Table- 6. Type & source of burn injury

Type & source of burn	Male		Female		Total
	No	%	No	%	
Flame	16	16	184	92	200
Scald	45	45	15	7.5	60
Electrical	39	39	01	0.5	40
Total	100	100	200	100	300

IV. Conclusion

Burn injuries can be reduced by bringing about regulations to develop safer cooking appliances, promoting less inflammable fabrics to be worn at home and educating the community especially women on safer first aid practices.

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