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EPIDEMIOLOGY OF BURNS IN A MEDICAL COLLEGE IN BIHAR,INDIA.

Plastic Surgery

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ABSTRACT

Burns being one of the most debilitating disease,mainly affects the lower socioeconomic group and involves the major productive age group of population.

AIM: A retrospective study was carried out at our institution to observe the epidemiologic profile and various causes of burns so that proper preventive and corrective measures could be instituted.

MATERIAL & METHODS: All patients admitted from January 2016 to January 2018, in nalanda medical college hospital,patna were included in the study.The burns were analysed according to age,sex,TBSA involved,causes and mortality.

RESULTS: Most of the affected patients were from the age group 14-25 years in females and 25-34 years in male.Majority of burns were homicidal(dowry related) and accidental (mainly small LPG cylinders) thermal burns.Study also suggested that patients with TBSA between 40-80% needs more aggressive and dedicated care.

KEYWORDS

burns, epidemiology, dowry burns.

INTRODUCTION

Burns, despite advances in healthcare, still remain a challenging problem due to the lack of infrastructure and trained professionals in remote areas, increased cost of treatment and the severity of disease itself. Most of these patients are poor and hence, seek healthcare from government hospitals. There is very little information on the pattern of outcomes among burn patients in relation to clinical aspects in India.[1] The present study was undertaken in the burns unit of a medical college to determine selected epidemiological variables, the clinical aspects (etiology, extent and anatomical location) and to analyze the outcomes.

AIMS AND OBJECTIVES: aim of the study was to analyse the causes of burns and suggesting measures to reduce the burden of disease on individual, family and society.

MATERIALS AND METHODS: A retrospective study was carried out to analyse 234 burn patients admitted to Nalanda Medical College and Hospital,Patna,India from january 2016 to January 2018. The clinical and in-hospital outcomes of these burn cases were collected. The patient data were recorded for age, gender, etiology, extent and site of burns and finally clinical outcome in the hospital.

The data were entered in a Microsoft® Excel spreadsheet and analyzed using Chi Square Test**.**

RESULTS:

Age and gender: A total of 234 burn patients were treated during the period of 2 years. There were 114 males (48.72%) and 120 females (51.28%). Their ages ranged from 1 to 74 years in males and 3 to 75 years in females.(Table 1)

However, men in the age group of 25 to 34 years and women aged 15 to 24 years suffered from burns significantly more than the other age groups ($P < 0.05$).

Table 1:Distribution in relation to age and gender

Age groups	*Sex*				*Total*	
	Male		*Female*		*N*	*%*
	N	*%*	*n*	*%*		
<15	12	10.53	11	9.17	23	9.83
15-24	26	22.81	56	46.67	82	35.04
25-34	38	33.33	32	26.66	70	29.92
35-44	21	18.42	11	9.17	32	13.68
45-54	11	9.65	6	5	17	7.26
>55	6	5.26	4	3.33	10	4.27
Total	114	100	120	100	234	100

*$P < 0.05$ {Chi square Test} significant

Distribution in relation to age and gender.

Etiology: Analysis of thermal burns revealed them to be accidental in 46 (LPG leakage of small cylinders in 20,large cylinders in 2, burns sustained while cooking food using kerosene stove in 7, fall of kerosene lamp/candle in 11and firecracker injuries in 6 cases), Suicidal in 35 (family problems in 15,depression in 8,dowry-related suicide in 8 and financial in 4 cases) and Homicidal in 52 (due to dowry cases and personal rivalry). Scalds were noticed in 52 (due to hot oil while cooking in 8,hot tea in 12,hot food in 8 and hot water in 24) and all were due to accidental reasons. High voltage electric contacts were observed in 34 cases (in wet fields in 6,on roof of house with low lying high tension wires in 16 cases and while working over electric pole in 12 cases) and flash burns in 11 cases.4 cases of vitriolage were noticed.

Clinical outcome: Of the 234 patients, 96 died with an overall mortality of 41.02%. It was found that only 2 of the cases with <40% TBSA burns died while 56/56 of those with >80% TBSA burns died; the outcome of patients with 40-80% TBSA burns was variable. The average number of days survived by patients with TBSA of 81 to 100%, 61 to 80%, 41 to 60% and 31 to 40% were 9,16,21 and 3 days respectively(Table 2). Thus, the TBSA was directly related to the death rate whereas it was inversely related to the days of survival except in 31 to 40 % TBSA burns,as these patients suffered massive facial and respiratory burns.Analysis revealed that individuals belonging to the 20 to 34 years' age group (most active age group)suffered from burns of the highest TBSA and have highest mortality.]

Table 2 :Distribution of cases and death in relation to TBSA and hospital stay.

% of burns	No. of cases	No. of deaths	Average no. of days survived
<20	40	0	N/A
20-39	52	2	3
40-59	48	6	21
60-79	38	32	16
>80	56	56	9
TOTAL	234	96	

DISCUSSION

Understanding the epidemiological aspects and clinical details is helpful to find out the lacunae in burns' treatment and the need to improve the same. In the present study, 234 cases of burns were hospitalized over a period of 2 years in a medical college in patna,Bihar,India.

96 out of 234 patients died and the in-hospital mortality was 41.02% which is lower than the series of Subrahmanyam[2] (56.5%) in Solapur, Maharashthra, Bilwani *et al*.[3] (58.26%) in Ahmedabad, Gujarat and Jayaraman *et al*.[4] (52.33%) in Chennai, Tamil Nadu. It was lower than the observations of Puri[5] (90.2%) in Pune, Maharashtra but similar to that of Gupta *et al*.[6] (48.33%) in Jaipur and Sarma *et al*.[7] (18.3%) in Digboi, Assam.

The low mortality rate in Sarma's series could be attributed to a higher proportion of industrial accidents and lesser homicidal and suicidal patients.

The lesser mortality rate in the present series could be attributed clinically to less no of patients with severe burns involving more than 55% TBSA,as there is trend of some referral to another hospital with dedicated burn unit,especially of severe burn cases.

Among women, 46.67% of the victims belonged to the age group of 15 to 24 years and the triggering factor for burns were young age at the time of marriage with majority being dowry related cases,inability to cope with the physical and psychological stress of marriage,[8,9,10] harassment from parents-in-law, inadequate precautions during cooking and wearing of the loose Indian sari.[3] In contrast, 33.33% of men belonged to the age group of 25 to 34 years and the factors attributed to burns were unemployment, depression and stressful situations.

TBSA observed among the age group 25 to 34 years was the highest and was due to flame burns. As all those with burns of TBSA < 20% survived and those > 80% died.It was observed that patients with TBSA burns ranging from 40-80 % needs more attention and aggressive management as these are more vulnerable to death. Hence, in the event of mass casualty due to burns or in areas/hospitals with suboptimal facilities, we suggest that priority be given to those patients with burns of TBSA of 40-80%. Besides preventive programme or awareness programme should focus on young age group individuals.

Flame burns accounted for 56.84% of all cases,in which homicidal burns were more common 39.09% and majority of them were dowry related.The social stigma associated with dowry is still prevalent in this part of state and especially among poor socio-economic group.This necessitates proper education and awareness along with stringent law enforcement.

Although homicidal flame burns(39.09%) was the most common cause ,accidental flame burns accounted for (34.58%), it was far less when compared to the series of Subrahmanyam (80%) [1] and Bilwani *et al*. (77%).[3] This variation may be attributable to the socio-environmental factors.

Out of all the accidental thermal burns 43.48% were due to small LPG cylinders(4.38% due to large LPG cylinder).This may be due to inferior quality of small LPG cylinders,the occurrence could be greatly reduced by increasing awareness and quality control.

Scalds were observed in the “extremes of age” group because of the carelessness and restlessness associated with children and decreased mobility and slow reflexes in the geriatric population. Although pouring water is the best way to quench the fire, it was known and practiced in only 45% of the cases. In this study, the practice of other conventional methods had resulted in deep burns and contributed to high morbidity and mortality. Many patients and their relatives in this group actually believed that pouring water was harmful to the patient.

CONCLUSION: This study suggested that dowry like stigma needs to be eradicated completely from the society as this was the major cause of burns in young women.Also the use of small LPG cylinders needs to be restricted and large cylinders of better quality should be encouraged.

SOURCE OF SUPPORT: NIL
CONFLICT OF INTEREST: NONE DECLARED.

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