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Epidemiological and Socio-Cultural Study of Burn Patients in a Tertiary Care Hospital in Kashmir Valley

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Abstract | **Original Research Article**

Background: Burns are considered one of the major health problems due to its catastrophic events which increase both the morbidity and mortality and financial burden as well. With aggressive resuscitation and improved response to hyper metabolic state significant improvement has been done in this field. Our aim was to analyze the various demographic features and preventive measures. ***Material and methods:*** This analysis was done in Government Medical College Srinagar, all thermal patients who were admitted in the intensive care bur unit from January 2016to December 2017 be registered in terms of their demographic data mode of burn injury, time of presentation after burn and associated risk factors and illness. Assessment of burn wound was done regarding site, affected body surface area, degree, depth, severity of injury and complications. Data were collected and analyzed statistically. Assessment of burn area was done regarding site, affected body surface area, degree, depth, severity of injury and complications. Data were collected and analyzed statistically. ***Results:*** Maximum number of patients was from age group less than 10 years (26%), most patients belonged to male sex (58%). Highest number of patients was from school age group, body surface area was highest among age group of 11-20 years (40%). ***Conclusion:*** Management of burn is complex; preventive measures should be taken especially in kitchen and workers of power development Department to prevent any major catastrophe. Besides awareness program and education is needed to make the population aware of various etiological factors causing burns and their prevention. Safer means and practices should be adopted in kitchen; such preventive measures may play a pivotal role in the prevention of measure burn injury and its related complications.
Key words: Thermal burn, epidemiology, risk factors.

INTRODUCTION

Burn injury is greater than any trauma in terms of human life, suffering, disability, and financial loss particularly in developing countries due to high population density and more curtailment in the electricity supply, poverty, sociocultural factors, and erratic electricity supply [1]. Severe burns remain a devastating injury affecting every organ system of the body leading to significant morbidity and mortality. Due to harsh weather conditions during winter months people regularly use heating gadgets like kerosene and gas heaters and in particular the traditional "Kangri" (earthen fire pot) and most of the burn injuries occur in winter months of the year [2,3]. The exact number of burn patients is difficult to determine because of lack of a central burn registry system in India. Burn is a continuous stress injury which starts from the burn injury and continuing till hospitalization [4].

MATERIALS AND METHODS

This study was conducted in the burn unit of Government Medical College Srinagar from January 2016 to December 2017. Hundred patients were admitted. The socio-demographic, clinical and in-hospital outcomes of these burn cases along with details of treatment were collected. The patient data was recorded for age and gender, extent of burn, etiology, method of extinguishing the flame and first aid received and finally clinical outcome in hospital. All the patients were first resuscitated in the causality room with baseline investigations and other parameters were assessed especially in electrical burn patients. Patients were followed for a period of one year with the evaluation of physical and mental deformities

RESULTS

Maximum number of patients was from age group less than 10 years (26%) [Table 1], most patients

belonged to male sex (58%) [Table 2]. Highest number of patients was from school age group, body surface area was highest among age group of 11-20 years (40%). Flame burn was causative agent in 36 patients followed by scald burn in 35 patients, maximum number of patients died in flame burn group (p 0.0001) [Table 3]. Mode of burn was accidental in 92 patients and among them 86(93.4) were discharged (p 0.0001).

Table-1: Showed number of patients with percentage of burn

Parameters	Number	percentage
Age in years		
<10 yrs	26	26%
11-20	20	20%
21-40	25	25%
41-60	23	23%
61-80	6	6%

Table-2: Showed sex of patients

Sex	Number	%
Male	58	58%
Female	42	42%

Table-3: Showed percentage of burn with occupation

Occupation	Number	Percentage
Preschool age	13	13%
School going	30	30%
Housewives	28	28%
Industrial workers	1	1%
Farmers	8	8%
Skilled workers (Electricians)	14	14%
Others	6	6%

Table-4: Showed mode of burn with occupation

Occupation	Scald burn	Flame burn	Electrical	Chemical	Lightening	Total
Preschool age	11	1	1	0	0	13
School going	3	17	10	0	0	30
Housewives	17	10	1	0	0	28
Industrial workers	0	0	0	1	0	1
Farmers	1	5	2	0	0	8
Skilled workers (Electricians)	0	0	14	0	0	14
Others	3	3	0	0	0	6

Table-5: Showed number of patients with body surface area

Body surface Area (%)	Number (%)
≤ 10	33 (33%)
11-20	40 (40%)
21-30	15 (15%)
31-40	6 (6%)
41-60	6 (6%)

Table-6: Showed outcome in relation with age, gender, burn severity, cause and mode of burn and outcome

Parameters	Total number of patients	Discharge (%)	Died (%)	LAMA (%)	p value
Age (years)					
<20	46	44 (95.6)	2 (4.34)	0	0.03
>20	54	48 (88.8)	5 (9.25)	1(1.85)	
Gender					
Male	58	55 (94.8)	2 (3.44)	1(1.72)	0.002
Female	42	37 (88.09)	5 (11.9)	0	
Burn severity					
Minor	62	61 (98.38)	1(1.61)	0	0.001
Major	38	31(81.5)	6 (15.7)	1(2.6)	
Causative agent Scald burn					
Flame	35	34 (97.1)	1(2.85)	0	
Electrical	36	30 (83.3)	6 (16.6)	0	
Chemical	28	28 (100.0)	0	0	
Lightening	1	1(100.0)	0	0	0.0001
	0	0	0	0	
Mode of burn					
Accidental	92	86(93.4)	5(5.34)	1(1.08)	
Suicidal	7	5(71.4)	2(28.5)	0	0.0001
Homicidal	1	1(100.0)	0	0	

DISCUSSION

Burn injuries and their related morbidity, disability and mortality represent a public health problem of increasing importance in developing countries. Economic development coupled with a remarkable decrease in the rate of infectious disease has decreased the morbidity, disability and mortality in such countries. Epidemiological studies of morbidity are a prerequisite for effective burn prevention programs because each population seems to have its own epidemiological characteristics and knowledge of the epidemiology of burns is needed to select target groups for preventive actions. Epidemiological studies are important to analyze the burden, distribution and causes of burns in a particular region. These studies form the basis of disease prevention programs, hence their significance. According to the current study, males are more susceptible to burns than females this was in accordance with other studies [5, 6]. This is because men are more engaged in hazardous environment in kashmir valley which is against past studies which showed greater mortality in women as compared to men and is mentioned in the ratio of 2:1 by other studies [7, 8]. In our study causative agent varied from rural to urban area and was dependant on environmental factors as well, flame burn was more common kitchen housewives (36) followed by scald burn especially in child age group (35) patients, the scald and electrical burn patients were more commonly seen in winter season in our Kashmir Valley which was in accordance with the study conducted by Khan TS *et al*. [3]. Most common cause for flame burn was use of LPG cylinders followed by use of Kangri, while scald burn was most commonly caused by use of hot water plastic tanks during winter. Our study was in contrast to other studies where most of flame burns were due to use of kerosene stoves [6, 9]. Body surface area involvement was highest in age group of 11-20 years (40) According to Mann Whitney test, TBSA was greater in the females than the males ($P < 0.001$), again in agreement with other studies [1]. There is steep rise in mortality as the percentage of burn goes above 70 percent [10]. Majority of burn injuries in our study were accidental in nature (92%) whereas 8% were suicidal or homicidal wich was in accordance with the study conducted by Khan TS *et al*. Jaiswal *et al*. and Shanmugakrishnan *et al*. [3,11,12]. The incidence of intentional burns is low because of the religious reasons. The reasons for low rate of suicidal burn were due to Muslim majority population where suicide is considered sin and less dowry cases [3]. Among 28 patients of electrical burn 12 patients were workers from power development department and among those 18 patients maximum cases were registered in the winter season as they were more engaged in wire repairing during winter season. Among those 12 patients almost all had deep burns over hands and feet, who underwent multiple surgeries and amputations. In our study major burn was seen in 38 patients and most were operated by split thickness grafting of raw area followed by fasciotomy. In our study 7 patients died despite of initial vigorous resuscitation. The commonest cause of death was systemic sepsis as they had severe burns above 50 percent which was in accordance with the other studies [3, 12].

CONCLUSION

In our setup majority of burns were seen due to lack of mass education and ill equipped daily use things like gas heaters, besides electrical workers should take proper insulation during repairing and in places having inadequate supply of electricity, unsafe means of lighting should be discouraged in favor of safer alternatives.

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