Original Article

Burn Injuries

Age and Gender Specific Characteristics of Hospitalized Patients with Burn Injuries

Ehmer-Al-Ibran[1] and Hira Tariq[2]

ABSTRACT

Objective: Age and gender is an important risk factor of burn injury. The aim of this study is to determine the relationship of age and gender with other possible risk factors of burn injuries, like educational status, mechanism and intent of burn injury.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at Burns Centre of Civil Hospital Karachi from 2013 to 2014.

Materials and Methods: 154 hospitalized patients with burns were sequentially interviewed . Information about age, gender, mechanism of burn injury, intent of burn injury and educational status was collected by questionnaire.

Results: High proportion of self-inflicted accidental electrical burn injury was found in young and male patients. Univariable stage showed that prevalence of electrical burn injury was higher in young age group (93.3%) and male patients (100%) as compared to chemical, flame/fire and scald/contact. However, the prevalence of self-inflicted accidental burn injury was also higher in young age group (86.4%)and male patients (100%) as compared to patients with burn injury accidentally by other, deliberately self-harm and assault with significant p value.

Conclusion: People who are young and male are more prone to have self-inflicted accidental electrical burn injury while people who are old and female are more likely to have scald/contact related burn injury due to assault.

Key Words: Mechanism of burn injury, Intent of burn injury, Self-inflicted accidental burn, Civil Hospital Karachi, Electrical burn

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INTRODUCTION

Burn is worldwide public health problem which is interrelated with patients'economic, psychological and physical insinuations. Moreover, the risk of burn injuries is highly influenced by patients' families and society (1, 2). Worldwide, burns injuries are at the fourth rank ,World Health Organization (WHO) estimated that almost 265,000 people die every year due to burn injuries and approximately 11 million patients are obligatory to medical treatment nevertheless most of the injuries (Almost 90%) arise in developing countries[1,3,4].

According to the WHO, the burden of burn injuries is two-third in developing countries, likewise; the African, Eastern Mediterranean and South-East Asia regions are on great threat[1].

[1.] Burns Centre, Civil Hospital, Karachi.
[2.] School of Public Health, Dow University of Health Sciences, Karachi

Correspondence: Dr. Ehmer-Al-Ibran, Burns Centre, Civil Hospital, Karachi.
Contact No: 0333-2262820
Email: dr.ehmer@yahoo.com

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The annual incidence of burn injuries is 187 in Eastern Mediterranean and 243 in South-East Asia regions per 100,000, correspondingly burns mortality is unequally distributed between low and high income countries, every 11 person die per 100,000 in south east Asia region and only 1 die per 100,000 in high income countries and similar proportions tend to occur in different gender and age groups[1,2]. The largest inconsistencies in injury mechanism is, the pattern of burn injury differs in gender and age groups. Likewise, the mortality rate due to fire-related burn injury is high for males compared to females[1,5].

To reduce the risk of burn injuries, we need to determine certain epidemiological variables like age, gender, educational status, mechanism and intent of burn injury to find out the inconsistency of burn injury mechanism. Through this we can create proper awareness among people of Pakistan in order to reduce risk factors.

MATERIALS AND METHODS

It is a cross sectional study which was conducted in Burns Centre of Civil Hospital, Karachi, Pakistan. The data were prospectively collected by Questionnaire-based survey from all hospitalized burn patients with 18 to 70 years of age. It was conducted between August 2013 and February 2014 with the Institutional Review

Board (IRB) of Dow University of Health Sciences (DUHS)'s approval. Mentally ill and unconscious patients were excluded. Hospitalized patients were the population of interest in study. Information about age, gender, mechanism of burn injury, intent of burn injury and educational status was collected.

Statistical analysis: Data were collected and entered by us. Statistical analyses was performed by using IBM SPSS version 21. For categorical variables, Frequency and percentages were figured like gender, and educational status, mechanism of burn injury and intent of burn injury. For age, mean and standard deviation were calculated. Further, age as continuous variable converted into two categories which were ≤40 years and ≥40 years. At univariable stage, the educational status, mechanism of burn injury and intent of burn injury has been seen among subjects with demographic characteristics (age and gender) by using chi-square test. P-Value 0.05 was considered significant.

RESULTS

A total of 154 subjects aged 18 to 70 years and above were interviewed. In younger people, prevalence of ≤ Matric educational status was higher (92.6%) as compared to ≥Intermediate (84.6%) and Illiterate (65.8%) (P-value<0.05). In younger age group, prevalence of electrical burn injury was higher (93.3%) as compared to chemical (80%), flame/fire (75.9%) and scald/contact (53.8%) (P-value<0.05). In younger age group, prevalence of self-inflicted accidental burn injury was higher (86.4%) as compared to patients with burn injury accidentally by other (80%), deliberately self-harm (85.7%) and assault (31.6%) (P-value<0.05). (Table 2) In male patients, ≥Intermediate educational status was found in 100% patients as compared to ≤Matric (85.3%) and Illiterate (67.1%). In female patients, prevalence of illiterate educational status was higher (32.9%) as compared to ≤ Matric (14.7%) and Intermediate (0%). Prevalence of electrical burn injury was higher among male patients (100%) as compared to Flame/fire (72.4%), chemical (60%) and scald/contact (46.2%). Prevalence of scald/contact type of burn injury was higher among female patients (53.8%) as compared to chemical (40%), flame/fire (27.6%) and electric (0%) (P-value<0.05). Prevalence of deliberate self-harm burn injury was higher in male patients (100%) as compared to self-inflicted burn injury (86.4%), accident by other (80%) and assault (15.8%). Prevalence of burn injury due to assault was higher among female patients (84.2%) as compared to burn injury due to accidentally by other (20%) and accident by self (13.6%) (P-value<0.05). (Table 2).

Table No.1: Demographics characteristics of patients (N=154)

	n	%
Age (Mean ±S.D)	30.69±11.93	
≤ 40 Years	122	79.2
> 40 Years	32	20.8
Gender		
Male	120	77.9
Female	34	22.1
Educational Status		
Illiterate	73	47.4
≤ Matric	68	44.2
≥ Intermediate	13	8.4
Mechanism of Injury		
Flame/Fire	58	37.7
Scald/Contact	26	16.9
Electric	60	39
Chemical	10	6.5
Intent of Injury		
Accident by self	118	76.6
Accident by other	10	6.5
Deliberate Self harm	7	4.5
Assault	19	12.3
N: number, S.D: Standard Deviation		

Table 2: Age and Gender specific characteristics of BurnInjury (N=154)

	Age			Gender		
	≤ 40 n (%)	**>40 n (%)**	**p-value†**	**Male n (%)**	**Female n (%)**	**p-value†**
Educational Status						
Illiterate	48 (65.8)	25 (34.2)	0.001**	49 (67.1)	24 (32.9)	0.005*
≤ Matric	63 (92.6)	5 (7.4)		58 (85.3)	10 (14.7)	
≥ Intermediate	11 (84.6)	2 (15.4)		13 (100)	0 (0)	
Mechanism of Injury						
Flame/Fire	44 (75.9)	14 (24.1)	0.001**	42 (72.4)	16 (27.6)	0.001**
Scald/Contact	14 (53.8)	12 (46.2)		12 (46.2)	14 (53.8)	
Electric	56 (93.3)	4 (6.7)		60 (100)	0 (0)	
Chemical	8 (80)	2 (20)		6 (60)	4 (40)	
Intent of Injury						
Accident by self	102 (86.4)	16 (13.6)	0.001**	102 (86.4)	16 (13.6)	<0.001*
Accident by other	8 (80)	2 (20)		8 (80)	2 (20)	
Deliberate Self harm	6 (85.7)	1 (14.3)		7 (100)	0 (0)	
Assault	6 (31.6)	13 (68.4)		3 (15.8)	16 (84.2)	

DISCUSSION

The findings of our study publicized high prevalence of accidental burn by self among hospitalized patients. It was not able that males and young adults were experience higher with burn injuries6[7,8,9,10,11]. Avoidable reality is that these young people are losing their lives due to carelessness and lack of alertness. Males belonging to this age group are young, whose loss divests the family of the sole bread winners[12]. Our finding complements previous studies conducted in various regions of developing countries that under the age of 35 years more susceptible of burns[12,13,14]. Recent Pakistan National Emergency Department Surveillance (Pak-NEDS) also suggested that patients belonging to age group 10 to 29 years exposed higher burns[15].

Our study confirms that younger patients with burn injury, prevalence of ≤ Matric educational status was significantly higher as compared to ≥Intermediate and illiterate. Nevertheless, the prevalence of illiterate educational status was higher (67%) in male as compared to female (32%). These outcomes also matched with the study conducted in Iraq[16] and in Pakistan[17] however, it is proved that illiteracy unauthorized people and make them less attentive and competent.

This study also illustrated that in young male group, prevalence of electrical burn injury was significantly higher. In contrary; Prevalence of scald/contact type of burn injury was higher among female patients (53.8%). However, different studies of developing countries have reported that males were more prone to electric burns than females, while females were more prone to flame burns than males which is slightly differ to our finding[18,19,20]. Moreover, it is reported that young females were more susceptible to burn in home or closed place, while young males in industrial and other work related events[17,18,19].

We found that, prevalence of self-inflicted accidental burn injury was significantly higher as compared to patients with burn injury accidentally by other, deliberately self-harm and assault in younger age group. Plausible reason is reported that in females, contact with hot objects in kitchen are mostly associated with self-inflicted accidental burn while in males, common circumstances are contact with loose electrical wires and hot chemical in industries[16,17].

Our study found higher association between deliberate self-harm burn injuries with male patients. Our finding is concurrent with previous study conducted that deliberate self-harm burn was the strongest factor and many of them were those who had exposure to physical or psychological disorder and had mentally traumatic events at home[21].

On the other side, we found that Prevalence of burn injury due to assault was higher among female patients and a study of Pakistan suggested that the main cause of assault is marital conflict and dissatisfaction[22].

CONCLUSION

People who are young and male are more prone to have self-inflicted accidental electrical burn injury while people who are old and female are more likely to have scald/contact related burn injury due to assault.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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