

Mortality of Burns among Men Dead During 2016-2017 in Baghdad/Iraq

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Abstract

Background: In most developing countries, the burn is become a big physical and social problem as a result of mortality and morbidity.

Objectives: To assess the mortality among men by various reasons and to identify the most prominent characteristics of the variables and findings.

Methodology: A retrospective cross-sectional study was conducted in the burns centre in Al-Kindi teaching hospital / Baghdad from 1st January 2016 to 31st December 2017. The sample of this study was (65) case. Information was taken from the records of the deceased patients, which includes all their information from the date of entry till the issuance of the death certificate. The history of treatment and swabs was also reviewed for further details on causes of death. Patient information, including age, occupation, marital status, total body surface area (TBSA), season, burn cause, hospital stay. All analysis was performed with the Stata version 20.

Results: In this study we found that 26(40%) of them was in the age group 18-25, followed by 14(21.5%) in each 26-32, >40 age groups. also, 32(49.2%) had a job and 48(73.8%) had married. Also the flame 70.8% was the most cause of burns, then the chemical 26.2% and the electricity was only 3%. There is no significant relationship between age group and TBSA.

Conclusion and recommendation: The majority of male dead falls in the age group 18-25, had job, married. Also, the length stays in the hospital less than 5 days was higher than others. In addition, there is no significant relationship between burn site, cause of death and length stay in hospital p value <0.05. Further research on mortality rate and risk factors among male to develop a protocol related to decreasing the side effect of burns.

Keywords: Mortality; Men; Cause; Flame; Death; Hospital stay; Iraq

Introduction

In recent time, the burn has increased the mortality rate significantly as a result of different reasons especially among youngest ages; when a patient enters the hospital, care is depending on the degree and percentage of burns and the majority are dying in the same day or two days after as a result of lack of materials and modern care facilities are unavailable.

In addition, during the last war; the frequency of cases was increased gradually and they registered with different reasons especially those occur when the absence of security and safety and the major cause of them was explosion and work injuries.

Generally, the burn is considered the biggest problem in developing countries such as Iraq, Iran, India, and Pakistan and the mortality rate was 28%, 16.6%, 40.3% and 36.1% respectively [1-4]. There are many factors as marital conflict, unemployment, political and absence of security which are affecting and its increasing the number of injuries and death annually. According to WHO report, it's estimated more than 250000 death by burn each year due to the social, economic and psychological problems [5].

Unfortunately, there are few of researcher was focused on burnt men and explain for us all or some the factors which are related to burn, from this point we are focusing on mortality for various reasons and to identify the most prominent characteristics of the variables and findings.

Methodology

A retrospective cross-sectional study was conducted in the burns centre in Al-Kindi teaching hospital/Baghdad from 1st January 2016 to 31st December 2017. This centre consists of twenty-four rooms and three big halls for surgery. All of these are divided into 3 departments, each one includes 8 rooms, one department for men and another for women and children. The sample of this study was (65) case.

For Data collection and before starting to collect the data, the ethical clearance was obtained from the ministry of health and the burn centre in Al-Kindi teaching hospital. Out of 624 men with burns injury admitted to the burn centre for two years (2016-2017), there were 102 in-hospital deaths.

Information was taken from the records of the deceased patients, which includes all their information from the date of entry till the issuance of the death certificate.

The history of treatment and swabs was also reviewed for further details on causes of death. Patient information included age, occupation, marital status, total body surface area (TBSA), season, burn cause, hospital stay. Burned TBSA was classified into three groups: less than 50%, 50% to 75% and over 75%. In addition, in this study included all the male deaths were reported for different reasons with ages from 18 to 65 years and all patients suffering from a 2nd and 3rd degree of burns. As well, exclude all the cases less than 18 and above 65 from our study and it was 37 cases. Also, Patients who were treated in the emergency room (out-patient clinic) are excluded. All analysis was performed with the Stata version 20. Results were presented as the frequency and percentage (continuous variables) and chi-square test or Fisher's exact test when expected frequencies were too small (for categorical variables). Statistical significance was considered if $p < 0.05$.

Results

Out of 65 of dead male, 26(40%) of them was in the age group 18-25, followed by 14(21.5%) in each 26-32, >40 age groups. also, 32(49.2%) had a job and 48(73.8%) had married (Table 1).

Variables		Frequency	%
Age groups	18-25	26	40
	26-32	14	21.5
	33-40	11	17
	>40	14	21.5
	Total	65	100
Occupation	Worked	32	49.2
	Unworked	24	36.9
	Student	9	13.9
	Total	65	100
Marital status	Single	17	26.2
	Married	48	73.8

	Total	65	100

Table 1: Characteristic of variables.

In this table, we show that, the highest percentage of the length of hospital stay was 50.8% in less than 5 days, followed by 49.2% in more than 5 days (Table 2).

Length of hospital stay (days)	Frequency	%
<5	33	50.8
>5	32	49.2
Total	65	100

Table 2: Distribution of samples according to the length of hospital stay (days).

Regarding to aetiology of injuries, in this table shows that the flame 70.8% was the most cause of burns, then the chemical 26.2% and the electricity was only 3% (Table 3).

Aetiology of injuries	Frequency	%
Flame	46	70.8
Chemical	17	26.2
Electricity	2	3
Total	65	100

Table 3: Distribution of samples according to aetiology of injuries.

According to a relation between age groups and TBSA, the highest percentage of TBSA was 36.7% in the age groups 18-25 years. Then 30% and 23.3 in the age groups 26-32 and >40 (Table 4). The chi-square statistic is 9.1649. The p-value is 0.164514. The result is not significant at $p < 0.05$ (Table 4).

Age groups	TBSA						Total	
	<50%		50-75%		>75.1		Frequency	%
	Frequency	%	Frequency	%	Frequency	%		
18-25	7	58.4	8	34.8	11	36.7	26	40
26-32	3	25	2	8.7	9	30	14	21.5
33-40	1	8.3	7	30.4	3	10	11	17
>40	1	8.3	6	26.1	7	23.3	14	21.5
Total	12	100	23	100	30	100	65	100

Table 4: Distribution of samples according to age groups and TBSA.

In this table show that the head + upper/lower extreme, thorax and abdominal was the higher percentage 63.6 in the length of hospital stay less than 5 days and 46.8% in more than 5 days stay in the hospital. The

chi-square statistic is 2.128. The p-value is 0.546274. The result is not significant at $p < 0.05$ (Table 5).

Burn site	Length of hospital stay (days)				Total	
	<5 days		>5 days		Frequency	%
	Frequency	%	Frequency	%		
Head, face and neck	3	9.1	4	12.5	7	10.8
Head + upper/lower extreme	6	18.2	10	31.3	16	24.6
Thorax, abdominal	3	9.1	3	9.4	6	9.2
Head + upper/lower extreme, Thorax, abdominal	21	63.6	15	46.8	36	55.4
Total	33	100	32	100	65	100

Table 5: Distribution of samples according to length of hospital stay and burn site.

According to the cause of death, in the length of hospital stay less than 5 days, the sepsis was the higher percentage 39.4% then multi-organ failure 30.3%. While in the length of hospital stay in more than 5 days, the multi-organ failure was the highest percentage 34.4% then

the respiratory failure 28.1% and the sepsis was 15.6% (Table 6). The chi-square statistic is 5.0072. The p-value is 0.171274. The result is not significant at $p < 0.05$ (Table 6).

Cause of death	Length of hospital stay (days)				Total	
	<5 days		>5 days		Frequency	%
	Frequency	%	Frequency	%		
Respiratory failure	6	18.2	9	28.1	15	23.1
Sepsis	13	39.4	5	15.6	18	27.7
Multi organ failure	10	30.3	11	34.4	21	32.3
Inhalation	4	12.1	7	21.9	11	16.9
Total	33	100	32	100	65	100

Table 6: Distribution of samples according to cause of death and length of hospital stay.

Discussion

In this study aimed to study the mortality among men by various reasons and to identify the most prominent characteristics of the variables and findings. The age of the participant is one of the most factors which is increased the rate of death. In our study, we found that the higher rate of death 40% falls in the range of 18-25 years and 21.5% in each age groups 26-32 and more than 40 years. Other study in Iran by Hosseini et al. [6]; they are looking at the examine epidemiology of burns and identify the factors that affected on them, they found that the mean of age was 25 years. This result similar to our result this may be due to similar tradition, culture and rules against the people because the Islamic country. The unemployment is also the important thing and could be affected by people, in this study we found that 50.8% of participant don't have job, where compared with another study in Tunisia by Khalil [7], the authors found that 65.3% of them which are don't have job, this difference because of revolution and insecurity which are led to a deterioration in the economics of countries, all of these led to the people thinking about burning themselves. Therefore the study in Iran 2012 by Alavi et al. [8]; they looking at the assessment of burns injuries and they found that a significant association between unemployment and mortality rate ($P=0.0001$).

Therefore, the marital status is related to the conflict and it is a reason for an increase the number of burnt cases in the world. In this study, show that the majority of cases 73.8% are married. A study in Iran by Alavi et al. [8]; they revealed that a significant association between marital status and mortality rate ($P=0.021$).

The length of hospital stay depends on the percentage of burns and the extent of patient response for treatment. In this study, we found that, the highest percentage of the length of hospital stay was 50.8% in less than 5 days, followed by 49.2% in more than 5 days. A study in China [9]; they found that the average hospital length of stay in male patients was 25.4 ± 72.4 days. As well, in Finland [10], the median total length of stay shortened from seven days to five days. But a study in Turkey [11], the authors are looking at the demographic and epidemiologic features of burn patients and they found that the median and mean hospital stays were 16 and 22.8 days, respectively (range, 1-114 days). This due to differences in type of treatment and also the patient's response, infection, and type of care that provide for them.

The greatest number of injuries was the cause of exposure to fire and the percentage may vary depending on the exposure rate, it's may be severe or minor. In our study, we found that the 70.8% of them were exposed to flame and 26.2% to chemical and for electricity was only

3%. A study in Switzerland [12]; the authors are looking to describe the aetiological aspects of burns and they found 78.9% are exposed to flame.

The total body surfaces area is to the assessment of the percentage of burn and to identify the treatment decision including the fluid. In our study, we found that 46.2% (30/65) are dead because of TBSA was above 75.1%, and then there is no significant relationship between age and TBSA. As described by Bataineh et al. [13], they found 14.9 % are dead due to TBSA more than 75% and based on another study in Iran by Aghakhani [14]; they found that 29.6% of them are dead due to the percentage of TBSA above 75%. This difference is because of all the patients died after two or three days due to the percentage of TBSA.

Therefore in our study, we found that 55.4% of cases had a location of burning in the head + upper/lower extreme, Thorax, abdominal, approximately it's in all the body. However a study in Turkey [11], the authors found that the location of burning in the head and neck, lower limb, upper limb and trunk was 18.4%, 21.1%, 44.7% and 12.3% respectively.

Cause of death varies according to the degree of burn, proportion and length stay. In our study, we found that the main cause of death was the multi organ failure 32.3% and sepsis 27.7% based on a study in the Netherlands [15], the authors found that 26.1% of cases are dead because of multi organ failure and only 2.3% from sepsis.

Conclusion and Recommendation

The majority of male dead falls in the age group 18-25, had job, married. Also, the length stays in the hospital less than 5 days was higher than others. Flame was the most cause of burn. There is no significant relationship between age group and TBSA. In addition, there is no significant relationship between burn site, cause of death and length stay in hospital p value < 0.05. Further research on mortality rate and risk factors among male to develop a protocol related to decreasing the side effect of burns.

References

1. Othman N, Kendrick D (2011) Burns in Sulaymaniyah province, Iraq: epidemiology and risk factors for death in patients admitted to hospital. *J Burn Care Res* 32: e126-134.
2. Keshavarzi A, Kardeh S, Pourdavood A, Mohamadpour M, Dehghankhalili M, et al. (2018) Determinants of the Lethal Area 50 Index (LA50) in Burn Patients Admitted to a Tertiary Referral Burn Center in Southern Iran. *Bull Emerg Trauma* 6: 59-63.
3. Bain J, Lal S, Baghel VS, Yedalwar V, Gupta R, et al. (2014) Decadal of a burn center in Central India. *J Nat Sci Biol Med* 5: 116-122.
4. Al Ibran E, Mirza FH, Memon AA, Farooq MZ, Hassan M (2013) Mortality associated with burn injury - a cross sectional study from Karachi, Pakistan. *BMC Res Notes* 6: 545.
5. WHO (2018) Violence and Injury Prevention and Disability (VIP). Burns.
6. Hosseini SN, Rashtchi V, Kamali K, Moghimi MH (2017) Epidemiology and outcome of 2,590 burned patients in Northwest Iran. *Ann Burns Fire Disasters* 30: 85-90.
7. Ben Khelil M, Zgarni A, Ben Mohamed M, Allouche M, Benzarti A (2016) A comparison of suicidal behavior by burns five years before and five years after the 2011 Tunisian Revolution. *Burns* 43: 858-865.
8. Alavi CE, Salehi SH, Tolouei M, Paydary K, Samidoust P (2012) Epidemiology of Burn Injuries at a Newly Established Burn Care Center in Rasht. *Trauma Mon* 17: 341-346.
9. Fan X, Ma B, Zeng D, Fang X, Li H, et al. (2017) Burns in a major burns center in East China from 2005 to 2014: Incidence and outcome. *Burns* 43: 1586-1595.
10. Tanttula K, Haikonen K, Vuola J (2017) Hospitalized burns in Finland: 36305 cases from 1980-2010. *Burns* 44: 651-657.
11. Kut A, Basaran O, Noyan T, Arda IS, Akgün HS, et al. (2006) Epidemiologic Analysis of Patients with Burns Presenting to the Burn Units of a University Hospital Network in Turkey. *J Burn Care Res* 27: 161-169.
12. Muller M, Moser EM, Pfortmueller CA, Olariu R, Lehmann B, et al. (2016) Aetiology of adult burns treated from 2000 to 2012 in a Swiss University Hospital. *Burns* 41: 919-925.
13. Bataineh ZA, Al Quran TM, Al Balas H, KhamashMR (2018) Pattern of burn injury at north of Jordan. *Int J Burn Trauma* 8: 1-5.
14. Aghakhani N, Nia HS, Soleimani MA, Bahrami N, Rahbar N, et al. (2011) Prevalence burn injuries and risk factors in persons older than 15 years in Urmia burn center in Iran. *Caspian J Intern Med* 2: 240-244.
15. Dokter J, Vloemans AF, Beerthuizen GI, van der Vlies CH, Boxma H (2014) Epidemiology and trends in severe burns in the Netherlands. *Burns* 40: 1406-1414.