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

Abeer Gatea1,2*

1Department of Epidemiology and Biostatistics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran
2Ministry of Health, Al-Rusafa Health Directorate, Baghdad, Iraq

*Corresponding author: Abeer Gatea, Department of Epidemiology and Biostatistics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran, Tel: +0096 4772 3212 850; E-mail: abeergatea@hotmail.com

Abstract

Background: In most developing countries, the burn becomes 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) cases. 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 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 |

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   |       |       |       |       |       |
|------------|--------|-------|-------|-------|-------|-------|
|            | <50%   | 50-75%| >75.1 | Total |       |       |
| 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).

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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 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 2.3%. In this study, Alavi et al. [8] revealed that a significant association between unemployment and mortality rate (P=0.001).

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).

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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.

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