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Research Article

Prevalence and Epidemiological of Burns in Hebron, Palestine -

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ABSTRACT

Aim: of study know the prevalence of burn in Hebron government hospitals to provide guidance for burn prevention, and to reduce burns in Hebron and West Bank.

Background Burns are a large cause of injury world. We discusses the epidemiology and result of burn patients in a big hospital and burn unite in south of west bank between 2016 and 2017 to provide directing for burn prevention.

Method: Retrospective study by review of file of emergency department in two years 2016 and 2017.

Finding: This is the first study to describe the epidemiology and outcomes of burn patients in a major burn center in south of west bank between 2016 and 2017. Our findings showed that in the future, children under 14 years old, females, incidents occurring in winter, and scald burns should receive more attention to prevent burn injuries. Furthermore, individualized burn prevention and treatment strategies based on risk factors such as full-thickness burns, burns with a larger TBSA (total body surface area), older age, higher operation number and better outcomes should be adopted.

Conclusion: Scalding was found to be the most important cause of burns and most in burn Palestinian people would reduce burn injuries among children.

Keywords: Prevalence, Burn, Epidemiological

ABBREVIATION

MOH: Ministry of Health; **TBSA**: Total Body Surface Area; **ER:** Emergency Room; **SPSS:** Statistical Package for Social Science

INTRODUCTION AND BACKGROUND

The World Health Organization [1] showed over 90% of the total fatal fire-related burns occur in developing or low income countries. Palestine is a young populated country, as 36.9% is below the age of 14 [2].

The number of pediatric burns is high in world, mostly due to house habit or due to can be a possible burn source such as drinking tea and coffee from hot pots. "A burn is defined as an injury to the skin or other organic tissue caused by thermal trauma, it occurs when some or all of the cells in the skin or other tissues are destroyed by hot liquids (scalds), hot solids (contact burns), or flames (flame burns). Injuries to the skin or other organic tissue due to radiation, radioactivity, electricity, friction or contact with chemicals are also considered as burns" [1].

According to [3] cause of death in the west bank from age 0- 4 years 0.2 %. Nearly 90% of burns occur in poor countries, regions that generally lack the necessary infrastructure to reduce the incidence and severity of burns [4], in a study in Iran, mortality rate in the hospitalized burn was observed to be (25.9%) (4), in India, there are (6) million burns cases annually, of which around (0.7) million cases require hospitalization, of which approximately, (0.12) million die annually. Survival rate for burns patients in developing countries like India is around (50%) for burns less than (40%) while those in developed countries it is around (75-90%) for (50%) burns. Burn injuries cause significant morbidity and mortality, both in developing and developed countries and have considerable physical, psychological and economic effects on the patients, their families and society [5].

A burn is an injury to the skin or other organic tissue primarily caused by thermal or other acute trauma, according to the International Society of Burn Injuries. It occurs when some or all of the cells in the skin or other tissues are destroyed by hot liquids (scalds), hot solids (contact burns), or flames (flame burns). Injuries to the skin or other organic tissues due to radiation, radioactivity, electricity, friction or contact with chemicals are also identified as burns [6].

Hospitals are the main providers for healthcare services in the Hebron city; hospitals in general divided into two categories depending on the source of financing the hospital. They are: government, those are managed by the government services, and financed from MOH, the second category is nongovernmental hospitals which can be a private, or managed by public charitable or cooperative society.

Hebron is the largest city in the West Bank and have a population of around 706.000 [7]. These people are the target centers of the service offered by the hospitals operating in Hebron. In Hebron, there are governmental and non-government hospitals that operates at high capacity to meet the population demands.

Hebron hospitals have essential and distinct role in the provision of health care affecting Hebron population. According to [3], hospitals in Hebron operate at the limits of their effective capacity or even they operate over capacity in some hospital departments. For example Alia Government hospital is the most crowded one in Palestine operating at 130 % average occupancy rate in 2016 [3].

This study is first study done in this area of burn in Palestine and in Hebron hospitals in specific. The aim study resumption to appear extent prevalence of burn in Hebron government hospitals to provide guidance for burn prevention, and to reduce pediatric burns in Hebron and West Bank.

PURPOSE OF THE STUDY

To investigations of burn prevalence and causes are crucial for evaluating the effect of current prevention measures and for adopting effective and individualized prevention approaches in the future.

METHOD

The medical records (computers file) in Hebron Hospital, from 1 January 2016, to 31 December 2017 were reviewed. All the records with a final diagnosis of definite burn were selected and collected for the analysis. Conducted a retrospective review of the clinical charts of 401 file burn patient coming ER (Emergency room) Hebron government hospital. The date and time of visit was recorded together with the patient's age and sex, and cause of burn, TBSA, site of burn. Admission to hospital or not.

Study setting

This study was conducted in the West bank in emergency department Hebron government hospital south of West Bank.

Ethical consideration and accessibility: Permission obtained to access the MOH (Ministry of health) hospitals report when approval by the director of hospital services. Not use the name or taken the name of participant. See in annex.

Data analysis procedure: After data collection, from file filled in the table and entered and analysed using the Statistical Package for Social Science program (computer software SPSS V.22) for descriptive and inferential statistics. Frequencies were used to present the distribution of study variables.

RESULT

According to table 1 and 2 the result appear. A total of 401 burn cases were coming to emergency department in 2016 and 2017 the study period. Most of them female with percent 62.3 %, and male 37.7%. Martial statues 86.7 % single, 13.3 married.

According to occupation 47.1% child, 37.4% student, 8 % housewife, and 6% worker.

According to age 51.8% burn patient less than 10 years , and 32.4% from 11 -20 years, and 15,4% age more than 21 year. According to area of place the same 51.1% live in rural area, 48.9% live urban. According to burn happen 74.8% happen in door, 25.2% outside.

Time 42.9% in winter, 34.9 % in spring, 17.4% in summer, and 4% in autumn. According to causes of burn 79.3% scald burn, 20% of flam burn, less than 1% electrical and chemical burn.

According to stay in hospital 44.8% discharge from emergency hospital, 30% from patient admitted to hospitals. According to depth 42%% of patient First & second degree and Second & third degree 11.2%, Different degree 12.4%.

According to body surface area (TBSA), 49.3% from patient 5-10%, and 24.7 TBSA from 16-25%, and TBSA more than 26% is 10% from total population.

Table 1: Show distribution of patients according to burn characteristics.

Item		No	Percent %	P value
Gender	Male	152	37.7	.012
	Female	249	62.3	
Age	0 – 3	124	31%	.011
	4- 10	84	21%	
	11- 20	130	32%	
	21- 30	25	6.2%	
	31- 40	15	3.5%	
	41- 50	12	2.9%	
	51 and more	10	2.4%	
Area of burn	Rural	205	51.1%	0.06
	Urban	197	48.9%	
Place of burn	Indoor	300	74.8%	.013
	Outside	101	25.2%	
Seasonal burn happened	Winter	172	42.9%	.019
	Spring	140	35%	
	summer	70	17.4%	
	autumn	19	4.7%	
Material status	Single	348	86.7%	.011
	Married	53	13.3%	
	Other	0		
Occupation	Child	189	47.1%	.013
	Student	150	37.4%	
	Housewife	35	8.7%	
	Employee	15	3.7%	
	Worker	10	2.4%	

Table 2: Show distribution of patients according to burn characteristics.

Cause of burn	**Scalding**	**318**	**79.3%**	**P value**
	Electrical	2	0.5%	.013
	Chemical	2	0.5%	
	Flame	80	19.9%	
Site of burn injury	Face and head, Neck	62	15.4%	0.05
	Chest	33	8.2%	
	Back	60	14.9%	
	Abdomen	51	12.7%	
	Upper limbs	89	22%	
	Lower limbs	98	24.4%	
Duration of stay in hospital	Discharge from ER	180	44.8%	
	Discharge against advice to traditional treatment	25	6.2%	
	Admission to hospital	120	29.9%	
	Admission to hospital and then transfer	15	3.7%	
	Transfer to other center	6	1.4%	
Depth degree of burn	First & second degree	169	42.1%	.005
	Second & third degree	45	11.2%	
	Different degree	50	12.4	
Total body surface area	Less than 5	61	15.2	0.006
	5-10	198	49.3%	
	16-25	99	24.7%	
	26-35	33	8.2%	
	36-45 or more	10	2.5%	
Burn	Fresh burn	319	79.5%	.005
	Old burn	78	19.5%	
Hospitalization	6.			

According to site of burn limbs were the widely public burn sites, 46.6%, the second most widely reign was the head, face and neck site 14.5%, and chest abdomen with 23.2%.

The number of patient admitted to burn unite from in 2016, 42 patient, 18 patient stay less than week (1-7 days), 15 patient stay at hospital one week. 3 patient stay tow week, five patient stay more than three weeks.

The number of patient admitted to burn unite from in 2017, 78 patient, 38 patient stay less than week (1-7 days), 21 patient stay at hospital one week. 14 patient stay tow week, five patient stay more than three weeks.

Death one patient sepsis post discharge against medical advice, and return sepsis post use traditional therapy.

DISCUSSION

Research of burn prevalence and causes are pivotal for evaluating the effect of current prevention measures and for adopting active and individualize protection approaches in the future.

Gender

This study concern on the epidemiological characteristics and result of burn patients admit coming to Hebron government hospitals a big city in the west bank from 2016 to 2017. This study's goal was to give guidance for burn prevention and treatment. A total of 401 burn

cases were coming to emergency department in 2016 and 2017 the study period. Most of them female with percent 62.3 % may be due to stay at home more than male, and male 37.7%. Martial statues 86.7 % single, this percent with pediatric, 13.3 married.

Age

Our study see that more of child burn injuries happened at indoor. This finding nearly in accordance with the old research, which revealed that most of burn injuries were at house [8]. This is because of in our society pediatric stay more of their times at house more than other location.

According to age 51.8% burn patient less than 10 years, this finding is same to previous studies from Iran [9], and Turkey [10], Pediatric under 5 years old are more risk 31%, especially from birth to 3 years old, This agree with previous studies which was conducted by [11].

Time

The study showed that major of burn injury happen in cool season especially in winter comprising all burn. This result as the same other studies [12]. This is because of using petrol-operated space-heating equipment in home, especially in cool seasons in Hebron. Sometimes families put this instrument around seats and it drives to cause burn injury.

Causes

According to causes of burn, 79.3% scald burn, 20 % of flam burn, less than 1% electrical and chemical burn. Our study see that scald burns were the more frequent cause of burn injuries. Same the various observations had reported that scald burns are the most common cause of burn injuries [13]. This can be given that pediatric especially infants and preschool children stay with their family at house, and would probably be left playing in home around the kitchen most scald burn due to hot water. This may be given that hot fluid are of high importance at our house and most mush used in many life part.

In our study, flame burns were the second cause of burn injury 20 % of flam burn. Many of research in the world have same outcome [14,15]. Instrument and products were more responsible for flame burn, but the more serious of them were home instruments used for cooking or heating. Another factor contributing to the risk of these gas cylinders usually places it near the cooker equipment is inside the kitchen, especially in old buildings.

Depth

This study revealed that majority of burn injuries with first and second degree of burn. This result is nearly in agree with the other old research [4].

Length of stay

In this study majority of total body surface area burnt patients were decrease than 10%. This result is similar with a study done in Israel [11]. Hospital stays of patients in the study, the mean hospital stay was 6.8 days. This result similar to the old research were done in burn units [16].

The mortality in our study less than 1% due to good quality or good performance of nursing and physician agree with study.

CONCLUSION

This is the first study to describe the epidemiology and outcomes of burn patients in a major burn center in south of west bank between 2016 and 2017. Our findings showed that in the future, children under 14 years old, females, incidents occurring in winter, and scald burns should receive more attention to prevent burn injuries. Furthermore, individualized burn prevention and treatment strategies based on risk factors such as full-thickness burns, burns with a larger TBSA, older age, higher operation number and better outcomes should be adopted .

This study has some limitations. First, it is a retrospective study and therefore is subject to all problems related to the type of this study. Second, in this study make in one hospital but main hospital in the west bank.

Burn injuries are important public health issues worldwide. However, most of them are preventable. Since most burn injuries are domestic, preventive and educational programs should be set focusing on mothers and housewives to emphasize the importance of safety and carefulness.

The mortality rate less than 1% m that's related high quality and standardizes care provided to our patients. This finding could be attributed to early surgical intervention and skin grafting, modern topical and systemic antibiotics, nursing care. Furthermore, immediate fluid and electrolyte replacement, nutritional support and adherence to infection prevention and standard precautions.

ETHICAL APPROVAL

This tow-year retrospective descriptive study was approved by the ministry of health government Hospital, Informed consent was not required in this observational study.

The study ethical take from conditions education in ministry of health, send Hebron government hospital, and then go to medical record department and taken number of file and put information that's need from record and then make analysis.

CONFLICT OF INTEREST

No conflict of interest has been declared by the authors.

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AUTHOR'S CONTRIBUTION

Qtait, and Elkail worked on study conception and design, screened titles for relevance and abstracted the data from the eligible full-text articles; Qtait analyzed and interpreted the data; and drafted the manuscript, critically revised the manuscript with input from the entire team; all authors have read and approved the final draft.

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