Research Paper Medical Science

Home First Aid Applied by Family Member for the Treatment Thermal Burns for Adults

Ali D. Abbas	Instructor, Fundamentals of Nursing Department, College of Nursing, University of Baghdad, Baghdad, Iraq
Juma J. Abdul Redha	Instructor, Fundamentals of Nursing Department, College of Nursing, University of Baghdad, Baghdad, Iraq
Ayad M. Mousa	Assistant Instructor, Fundamentals of Nursing Department, College of Nursing, University of Baghdad, Baghdad, Iraq

ABSTRACT

Objective(s): The study objectives are to assess first-aid home for the treatment of thermal burns for adults by family member and to find out the relationship between first-aid home for the treatment of thermal burns and the demographic characteristics include (age, level of education, occupational status of the parents, and family's income).

Methodology: A descriptive analytical study was conducted on family member who applied home first aid for the treatment of thermal burns for adults. The study was conducted at burn treatment centers in (Medical City/ Baghdad Teaching Hospital; Al-Karama Teaching Hospital, Al-Kindi Teaching Hospital, and Al- Yarmouk Teaching Hospital). Starting from 4th Jun. 2015 up to the 28th Feb. 2015. To achieve the objectives of the study, a non-probability (purposive) sample of (100) family members of different kinship who reviewed burn treatment centers with their adult son for the treatment of thermal burns. Data were collected by interview with family member who treats their adults who suffer from thermal burns. Instrument validity was determined through content validity, by a panel of experts. Reliability of the instrument was determined through the use of Pearson correlation coefficient for the test-retest approach, which was (0.88). Analysis of data was performed through the application of descriptive statistics (frequency, percentage, and mean of score) and inferential statistics (correlation coefficient and One-way analysis of variance).

Results: The results of the study indicated the level mean of scores related to first-aid procedures relating to situations of thermal burns when applied by family member was moderate level on half items and high level on half other from items.

Conclusion: The study concluded most of family member don't have prior knowledge of the procedures used for ambulance cases of thermal burns.

Recommendations: The study recommend the need to setting up educational sessions for families especially the parents about how to first aid thermal burns and guide booklets or information sheet should be printed and distributed to parents and other family member about thermal burns and first aid it , these booklets or information sheet should be written in a simple style and handed out freely.

KEYWORDS thermal burns, , boiling, steam

INTRODUCTION:

Thermal burn is a type of burn resulted from making contact with heated objects, such as boiling water, steam, hot cooking oil, fire, and hot objects. Scalds are the most common type of thermal burn suffered by children, but for adults thermal burn is most commonly caused by fire.[1] Burn are generally classified from first degree up to fourth degree, but the American Burn Association (ABA) has categorized thermal burns as minor, moderate, and major, based almost solely on the depth and size of the burn.[2]

The minimum temperature where it can suffer burn in a finite amount of time is 44°C (111°F). From 44° to 51°C (111° to 124°F), the rate of burn increases by approximately quadruple with each Celsius degree risen or twice per Fahrenheit degree risen, from six hours down to six seconds. The burn would develop in less than a second if the exposure temperature is at least 70°C (160°F).[3]

There are skin factors that offer resistance to burns. A person who is more burn resistant would require higher temperature and longer exposure to burn as badly than a less resistant person.

Thicker skin would offer more insulation from heat. External factors on the skin like hair, moisture or oils can also help ease and delay the burn. Another factor is skin circulation, which is used to dissipate heat imprinted on the skin.[3]

The most important first step is to stop the burning process.

1. Put out any fire or flames (the common advice is to 'stop, drop, and roll' to put out flames on clothing).
2. Cool the injured area with water (not ice) within 30 seconds. This may limit the extent and severity of the burn.
3. Run burned hand or finger, for example, immediately under cool tap water for several minutes.
4. Control the pain.
5. Apply a cool wet compress for pain relief. Do not use ice. This may worsen the injury to the skin.
6. Other common remedies, such as butter or mayonnaise have not been proven to work; and may increase the chance of infection.
7. May also use acetaminophen (Tylenol) or ibuprofen (Advil) for pain as directed on the bottle.
8. Begin the healing process.
9. For small burns and burns that are superficial in nature, may use a triple antibiotic ointment. This will aid in healing and limit the chance of infection.
10. Do not remove blisters at home, especially those on the palms of the hands or on the soles of the feet. [4]

METHODOLOGY:

Objective of the study

The study objectives are to assess first-aid home for the treatment of thermal burns for adults by family member and to

find out the relationship between first-aid home for the treatment of thermal burns and the demographic characteristics include (age, level education, occupational status of the parents, and family's income).

Design of the study
A descriptive analytical study was conducted on family member who applied home first aid for the treatment of thermal burns for adults.

Setting of the study
The study was conducted at burn treatment centers in (Medical City/ Baghdad Teaching Hospital; Al-Karama Teaching Hospital, Al-Kindi Teaching Hospital, and Al- Yarmouk Teaching Hospital). Starting from 4th Jun. 2015 up to the 28th Feb. 2015.

Sample of the study
A non-probability (purposive) sample of (100) family members of different kinship who reviewed burn treatment centers with their adult son for the treatment of thermal burns according to the following criteria:-

1. Adults' diagnosed with thermal burns and brought to burn treatment centers by one of family member.

2. Adults with different age ≥ 18.

Instrument construction
After extensive review of relevant literature, studies, the researchers constructed the questionnaire and was used as mean of data collection. It was comprised of three major parts.

Part I: Demographic characteristics
The first part concerned with determination of the demographic characteristics through designated sheet which include eight items (Kinship, age, educational level of the parents, occupational status of the parents, Age of adult during exposure to burn, gender of adult , monthly a family income, ownership housing).

Part II: Information about the status of burn
This part is concerned with the information related to status of burn that consist from (7) items.

Part III: First-aid procedures relating to situations thermal burn when the burn occurs
This part is concerned with the first-aid procedures relating to situations thermal burn when the burn occurs that consist from (14) items. The items were ordinal according to the two level scale which were scored as (No = 1, and Yes= 2) for each level respectively so the cutoff point was (2).

Validity of the instrument
Content validity was determined through the use of panel of experts.

Reliability of the instrument
Pilot study was carried out between the 1st to 31st of Dec. 2014. On (10) family members of different kinship who reviewed burn treatment centers with their adult son for the treatment of thermal burns by the researcher who used test - retest;" twice within two weeks" person correlation coefficient was computed for each determination. The results indicated that the correlation coefficient was r = 0.88 at the level (P ≤ 0.01) which was statistically acceptable.

Data collection
The data were collected by interview with family members of different kinship who reviewed burn treatment centers with their adult for the treatment of thermal burns for the period from 4th Jun. 2015 up to the 28th Feb. 2015.

Statistical data analysis
Appropriate statistical approach is used that includes descriptive statistics (frequency, percentage, mean of score) and (correlation coefficient and One-way analysis of variance).

RESULTS:

Table 1. Distribution of sample by their demographic characteristics

No.	Variables		
1.	Kinship	F	%
1.1.	Father	45	45
1.2.	Mother	25	25
1.3.	Brother	20	20
1.4.	Sister	10	10
	Total	100	100
2.	Age (years)	F	%
2.1.	17-26	15	15
2.2.	27-36	33	33
2.3.	37- 46	46	46
2.4.	47 and more	6	6
	Total	100	100
3.	Educational level	F	%
3.1.	Illiterate	1	1
3.2.	Able to read and write	6	6
3.3.	Primary School graduate	10	10
3.4.	Intermediate School graduate	19	19
3.5.	High School graduate	44	44
3.6.	Institute and College graduate	20	20
	Total	100	100
4.	Age of the adults during the injury with burn (years)	F	%
4.1.	20 – 24	62	62
4.2.	25 – 29	22	22
4.3.	30 - 34	16	16
	Total	100	100
5.	Gender of the adults	F	%
5.1.	Male	38	38
5.2.	Female	62	62
	Total	100	100
6.	Working status of the parents	F	%
6.1.	Working	31	31
6.2.	Not working	69	69
	Total	100	100
7.	Monthly a family income	F	%
7.1.	Adequate	42	42
7.2.	Not adequate	58	58
	Total	100	100
8.	Ownership housing	F	%
8.1.	Rent	18	18
8.2.	Property	55	55
8.3.	Land for	11	11
8.4.	Exceed	16	16
	Total	100	100

F=frequency, %= percentage

This table reveals that the majority (45%) of Kinship of the sample were father. (46%) of age of the sample were (37- 46) years old, (44%) were graduated from High School. The majority (62%) of age of the son during the injury with burn were (20-24) years old. (62%) were female. Concerning working status (69 %) wasn't working. In relation to monthly a family income (58%) wasn't adequate. (55%) of ownership housing was property.

Table 2. Information about the status of thermal burns

No.	Items	Yes		No		Total	
		F	%	F	%	F	%
1.	Do you know the signs and symptoms of thermal burns?	69	69	31	31	100	100
2.	Do you have knowledge about the area burns account already?	38	38	62	62	100	100
3.	Do you have other family members prior knowledge of the procedures used for ambulance cases thermal burns?	42	42	58	58	100	100
4.	Is the procedure followed in the ambulance burns was directly in the house?	61	61	39	39	100	100

F=frequency, %= percentage

This table indicates that the majority (69%) of family member have knowledge about signs and symptoms of burn. While (62%) of family members don't have prior knowledge of the procedures used for ambulance cases of burn. (58%) of other family members don't have prior knowledge of the procedures used for ambulance cases thermal burns.(61%) of the procedure followed in the ambulance burns was directly in the house.

Table 3. Degree of burn

No.	Source	F	%
	First-class	12	12
	Second-class	61	61
	Third class	27	27
Total		100	100

F=frequency, %= percentage

The findings of this table indicated that the majority (61%) of Degree of burn was from second-class.

Table 4. The procedure followed in the ambulance of burns was appropriate

No.	Answer	F	%
1.	Yes	19	19
2.	No	22	22
3.	To some extent	59	59
Total		100	100

F=frequency, %= percentage

The finding of this table show that the majority (59%) of the procedure followed in the ambulance of burns was appropriate to some extent.

Table 5. Thermal burn type have adults

No.	Burn type	F	%
1.	Thermal flash	27	27
2.	Heat Flame	21	21
3.	Heat cook	37	37
4.	friction hot mineral	15	15
Total		100	100

F=frequency, %= percentage

The finding of this table revealed that the majority (37%) of thermal burn type have son was heat cook.

Table 6. The mean of scores and level mean of scores related to first-aid procedures relating to situations of thermal burn when the burn occurs and applied by family member

No.	Items	Yes		No		MS	Level
		F	%	F	%		
1.	Is deported patient risk for a place?	67	67	33	33	1.67	M
2.	Do you removed the burning clothes?	50	50	50	50	1.5	L
3.	Did you Basalt clothing which has stuck to the skin?	79	79	21	21	1.79	M
4.	Is removed accessories such as time and the ring when burnt areas?	86	86	14	14	1.86	M
5.	Did you check the airway, breathing and circulation?	81	81	19	19	1.81	M
6.	Did you expose the burning cold running water for 15 minutes?	73	73	27	27	1.73	M
7.	Is using antipersonnel ice or chilled water?	78	78	22	22	1.78	M
8.	Are you allowed cold water over the burn directly Descent?	70	70	30	30	1.7	M
9.	Do you put the cream for burns over the place burn?	58	58	42	42	1.58	L
10.	Did you cover the burn with gauze Vaseline?	77	77	23	23	1.77	M
11.	Is using antipersonnel toothpaste - margarine - butter - oil over the burn?	62	62	38	38	1.62	M
12.	Do you put cotton Medical directly above the burning?	63	63	37	37	1.63	M
13.	Did you damage bubbles resulting from the burning?	74	74	26	26	1.74	M
14.	Is contacted immediately ambulance immediately if the burn of the second or third degree?	67	67	33	33	1.67	M

F=frequency, %= percentage, MS= Mean of Score, M=-Moderate, H=High

The findings of this table indicated that the level of mean of score was moderate on items (1,3,4,5,6,7,8,10,11,12,13,and 14) ,while items (2, and 9) were low .

Table 7. Analysis of variance for the difference between demographic characteristics and First-aid procedures relating to situations of thermal burn when the burn occurs by family member.

Demographic characteristics	Source of variance	Sum of Squares	df	Mean Square	F	Sig.
age	Between Groups	3.968	3	1.323	.164	.920
	Within Groups	306.436	38	8.064		
	Total	310.405	41			
Level of education	Between Groups	21.460	1	21.460	2.971	.092
	Within Groups	288.944	40	7.224		
	Total	310.405	41			
occupational status of the parents	Between Groups	19.921	2	9.960	1.337	.274
	Within Groups	290.484	39	7.448		
	Total	310.405	41			
Family's income	Between Groups	26.117	3	8.706	1.164	.336
	Within Groups	284.287	38	7.481		
	Total	310.405	41			

df =Degree of freedom , F= F-statistics , Sig.=level of Significance

The findings in this table indicate that there are no significant difference between (age, occupational status of the parents, and family's income) and First-aid procedures relating to situations thermal burn when the burn occurs by family member for adult son at ($P \leq 0.05$).while there is significant difference between Level education and First-aid procedures relating to situations thermal burn when the burn occurs by family member for adult son at ($P \leq 0.05$).

DISCUSSION:

Through the data analysis distribution of demographic variables table (1) reports that most of the sample are father and this account for 45 (45%) of the sample.

This result is similar to the results obtained from studies done by Panté, (2009). These results indicate that the majority of sample are father [5].

The majority age of sample 46 (46%) were (37-46) years old. Regarding educational level of sample the majority of sample which account 44 (44%) were graduated from High School. This finding is similar to the results obtained from study done by Smith, (2014) [6].

Concerning the age of adults during the injury with burn 62 (627%) were (20-24) years old. These findings are supported by Jacobs, (2010) [7].

With regard to gender of adults 62(62%) were female. This finding is similar to the results obtained from study done by Scallan, et al., (2014) [8].

Concerning working status 69 (69 %) wasn't working. In relation to monthly a family income 58(58%) wasn't adequate.

55 (55%) of ownership housing was property.

These results disagree with study that indicate working status (80 %) was working. monthly a family income (65.3%) was not adequate. (55%) of ownership housing was property [3].

Table (2) indicates that the majority (69%) of family member have knowledge about signs and symptoms of burn. While (62%) of family members don't have prior knowledge of the procedures used for ambulance cases of burn.

These results disagree with study done by Eric, (2014) that indicated (80%) of family member has knowledge about signs and symptoms of food poisoning, and (82 %) of family members have prior knowledge of the procedures used for ambulance cases of thermal burn [9].

(58%) of other family members don't have prior knowledge of the procedures used for ambulance cases thermal burns. (61%) of the procedure followed in the ambulance thermal burn was directly in the house.

This result is supported by Gianella, (2014); they indicate that the majority of family member says the procedure followed in the ambulance thermal burn was appropriate and the procedure followed in the ambulance thermal burn was directly in the house. However (40%) of son suffering from burn have another disease [10].

Table (3) indicated that the majority 61(61%) of degree of burn was from second-class. **The result of present study agrees** that indicated the majority of degree of burn was from second-class [11].

Table (4) show that the majority (59%) of the procedure followed in the ambulance of burns was appropriate to some extent. The result of present study disagrees with study that indicated the majority of the procedure followed in the ambulance of burns wasn't appropriate [4].

Table (5) revealed that the majority 37 (37%) of thermal burn type have adults was heat cook. This result agrees with results done by Sodha, et al. (2014) which indicated the majority of thermal burn type have son was heat cook [12].

The study shows the level of mean of score was moderate on item (Is deported patient risk for a place?, Did you Basalt clothing which has stuck to the skin?, Is removed accessories such as time and the ring when burnt areas?, Did you check the airway, breathing and circulation? , Did you expose the burning cold running water for 15 minutes?, Is using antipersonnel ice or chilled water? , Are you allowed cold water over the burn directly Descent? , Did you cover the burn with gauze Vaseline? , Is using antipersonnel toothpaste - margarine - butter - oil over the burn? , Did you damage bubbles resulting from the burning? , Is contacted immediately ambulance immediately if the burn of the second or third degree?). While items (Do you removed the burning clothes? , Do you put the cream for burns over the place burn?) was low. Table (6)

This result agree with results obtained from study done by Longphre, et al. (2011) which indicated that most of items related to First-aid procedures relating to situations thermal burn when the burn occurs was moderate level mean of scores.[13]

Analysis of the result of the study shows that there are no significant difference between (age, occupational status of the parents, and family's income) and First-aid procedures relating to situations thermal burn when the burn occurs by family member for adult son at ($P \leq 0.05$).while there is significant difference between level of education and First-aid procedures relating to situations thermal burn when the burn occurs by family member for adults at ($P \leq 0.05$). Table (7).

This result agrees with study done by Phillip and Dennis, (2013), which showed that there is significant relationship between level of education of family member and first aid procedures relating to situations thermal burn when the burn occurs. [14]

CONCLUSION:

The study concluded most of family member don't have prior knowledge concerning the procedures used for ambulance cases of thermal burn.

RECOMMENDATIONS:

Increase health education with focusing on the effect of thermal burn and how to first aid it through T.V. programs, radio, newspaper, and medical magazines …etc.

Guide booklets or information sheet should be printed and distributed to families about burns and first aid it these booklets or information sheet should be written in a simple style and handed out freely.

REFERENCES

1. Peden, Margie (2008). World report on child injury prevention. Geneva, Switzerland: World Health Organization. p. 86. ISBN 978-92-4-156357-4. | 2. National Burn Repository Pg. i | 3. Herndon D (ed.). "Chapter 4: Prevention of Burn Injuries". Total burn care (4th ed.). Edinburgh: Saunders. p. 46. ISBN 978-1-4377-2786-9. | 4. "Fire, Burns and Scalds Prevention". Safe Kids Worldwide. Retrieved 18 October 2014. | 5. Panté, Michael D. (2009). Advanced Assessment and Treatment of Trauma. pp. 192–194. ISBN 978-07-6378114-9. Retrieved 19 October 2014. | 6. "Burns". KidsHealth. Retrieved 13 October 2014. | 7. "Contact Burn Treatment". Burn Remedies. Retrieved 18 October 2010. | 8. "Fire Safety Tips". Safe Kids Worldwide. Retrieved 18 October 2014. | 9. Eric D. Morgan; William F. Miser. "Skin burns". UpToDate. Retrieved 18 October 2014. | 10. "Burns and Scalds Prevention Tips". Safe Kids Worldwide. Retrieved 18 October 2014. | 11. "Burns". MedlinePlus Medical Encyclopedia. U.S. National Library of Medicine. Retrieved 19 October 2012. | 12. "Burn Triage and Treatment: Thermal Injuries". Radiation Emergency Medical Management. U.S. Department of Human and Health Resources. Retrieved 19 October 2014. | 13. "Acute Thermal Burn Injury". Undersea and Hyperbaric Medical Society. Retrieved 26 October 2011. | 14. Phillip L Rice, Jr.; Dennis P Orgill.2013. "Emergency care of moderate and severe thermal burns in adults". |