

Pre-Hospital Practices Performed For Children With Burn Injuries

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Abstract

The purpose of this study was to evaluate the first aid practices that the mothers do in their burned children. The study was conducted a descriptive study in burn centers of a university hospital province, between August 2015 and May 2016. The study population consisted of inpatient children aged 1–12 years who were treated in burn centers in hospital during the study period, along with their mothers. The study was carried out in the related hospital with a total 108 children and their mothers who met the research inclusion criteria. In our study, mothers were asked what kind of first-aid they apply when a burn has occurred and found that 48.1% of them spill water over the burn area. When the age of the participant children and the types of burns were examined, it was found that the burn rates of the 1-6 age group were higher in all types of burns than the other age groups.

Key words: *Burn, first aid, child burn, nursing care.*

Introduction

The tissue damage caused by heat, electricity, chemical substances and radioactive rays is called as burn (1). The majority of burn patients (53.6%) are children (2). Encountering children with burns more commonly in this age group might be because of the children's lack of self-protection, because of being too curious, not being aware of the dangers of heating devices like stoves, poking plugs with metals and getting in their mother's way while they are cooking (3). Burns is the fourth most frequent cause of injury and the top fifteenth among the injuries leading to death in children (4, 5). Deaths linked to burns in children are 10 times more in developing countries than in developed countries (4, 6-8).

The fact that burn has high rates among the causes of injury and death has led to much researches on this subject. Diler et al. have reported that the most common causes of burn in children are hot fluid burn 87.4%, flame burn 9.7%, electric burn 2.3% and hot object burn 0.6% (9). Aytaç et al. investigated the causes and rates of burns, and found that 68.8% of them are scalded, 21.5% are flame burns, 3.8% are burns caused by contact with a hot object, and 1.1% are chemical burns (10).

Neglect, abuse, poverty, insecure home environment, interparental conflict, risky behaviors, learning difficulties, depression, arson behavior are among the risk factors for burns in children (11). These risk factors should be assessed and necessary precautions need to be taken. Children need the help of an adult in creating a safe environment for themselves and in protection from accidents (12). The vast majority of burns are due to carelessness and insufficient measures to be taken and about half of them can be prevented by educating parents and children (12, 13). The precautions to be taken and correct first aid practices should be taught to the families. The most important task in this regard falls to professional health professions. Nurses, in particular, who work in all parts of the community have the opportunity to evaluate accidents, to identify risks and to implement applications for reducing these risk factors with home visits (14).

In the researches conducted, it was found that cold water application is the most commonly used first aid intervention after burns. Additionally, some of the methods used are; to put ice, onion wrap, mud bath, applying toothpaste, yoghurt, tomato paste, shoe polish, inking, unpeeled apple, tomato paste, buttery, egg yolk, iron rust and salt and putting raw potatoes (15-17). It is crucial to know what should be done as well as to know what shouldn't be done in first aid practices (17). In this respect, foreign substances used for burn treatment are misapplications in terms of infection, prolongation of the healing process and poor cosmetic

results (18). For this reason, the first intervention after burn is very important. The purpose of this study is to evaluate the first aid practices that the mothers do in their burned children.

Method

The study was conducted as descriptive study in burn centers of a university hospital province, between August 2015 and May 2016. The study population consisted of inpatient children aged of 1–12 years who were treated in burn centers in related hospital during the study period, along with their mothers. The study was carried out with total 108 children and their mothers who met the research inclusion criteria. Any sample selection was not performed during the study; rather, whole effort was made to reach all inpatient children and mothers during the study period. The inclusion criteria for the study were as follows: 1-12 aged group of children, mothers who agreed to participate in the research and had no audiovisual or psychological problems.

A questionnaire was developed by the researchers. Data were collected through face-to-face interviews with mothers of inpatient children in the burn centers of the respective hospital. Data collection time was approximately 20-25 minutes for each participant. Immediately after data collection, the “First Aid for Burns” pamphlet, which was created by the researcher using the relevant literature to raise awareness about the correct first aid practices for burns, was distributed to mothers (19). Legal permission was obtained from the relevant institutions to conduct the study. The research began after approval from the Ethics Committee was received. Official permissions from the respective hospital was obtained to collect the study data. Informed consent was obtained from mother.

Demographic and other individual characteristics of participants were reported using descriptive statistics. Then we conducted bivariate analyses using percentage distributions, means, and the chi-square test. Statistical significance was considered at $p < 0.05$. All analyses were conducted using the Statistical Package for Social Science (PASW) software version 18.

Results

81.5% of the children who participated in the study were between the ages of 1-6, 63% were male. The economic situation of the families was examined and 46.3% had a moderate income and 63% were living in the countryside. 74.1% of the participant mothers in this study were between the ages of 19-34 and 50% were not literate. (Table 1).

Table 1. Descriptive characteristics of patients and their mothers

Descriptive characteristics	N	%
Age of the child		
1-6	88	81.5
7-12	20	18.5
Gender of the child		
Girl	40	37
Male	68	63
The economic situation of the family		
Good	33	30.6
Middle	50	46.3
Bad	25	23.1
Living Place		
Rural	68	63
City	40	37
Maternal Age		
19-34	80	74.1
35-Above	28	25.9
Mother Education		
Illiterate	54	50
Junior-High School	38	35.2
Literate-primary school	16	14.8

The burn injuries of the children who were participating in the research and the interventions of the mothers to the burns were examined. It was found that 76.9% of the children were scald burn, and 50% were second degree burn. Mothers were asked about their first aid attempts when a burn was occurred and it was determined that 48.1% of them applied water over the burn and 61.1% of them had learned the application that they use on their own. 50% of the mothers stated that they applied to a health institution within 1 hour and 60.2% of them stated that they went to an emergency services (Table 2).

The descriptive characteristics of the children and the mothers participating in the study were compared with the information about the burn. It was seen that the children of the participant mothers, who are middle school-high school graduates, between 19-34 years old, of this research, mostly had burns in type of scald and the difference between the groups was significant. ($p < 0.001$). A large majority of the mothers ages 19-34 reported that they applied cold water to the burn area in the event of burns and that they had benefited from this intervention at a high rate. It was found that the difference between the groups was significant in terms of the age of the mothers and the first interventions that they applied and benefiting from the application ($p < 0.001$). Middle school and high school graduate mothers who participated in the research stated that they learned this practice on their own. It was found that most of the illiterate mothers took their burnt children to the hospital on the same day (Table 3).

Table 2. Informations related to burn

Variables related to burn	N	%
Type of the Burn		
scald	83	76.9
Flame, Stove, Oven	23	21.3
Chemical	2	1.9
Degree of the Burn		
1st Degree Burn	18	16.7
2nd Degree Burn	54	50.0
3rd Degree Burn	36	33.3
First-aid Applications to the Burns		
Doing nothing	9	8.3
Cold water application	52	48.1
Removing clothes	23	21.3
Ointment application	6	5.6
Applying oil	4	3.7
Ice application	8	7.4
Wrapping cloth	6	5.6
Application Learned From		
Self	66	61.1
Environment	28	25.9
Relative	14	13.0
The State of the Application's Benefit		
Some	31	28.7
Yes	63	58.3
No	14	13.0
Time period of Applying to a Health Organization		
In an hour	54	50
In the same day	54	50
First Applied Health Facility		
The health clinic	9	8.3
Children's Hospital	34	31.5
Emergency	65	60.2
Type of the Heating Device		
Stove	88	81.5
Heater	20	18.5

Table 3. Comparison of descriptive characteristics of mother and children with burn-related information

Variables related to burn	Children's Age 1-6 years old / 7- 12 years old	Gender of the Child Female/ Male	Living Place Rural / City	Mother's Age 19-34 / 35- above	Mother's Education Level Illiterate/Junior-High School /Literacy-Primary School	The State of the Application's Benefit Some/Yes/No
Type of the Burn						
Scald Flame,	69/14	25/58	32/51***	68/15***	31/38/14***	
Stove, Oven	17/6	13/10	8/15	10/13	21/0/2	
Chemical	2/0	2/0	0/2	2/0	2/0/0	
First-aid Applications to the Burns						
Doing nothing				5/4	4/2/3	0/9/0
Coldwater application				42/10***	20/26/6*	10/36/6***
Removing clothes				22/1	9/7/7	3/18/2
Ointment application				4/2	2/4/0	4/0/2
Applying oil				1/3	4/0/0	0/0/4
Ice application				6/2	6/2/0	8/0/0
Wrapping cloth				0/6	6/0/0	6/0/0
From whom the Application is Learnt						
Self					22/28/16***	
Environment					18/10/0	
Relative					14/0/0	

Discussion

Burns are traumas that occur with heat, electricity, chemical substances, and radioactive rays, and has a high mortality rate in younger and older ages (20). One of the most important causes of morbidity and mortality in home accidents is burns (21) and it is one of the top fifteen causes that lead death in children (22). Burn-related deaths in children are 10 times more in developing countries than in developed countries (4, 6).

Who participated 76.9% of the children in this research had scald type of burnt. Diler et al. found that hot liquid burns were in the first place among the most common burn causes in children with 87.4% (9), it was found that the rate of scald in the 0-18 age group was 76.2%, in the study of Aytaç et al. (10), scalds were in the first place among the causes of burns (%68.8), Kocatürk et al. (23) determined that 65.4% of burns were hot liquid burns caused by the spilling of hot water, tea, pudding, etc. over the body. When the literature is examined it is seen that the rates of scald burns are also high in different regions of the world. According to a study conducted by Lin et al. In Taiwan, it was found that scald burns in children constitute the highest burn type with 76.2% (24). Also in Japan, a study conducted by Fukunishi et al. found that the rate of burns caused by fluid is 80.8% (25).

In our study, mothers were asked what kind of first-aid they apply when a burn has occurred and found that 48.1% of them spill water over the burn area. Battaloğlu et al. found that 44.5% of the mothers applied cold water as first aid in case of burns (26). Also, in the research conducted by Kavurmacı and Küçüköğlü, it was found that in case of burns, one of the primary first aid attempts of mothers is cold water application (18).

When the age of the participant children and the types of burns were examined, it was found that the burn rates of the 1-6 age group were higher in all types of burns than the other age groups. Şayık et al. also found that the rate of burns among 0-5 age group children was higher than the other age groups (27). In the research conducted by Kavurmacı and Küçüköğlü, in the 0-6 age group children, the rate of burns were found high in all types of burns (18). The high rate of burns of children in this age group, who are in the process of crawling and walking, may be due to insufficient domestic precautions and the lack of adequate watch of the children by the caretaker.

When the sexes of children and types of burns were examined, the burn rate of girls by flame/ stove/ oven and chemical burns was higher than that of boys. The fact that, according to

Turkish culture girls spend more time with their mothers and that their playgrounds are often home, may have caused this finding.

When the type of living place and the type of burn were examined, it was found that the burn incidence rates in the city were higher in all types of burns and the difference between the groups was significant ($p < 0.001$). In the research conducted by Kavurmacı and Küçüköğlü, it was found that there are more burn types in rural areas (18). In Turkish society, mothers usually undertake the responsibility of child care. The fact that also mothers work in urban life requires that one of the elderly family members, such as grandmother, to take care of the child. This finding can be attributed to the fact that elderly people are hardly watch and protect an active child.

According to the study results, the burn rates of children of 19-34 age group mothers were found to be higher in each type of burn and the difference between the groups was significant ($p < 0.001$). This can be because of the inadequacy of the young mother's in protection of children, awareness of possible domestic risks and domestic risk reduction behaviors.

When the education levels of the mothers and the types of burns were examined, it was found that the scald burns occurred in middle school and high school graduate mothers' children, and the other burn types occurred in children of illiterate mothers. The difference between the two groups was statistically significant ($p < 0.001$). All in all, the education level of the mothers participating in the survey seems to be low. Also in the conducted researches, it was found that the level of education of burnt children's mothers was low (18, 26, 27).

The age of the mothers was compared with the first aid application to the burn area, and the mothers in the 19-34 age group were found to apply mostly water to the burnt area. The difference between the groups was significant ($p < 0.001$). In the research conducted by Kavurmacı and Küçüköğlü, it was found that the first-aid that young mothers applied in case of burns is cold water (18).

Educational levels of mothers were compared with the first-aid applications that they use in case of burns. It was found that the mothers with high education level preferred to apply cold water as first aid in case of burns and the difference between the groups was significant ($p < 0.05$). In the research conducted by Yalın in 1988 (28) and by Sezen in 1994 (29), it was found that there are many misapplications like applying egg yolk, engine grease, spirit, molasses, tahini etc. In Turkey, the rate of orientation towards traditional practices in case of diseases and accidents is high. Tortumluoğlu et al. found similar results in their study and

found that a great majority of applications (toothpaste, yoghurt, calcium bleach, tomato paste, iron rust, etc.) were harmful applications. It was deduced that these applications are preferred by elderly and undereducated individuals. According to these results, it can be said that as the level of education increases, the level of the usage of traditional practices decreases and the rate of preference of the correct first aid application increases (16). Additionally, in the researches it seems that there is a significant improvement in the first aid attempts being made in case of burns. It can be argued that this situation may also arise from the regional differences in the first aid attempts.

When the applied first aid and the benefit of that first aid application were examined, it was found that the mothers who applied water were benefited from the application with a high rate. The difference between the groups was statistically significant ($p < 0.001$). Considering other applications, cold application to the burn area is known to be both a correct and a useful intervention as a first aid attempt (19). Benefiting from the applied practice can be explained with this ground.

The educational level of the mothers was compared with the information source that they learned the application. It was found that secondary school-high school graduates learned the application on their own and the difference between the groups was significant ($p < 0.001$). This finding can be explained with the increased use of mass media and different sources of information such as television and the internet, and also the increase in the level of knowledge about the application of correct first aid attempts in probable accidents.

Conclusion

In this study, the lack of information and practice in preventing domestic accidents, the causes of the inability to create a safe home environment suitable for children and the high rate of exposure of children to burns were found. However, it is seen that the first-aid applications after the burns are correct interventions and there is an improvement in first aid interventions from past to present. In the light of these results, it is considered that especially parents and families should be informed about creating safe home environment and preventing domestic accidents.

Conflict of Interests

The authors declare that no conflict of interest exists.

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