Determination of the Pre-Hospital Practices Performed for Children with Burn Injuries

Çocuklarda Meydana Gelen Yanıklarda Hastaneye Başvuru Öncesi Yapılan Uygulamaların Belirlenmesi

Hastaneye Başvuru Öncesi Yapılan Uygulamalar / Pre-Hospital Practices Performed

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Özet

Amaç: Bu araştırma, yanıklarda hastaneye başvuru öncesi yapılan, ilk uygulamaların ve bunları etkileyen faktörlerin belirlenmesi amacıyla yapılmıştır. Gereç ve Yöntem: Araştırma, Erzurum'da bulunan iki hastanenin yanık ünitelerinde, Aralık 2013-Ağustos 2014 tarihleri arasında yapılmıştır. Araştırmanın evrenini, çalışmanın yapıldığı tarihlerde, ilgili hastanelerin yanık ünitelerinde yatarak tedavi gören 0-12 grubu çocuklar ve anneleri oluşturmuştur. Çalışma, araştırmaya alınma kriterlerine uygun olan toplam 121 çocuk ve onların anneleri ile yürütülmüştür. Verilerin toplanmasında anket formu kullanılmıştır. Veriler, yüzdelik dağılımlar, ortalama ve ki-kare testi kullanılarak değerlendirilmiştir. Bulgular: Araştırma sonucunda; Yanık meydana geldiğinde annelerin yaptığı ilk uygulamanın soğuk suya tutup kıyafetlerini çıkarma olduğu (%57.9), ikinci olarak (27.3%) yalnızca soğuk su uygulama, daha sonra yaptıkları uygulamanın ise, başka bir uygulama yapmadan çocuğu hastaneye götürme (%75.2), yanık yarasının üzerine zeytin yağı sürme (%10,7), yanık yarasının üzerine yoğurt sürme (%8.3) olduğu saptanmıştır. Tartışma: Yapılan araştırma sonucunda annelerin ilk yardım bilgilerinin yeterli düzeyde olmadığı ve eğitim seviyesi düşük olan, kırsal alanda yaşayan ve yaşı küçük olan annelerin daha hatalı ilk yardım uygulamaları yaptıkları saptanmıştır.

Anahtar Kelimeler

Yanık; Çocuk; Anne; İlkyardım; Hemşire

Abstract

Aim: The objective of this study was to determine the first aid practices performed and, effecting factors in burn injuries in before hospital admission. Material and Method: The study was conducted in burn centers of two hospitals in the Erzurum, between December 2013 and August 2014. The population was consisted of inpatient children aged 0-12 years who were treated in burn centers of related hospitals and their mothers at the date of the study. The study was carried out with a total of 121 children and their mothers who met the research inclusion criteria. Questionnaire data was used to collect data. In data analysis, percentage distributions, means and chi-square test were used. Results: It was found that, children' mothers applicate the cold water first when the burns ocur (57.9%), secondly only applying cold water (27.3%), then the mothers took off their children to hospital not to any application (75.2%), burn wound on the olive oil riding (10.7%), burn wound yogurt riding (8.3%). Discussion: As a result, it was determined that children' mothers don't have an adequate level of first-aid knowledge, and younger mothers with low levels of education living in rural areas perform incorrect first aid practices.

Keywords

Burns; Children; Mother; First Aid; Nurse

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Introduction

Burns in childhood represent a significant issue due to both the challenging treatment process and the physical and psychological trauma suffered by the child and his/her family [1]. In high-income level countries, the numbers of burn injuries have substantially decreased as a consequence of changes in first aid training, good socioeconomic status, and important improvements in the treatment of burns [2]. However, similar improvements have not been observed in low and middle income level countries such as Turkey [3]. In studies conducted in different cities within Turkey, the rate of burns in children was found to be 40–75% [4]. Although the mortality rate is lower in children compared to adults, burn injuries are still among the significant reasons for death in children [5].

Developmental and family characteristics combination increase, the risk of burn injuries in children. Many factors, such as movements of small children to explore their surroundings, their ability to reach hot liquids and other flammable substances, negative conditions home, overcrowded environment, child negligence and abuse, playing with matches or dangerous fire setting behavior fire-setting behavior, and unsafe movements pose a risk for burns in children [6,7].

Burns and scalds in most babies and young children are caused by boiling water. These are followed by burns from flame, hot contacts, and electrical and chemical burns [8, 9]. Despite technological progress, burns are still a serious, life-threatening problem. The most inexpensive and efficient method of dealing with this concern is through preventing burns before they occur [10]. Therefore, a number of security measures should be put in place and families' awareness of this issue should be enhanced in order to protect children from burns [11]. When burns occur, correct first aid practices are very important to reduce the width of the burn and possible complications in patients [12]. A conscious effort is required to engage in these practices, since performing them incorrectly may threaten health and cause poor cosmetic results in burns [13, 14].

Nurses have the greatest responsibility for the care of children with burns treated in hospitals. The nurse is the healthcare worker that has the most contact with patients among the burn team; moreover, the nurse has a primary role in training families on first aid practices required for burn injuries and facilitating the patient's psychological adjustment [15]. The aim of this study is to assess pre-hospital practices performed for children with burn injuries and affecting factors these practices in the age group of 0–12 years.

Material and Method

Study setting

The study was conducted as descriptive in burn centers of a university hospital and a state hospital in the Province of Erzurum, Turkey, between December 2013 and August 2014.

Sample size and sample tecnique

The study population consisted of inpatient children aged of 0–12 years who were treated in burn centers in related hospitals during the study period, along with their mothers. The study was carried out with total 121 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:

• 0-12 aged group of children, children with second- to third-degree burns (first-degree burns were not included in the study because patients with first-degree burns are not hospitalized),

• Mothers who agreed to participate in the research and had no audiovisual or psychological problems.

Data Collection

Questionnaire

A questionnaire was developed by the researchers based on the literature data and used for data collection [16-19]. Data were collected through face-to-face interviews with mothers of inpatient children' in the burn centers of the respective hospitals. Data collection time was approximately 15-20 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 [6, 7, 20, 21].

Ethical considerations

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 hospitals were obtained to collect the study data. Informed consent was obtained from mother which under 7 years age of children. For children 7 years and older consent was obtained from both the mothers and themselves.

Statistical analysis

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

It was found that 68.6% of children participating in the study were aged 0–6 years age group, 55.4% were male, and 62.8% lived in a rural area. Looking at the characteristics of the children' families, 57.8% had an intermediate level of income; 62.8% lived in rural areas; 67.8% lived within a nuclear family; 95.9% of the mothers was housewives, of which 45.5% were illiterate; and 82.6% of the fathers was self-employed (farmers, builder's laborers, cleaners, etc.), and 48.8% was primary school graduates (Table 1).

It was found that the first practices in the burns area were "applying cold water and removing clothes." Following these practices, 75.2% of the participants took their child to hospital without performing any other intervention, 10.7% applied olive oil burn wounds, 8.3% applied yogurt burn wounds, and 5.8% applied toothpaste or grated potatoes burn wounds. Of the people who performed first aid on the burn wounds, 70.2% were found to be the mother of the child with burn injuries. It was determined that 82.6% of children were taken to the hospital on the day of the accident; moreover, hospitals were the first

Table 1. Distribution of descriptive characteristics of children, their mothers and burn.

Descriptive characteristics	N	%
Age of children		
0-12 month	16	13.2
1-6 age	83	68.6
7-12 age	22	18.2
Gender of children		
Famale	54	44.6
Male	67	55.4
The income level of the family		
High	12	9.9
Middle	69	57.0
Low	40	33.1
Place of residence		
City	45	37.2
Town	76	62.8
Type of family		
Nucleus	82	67.8
Extended	39	32.2
The age of the mother	30.59±6.08	
Age of mother		
19-34 age	88	72.7
35 age and ↑	33	27.3
The occupation of mother		
Homemaker	116	95.9
Working	5	4.1
The education of mother		
Illiterate	55	45.5
Literate/primary school	49	40.5
Junior high school/high school grad	17	14.0
Type of burn		
Scald burns	93	76.9
Flame burns	22	18.1
Electrical burns	6	5.0
Place of being burn		
Kitchen	33	27.2
Living room	67	55.4
Other	21	17.4
Total	121	100.00

Table 2. Distribution of first aid applications applied to burn area

First aid applications	N	%
The first aid application when burn occur	70	57.9
Applying cold water and removing clothes	33	27.3
Only applying cold water	18	14.9
Take away without doing nothing		
The application was later	91	75.2
Took to hospital without performing any other intervention		
Applied yogurt to the burn wounds	10	8.3
Applied olive oil to the burn wounds	13	10.7
Other*	7	5.8
The person who performing first aid		
Mother	85	70.2
Father	8	6.6
Grandma	17	14.0
Other**	11	9.1
The time to contact to the hospital		
On the same day	100	82.6
After 1-2 days	21	17.4
First referenced health institutions		
Emergency room	36	29.8
Cottage hospital	28	23.1
Hospital	57	47.1

* Applied toothpaste or grated potatoes to the burn wounds, ** Neighbors, relatives

medical institutions to which children were admitted (Table 2). If we look at the burn characteristics of the children, statistically significant difference was found between the children' age group, gender, type of burn, and place of the burn accident; between children' place of residence and place of the burn accident; and between the burn practices and the first health institution to which the children were admitted. In relation with the burn characteristics of children, the mother's age was found to be related to the type of burn, place of burn accident, and first practices performed on the burn injury. Moreover, the mother's educational level was determined to be correlated only with the first interventions performed on burn injuries (Table 3).

Discussion

In the past 5 years, 120,000 children have been admitted to hospitals as a result of home accidents in Turkey [22]; approximately one-third of these accidents were burn cases [23, 24]. As a result of this study, burns were found to be more prevalent in preschool children aged 0–6 years. In the literature, by far the most burn cases were reported to have occurred in the preschool period [25, 26]. Different behavioral and physical characteristics from adults, lack of awareness of the dangers, curiosity, their highly mobile nature, and living areas not suitable for children are among the reasons for high prevalence of burn cases in preschool children [27].

Looking at the first practices in burn injuries, it was found that more than half of the people performing first aid applied cold water and removed clothing from the area, 27.3% applied cold water only, and 14.9% took the child to the hospital without any intervention. Looking at the following these practices, 75.2% took the child to the hospital without performing any intervention other than applying cold water and/or removing clothing from the area, 10.7% applied olive oil to the burn wound, 8.3% was applied yogurt to the burn wound, and 5.8% was applied toothpaste or grated potatoes to the burn wound. In a study previously conducted in Turkey, it was found that 67.6% of mothers applied cold water to their children's burn wounds, 11% applied ice, 5.5% applied tomato paste, 5.5% applied toothpaste, and 3.7% applied butter on the burn area [28]. In their study, Battaloğlu-İnanç et al. was found that 44.5% of mothers applied cold water to burn wounds, 14.8% applied ice and took the child to the hospital, and 3.7% applied tomato paste, toothpaste, yogurt, or another home remedy [1].

In this study, it was reported that mothers, grandparents, and fathers were the persons applying the first aid respectively. Similarly, another study reported that most first aid practices were applied by mothers [23]. Knowledge and application of the

Table 3. Comparison of descriptive characteristics of children and mothers according to burn features

Distribution of burn features	Age of children 0-12 month/ 1-6 age/7-12 age	Gender Female/ Male	Place of residence City/Town	Mother age 19-34/35 and ↑	Mother education Illiterate/ Literate-primary school /high school
Type of burn					
Scald burns	16/67/10**	47/46*		75/18**	
Flame burns	0/15/7	7/15		13/9	
Electrical burns	0/1/5	0/6		0/6	
Place of being burn					
Kitchen	4/23/6	14/19	19/14	25/8	
Living room	12/51/4**	36/31*	20/47*	55/12**	
Other	0/9/12	4/17	6/15	8/13	
The first aid application when burn occur					
Applying cold water and removing clothes			24/46*	48/22*	47/36/7*
Only applying cold water			18/15	30/3	19/6/8
Take away without doing nothing			3/15	10/8	9/7/2
The application was later					
Took to hospital without performing any other intervention			38/53*		
Applied yogurt to the burn wounds			1/9		
Applied olive oil to the burn wounds			6/7		
Other*			0/7		
First referenced health institutions					
Emergency room			20/16		
Cottage hospital			5/23		
Hospital			20/37*		

proper first aid practices on the part of the parents, who are the closest to the child and responsible for their supervision, may save the child's life; in contrast, incorrect practices may lead to injury and death [11, 23]

In the study, scald burns were found to be most prevalent in all age groups. Aytac et al. was also found that scald burns are more frequent in all age groups than other types of burns [16]. In the comparison of the age groups of the children and place of the burn accidents, it was determined that most burns occurred in children aged 0–12 months and 1–6 years, and most often in sitting rooms. This can be explained by referring to the cold winter months in the Province of Erzurum; severe hard winter conditions caused children to spend most of their time indoor areas such as the home, and particularly the sitting room, rather than open playgrounds.

Comparison of the genders of children, types of burns, and locations of the burn accidents, it was found that most burn incidents occurred in sitting rooms and scald-type burns were more common in female children. In the study results, the majority of burn accidents experienced by people living in rural areas also occurred in sitting rooms ($p<0.05$). In previous studies in the literature, it was reported that burn incidents were more frequent in rural areas than urban ones [29, 30]. Factors such as the frequent use of stoves in sitting rooms for heating in rural areas in Erzurum, as well as meeting, cooking and hot water needs by using stoves result in burn accidents in sitting rooms [31]. The frequent scald burns in female children can be explained by the fact that daughters spend more time with their mothers in Turkish culture, prefer playing in the house more, and see their mothers as their role models; therefore, they try to emulate their mothers' tasks around the home.

In this study, it was found that the first practice in burns injuries in rural areas was to apply cold water and remove children's clothes from the area ($p<0.05$). The first aid to be performed immediately is very important when it comes to reducing possible complications in patients with burns, even if the size of the burn is small [32]. Application of cold water to the burn area is a useful first aid practice that reduces the risk of deep burns, edema, and fibrosis [33, 34]. However, attempting to remove adherent clothes may cause larger skin tissue losses; therefore, clothing must be cut and then removed carefully [27].

Looking at the practices following the first intervention, incorrect practices such as applying yogurt, olive oil, tomato paste, and toothpaste to the burn wounds of the children were found to be more frequent in rural areas. Applying foreign substances such as yogurt, oil, soap, toothpaste, liniments, and so on an incorrect first aid practice that may cause wound infections, delay the healing process, and lead to poor cosmetic results [35]. In the literature, interventions of families such as applying yogurt, toothpaste, and so on, when they were unaware of the correct first aid methods, were reported as significant factors bringing about morbidity and mortality [36].

In the study results, the comparison of the healthcare institutions to which patients were admitted based on the places of settlement revealed that children living in urban areas were taken to emergency services, whereas children living in rural areas were taken to the outpatient clinics of hospitals ($p<0.05$). Treatment in the first hours after a burn is vital. Therefore, it is necessary to know which primary healthcare provider a patient should be taken to. Any healthcare provider can treat patients with minor burns; however, children with more severe burn injuries should be taken to burn centers for treatment [37]. The higher rate of hospital admissions in the study indicates that families know that they need to consult healthcare providers

in burn cases.

The study results revealed that burn incidents were less common in children of mothers aged 35 years and over ($p<0.05$). In the literature, it was reported that the frequency of household accidents and health risks of children decrease as the maternal age increases, because younger mothers tend to be inexperienced [30].

Looking at the comparison of educational levels of mothers and first aid practices performed, it was found that illiterate mothers applied incorrect first aid practices more frequently ($p<0.05$). Moreover, in previous studies, burn incidents were found to be more prevalent in families with lower parental education levels [23]. In a study by Coksun et al. on the first aid knowledge of mothers of children aged 0–14 years, mothers' first aid knowledge was found to increase as their level of education increased [37].

Conclusion

In general, the study determined the following: the rate of incorrect first aid practices was higher; scald burns were more prevalent in all age groups; incorrect practices such as applying yogurt, olive oil, tomato paste, and toothpaste to the burn wounds were more frequent in rural areas; burn injuries were less common in children of mother aged 35 years or over; correct first aid practices were more frequent in older mothers (above 35 years); and incorrect first aid practices increased with lower levels of education among the mothers.

Based on these results, training should be given by nurses to parents of children aged 0–12 years on the first aid practices to be applied for burn injuries, as well as recommendations on furniture arrangement that suit the developmental characteristics of children in order to reduce the risk of burn injuries in the childhood period. Another recommendation is that comprehensive research should be conducted on this topic with larger samples. The study findings are limited to data on children aged 0–12 years with second- and third-degree burns and their mothers. Therefore, the study results can only be generalized to this group.

Competing interests

The authors declare that they have no competing interests.

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