

The effects of habitual negligence among families with respect to pediatric burns

Çocuk yanıklarında ailevi alışkanlıkların ihmale etkileri

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BACKGROUND

In this study, scald burns in a Turkish population (0-16 years of age) were studied with reference to their occurrence and common causes.

METHODS

Of the burn victims hospitalized at the Burns Unit of Ankara Numune Education and Research Hospital between April 2001 and December 2003, 354 patients were aged 3 months to 16 years and 228 (64.4%) were male.

RESULTS

When burn causes were examined, scald burns were the primary type, reported in 77.7% (275) of the patients ($p<0.001$). Scalds were the most frequent burn agents in the pediatric population. Tea is a traditional beverage in Turkey. It is consumed especially at breakfast and throughout the day until late at night. Tea in Turkey is steeped and brewed for consumption. As brewing and steeping is a time-consuming process and the tea is served hot, the appropriate level of care regarding the hot tea is neglected. Consequently, tea carries a serious potential to cause burns in this country. Of the scalded children, 93 scald burns (33.8%) were due to the tea itself or to the boiling water used in steeping tea, and 87.1% of these children were preschoolers. The mortality rate was 7.1% in the hospitalized children group.

CONCLUSION

Traditional behaviors may sometimes have some serious unexpected consequences. In households where family members tend to ignore an ongoing problem, governmental and non-governmental organizations should consider taking preventive measures to protect the children from the devastating consequences of such negligence.

Key Words: Children; habitual negligence; scald burns; tea.

AMAÇ

Bu çalışmada, 0-16 yaş arasında Türk nüfusundaki haşlanma yanıkları, meydana geliş şekilleri ve örnekleriyle değerlendirildi.

GEREÇ VE YÖNTEM

Ankara Numune Eğitim ve Araştırma Hastanesi Yanık Tedavi Merkezi'nde Nisan 2001 ile Aralık 2003 arasında yatarak tedavi gören hastaların 354'ü 3 ay ile 16 yaş arasındaydı ve 228'i (%64,4) erkek oluydu.

BULGULAR

Yanık nedenleri irdelendiğinde, haşlanma yanıkları %77,7'lik (275) oran ile en sık izlenen yaralanmaydı ($p<0,001$). Çay, Türkiye'de geleneksel bir içecek halini almıştır. Sabah kahvaltıdan gece geç saatlere dek içilen çay, Türkiye'de demlendirilip dinlendirilerek içilmektedir. Bu şekilde hazırlanmasının uzun süre alması ve sıcak içilmesi nedeniyle sıcak çaya olan dikkat zaman içinde dağılmaktadır. Bu nedenle de çay ciddi bir yanık oluşturma potansiyeli kazanmaktadır. Haşlanan çocuklardan 93'ü (%33,8) doğrudan çayla veya çay hazırlanmasında kullanılan sıcak suyla yanmıştı. Bu grubun %87,1 kısmını okul öncesi kesim oluşturmaktaydı. Yatarak tedavi alan hasta grubunda ölüm hızı %7,1 bulundu.

SONUÇ

Gelenekselleşmiş alışkanlıklar bazen ciddi beklenmeyen sonuçlar getirebilmektedir. Aile bireylerinin ihmale meyilli olmasının süregelen bir problem olduğu hanelerde, çocukları böylesi ihmallerin ciddi sonuçlarından korumak için kamu ve sivil toplum örgütleri nazarında koruyucu önlemlerin alınması için gerekli girişimlerde bulunulmalıdır.

Anahtar Sözcükler: Çocuklar; ihmal; haşlak; çay.

Burns remain an important public health issue worldwide, in terms of mortality and long-term disability. There are few data available regarding the actual incidence of scald burns in children because of the lack of comprehensive reporting systems for childhood injuries. However, preventable injuries are the leading cause of death in children aged 1 to 16 years.^[1] It is also well known that almost 90% of the burns are preventable.^[2] Burn traumas are devastating initially with their occurrence and subsequently with their consequences, as they may cause important physical and psychological sequelae. Because they are often explained as accidental, it is more difficult to differentiate the real etiology of child burns.

Some cultural behavioral patterns may become risk factors. In the case of burns, for instance, some clothing styles have been suggested as the cause of burns. A report from Iran states that the religious dress code that requires the covering of the whole body causes larger and deeper burns than usual.^[3] Changes in the daily routine have also been reported to increase burn cases among children. In a report from Denmark, it was stated that a transition from the habit of drinking coffee to drinking tea increased the burn rate among children due to kettle water, which was subsequently diminished just by shortening the length of the electrical cable of the kettles.^[4,5]

In this study, scald burns in a Turkish population (0-16 years of age) were studied with reference to their occurrence and common causes.

MATERIALS AND METHODS

This study was conducted at the Burns Unit of Ankara Numune Education and Research Hospital. It is a tertiary referral burns unit operating in the capital of Turkey since 1976. The patient spectrum covers all but the far west of Turkey. The unit has pediatric and adult wards. As notification of burn injuries is not required in our country, it is almost impossible to cite definite data reflecting all burns nationwide. Thus, our study included all the burn patients hospitalized in our department from April 1, 2001 to December 31, 2003. Data were obtained from the medical records of the patients, all of whom were prospectively followed.

Of the hospitalized patients, victims who were 16 years of age or younger were included in the study. To reveal the impact of familial habits on the burn etiologies, the patient population was divided into two groups as preschoolers (0-6 years of age) and the older children. During the study period, 2386

patients were examined at the burns clinics and 753 of them were hospitalized. Criteria of the American Burns Association were used in hospitalization. Of the 753 patients, 354 (47%) were aged 16 years or younger, and this group was studied.

The SPSS for Windows (version 11.0, Chicago, IL) was used to assess the factors in the occurrence of scald burns in pediatric patients. Pearson chi-square, Fisher's exact and Mann-Whitney U tests were used for univariate analyses. A multivariate analysis was performed using a backward logistic regression analysis. The optimum cut-off values were determined using receiver operator characteristics (ROC) curve analysis. A probability lower than 0.05 was accepted to be statistically significant.

RESULTS

Of the 354 patients, 228 (64.4%) were male and 126 (35.6%) female. The male to female ratio was 1.8:1. The mean age was 4.4±0.2 years (range, 3 months to 16 years). There were 278 (78.5%) preschoolers and 76 (21.5%) older patients. Scalds were the leading burn cause among children, with a rate of 77.7%, while they were responsible for 20.1% of burns among adult patients, and this difference was statistically significant ($p<0.001$).

The burns etiologies in the 354 patients are given in Table 1. When we examined the burn etiologies of the scald burns, while hot water was the leading factor, steps in the process of steeping tea and concentrated liquids emerged as two other important factors. The scald burns among children occurred at a rate three-fold that of non-scald burns; however, in the preschooler group, the difference was ten-fold that of non-scalds ($p<0.001$) (Table 2).

When gender was taken into consideration, females experienced scald burns more than males

Table 1. The burn agents

Burn agent	n	%
Scalds		
Hot water	113	31.9
Tea or water to steep tea	93	26.3
Concentrated liquid	63	17.8
Red-hot oil	6	1.7
Non-scalds		
Contacts	2	0.6
Inflammables	55	15.5
Electrical	19	5.4
Chemical	3	0.8

Table 2. The burns etiologies according to age

	Scalds n (%)	Non-scalds n (%)	p
Total group	275 (77.7)	79 (22.3)	
Age adjusted			
0-6	250 (89.9)	28 (10.1)	<0.001
7-16	25 (32.9)	51 (68.1)	

(86.5% and 72.8%, respectively) (p<0.002). Etiologies of the scald burns in detail according to the age groups are shown in Table 3.

The mortality rate was 7.1% (25 patients) in the whole group. In the scald burns group, the mortality rate was 6.6% while it was 11.3% in the non-scald group. In the group of the patients with total body surface area (TBSA) burned greater than 28.5%, the mortality rate significantly increased to 33.8% (22 patients) (p<0.001). The 28.5% burned TBSA was also the cut-off point for the scald burns by ROC curve analysis, and the mortality rate increased from 1.3% to 33.3% (p<0.001).

DISCUSSION

Parents of young children have many misconceptions regarding childhood injuries, and they show a limited understanding of the major causes of injury. They frequently underestimate the risk of injury to children.^[1] Most non-accidental burns occur in younger children during the most sensitive neurobiological developmental period. In our study, 275 of the 354 children were 6 years old or younger. When some disorders persist or become reactivated by an ongoing lack of safety in the child’s world, they can become persistent maladaptive traits. The learned maladaptive patterns become the legacy of negligent families and of a society that fails to act definitively in response to non-accidental burns.

Turkey is a country that bridges Asia, the Middle East and Europe. This is not solely geographical but is also cultural. Steeping the tea and brewing

are common methods of making tea in Turkey. As Turkish people are used to drinking tea almost everywhere, and at all times in their daily routine, a high-risk situation is unfortunately created for children wherever they are. The most dangerous times for scald burns in children are reported to be during the preparation of meals.^[6]

In our series, the mean patient age was 4.4±0.2, and the male to female ratio was 1.8:1, which are similar to data from previously published series.^[7] In our study group, most of the patients had scald burns (77.7%, p<0.001). This high incidence of scald burns in our patient population is in accordance with the previous reports.^[3,4] Inflammables and electrical burns followed in decreasing order. While scald burns remained the leading burn cause among preschoolers, non-scald burns were more frequently encountered among the older children (p<0.001).

The burn incidences showed some difference among the whole patient population. Scalds were more frequent among females (p=0.002) in the study group. Scald burns from hot liquids and beverages are the most common burns suffered by young children and represent 60% of unintentional scald burns.^[3,6,8] In our study, hot water, the tea itself or the water to steep the tea, and concentrated liquids were significantly more common in the preschooler group than the older group (p<0.001, p=0.012, and p=0.002, respectively). Burns due to the tea itself or to the water used in steeping the tea were the second most frequent scald burn cause in the whole group, and were encountered more frequently in the preschooler group (81 patients) than the older group (12 patients) (p=0.012). It is clear that hot beverages are not appropriate for and are not consumed by the preschooler children. Nevertheless, carelessness of the caretakers turns their innocent habits into harmful actions. Tea burns are also reported to be a major problem in Denmark with a gradual increase annually, and when electrical kettles are excluded, tea, as a burn cause, is reported to be the most

Table 3. Detailed etiologies of the scald burns in the total group according to the ages of the patients

Age	0-6		7-16		p
	n	%	n	%	
Scalds					
Hot water	105	37.7	8	10.5	<0.001
Tea/water to steep tea	81	29.1	12	15.8	0.012
Concentrated liquid	58	20.9	5	6.6	0.002
Red-hot oil	6	2.2			0.232

common cause of scalds, followed by hot water.^[4]

There were no red-hot oil burns among the older children. Soups, prepared jam syrup or marmalade, prepared traditional soup ('tarhana'), which is a mixture of foods boiled to solidification and then granulized for re-cooking, prepared tomato sauce, and hot milk were among the concentrated liquids. In the rural areas of Turkey, people still prefer preparing this kind of food themselves instead of buying it from the markets. All of these foods are boiled to the point of evaporation and the process takes a considerably long time. This factor, combined with the decreasing spontaneous care and an inappropriate milieu, places children at risk.

Preventable injuries are the leading cause of death in children.^[1] Once the injury has occurred, the goal is to preserve life and to preserve function in order to limit physical and psychological sequelae and provide social reintegration. On the other hand, unintentional scald burn injuries in young children can have devastating effects on the lives and health of many families. Burns, besides the enormous treatment costs, generally have lifelong sequelae even when managed with proper treatment strategies. To protect children from the devastating consequences of the burn injuries, efforts should be made to develop and implement preventive measures. Traditions that are potentially harmful for the children should be abandoned. Harmful effects of the traditional habits can only be avoided by means of public education or by introducing the preventive measures via attractive demonstrations, publications and broadcasting.

It is also reported that parents who were not specifically taught about injury prevention viewed injuries largely as a natural consequence of childhood and believed that they could keep their children safe in hazardous situations.^[1] This attitude can be observed in the case of tea burns in Turkey. As a result, the home is the place of burn in 94% of the cases in young children.^[3] Preventive studies and good safety practices are considered to be able to considerably reduce the number of major burns.^[9]

Education/information is the best prevention.^[4] A study reports that teaching scald burn prevention to families of young children successfully helped in the prevention of burns.^[1] It is also emphasized that 'short-sharp-shock' campaigns to raise public awareness are unlikely to be effective. Education of children was suggested as likely being the only way to raise awareness of risk from scald injury.^[6] With information through proper broadcasting of a cartoon,

92% of the burned patients are reported to be pre-treated with cooling in pre-hospital transport.^[5] In our opinion, the most valuable outcome of the study of Chuang et al. was to show the effect of broadcasting on people. No parents or caretakers can suppose to be indifferent to health care when it concerns their children. It is necessary to implement programs for health education related to the prevention of burn injuries that focus on the domestic setting. Broadcast flashes on television or radio depicting risky situations together with epidemiological data about burn accidents and sentences calling attention to strategies of preventing burn accidents might be useful strategies to reach people and to prevent burn injuries.^[3]

In conclusion, burns, as one of the catastrophic injuries in children, need greater consideration than that given to the other types of traumas. Burn injuries are often preventable. If something is preventable, it is difficult to refer to it as "accidental". In our study, traditional habits were found to be the second most important cause of burns in children and minor preventive measures could have prevented such burns. In our opinion, through the collaboration of burn associations and individuals and with the help of governmental offices, media, the World Health Organization, and non-governmental organizations, individuals with living habits likely to cause burns should be educated about the danger of burns in children and they should be trained in taking preventive measures.

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