

Do parents have knowledge of first aid management of burns in their children? A hospital based survey

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Abstract

Objective: To ascertain knowledge of first aid among parents of children suffering from burns.

Methods: The cross-sectional study was conducted at Mayo Hospital, Lahore, Pakistan, from July 2017 to January 2018, and comprised parents of patients in the paediatric burns unit. Questionnaires were filled by the duty doctor after interviewing parents, and data was collected regarding first aid, application of traditional remedies and demographic details. Optimal knowledge was defined as parent's knowledge of application of tap water on burns as first aid. SPSS 20 was used for data analysis.

Results: There were parents of 310 patients who had a mean total body surface area of burns of $25.11 \pm 13.80\%$. All (100%) accidents had occurred at home. All (100%) parents had removed their children from heat and electric source immediately after the accident, while 282(91%) stripped their children of their clothes. Only 41(13.2%) parents irrigated the burn area with tap water and 93(30%) applied traditional remedies. Further, 21(6.8%) parents had covered the burnt area with sterile dressing, while 25(8.1%) had covered the child to avoid hypothermia. One (0.32%) parent had attended a first aid course, while 13(4.2%) had knowledge of first aid because of previous history of a child having suffered from burns. Optimal knowledge was statistically associated with previous knowledge of first aid ($p=0.0001$), level of education of the parent ($p=0.003$) and monthly income ($p=0.01$).

Conclusion: The knowledge of first aid among parents was found to be inadequate and there was an urgent need to introduce campaigns focussing on prevention and first aid to manage burns, especially among illiterate and poor classes.

Keywords: First aid, Burn, Traditional remedies, Paediatric. (JPMA 69: 1142; 2019)

Introduction

Burns globally cause up to 265,000 deaths per annum. Burns predominately affect low and middle-income countries (LMICs) and have major financial and psychosocial impact. In high-income countries (HICs), morbidity and mortality are markedly reduced due to better healthcare facilities and having strategies regarding prevention and creating awareness of first aid for burns patients. In Pakistan alone, disability in burnt children is up to 18%.¹

First aid is the care given before arrival at the hospital.² Optimal first aid of burns involve "stripping of clothes, applying tap water for 20 minutes, organising help and putting on sterile dressing (STOP)".³ Tap water should be administered within the first 3 hours after the burns injury and its temperature should be 12-18 degrees centigrade.³ When given optimally, first aid prevents further tissue damage, decreases rates of surgical intervention and

reduces morbidity and mortality in burns.⁴ It also provides effective pain relief.⁵

Although optimal first aid is described in literature,³ lack of knowledge and cultural beliefs lead to application of remedies other than tap water. Traditional remedies applied include honey, ice, toothpaste, eggs, used ink or other miscellaneous substances. These traditional remedies cause more damage, and benefit of first aid is completely lost.^{6,7} It is a well-established fact that first aid knowledge is poor internationally, and lack of knowledge leads to application of many traditional remedies causing sepsis and ultimately, poor outcome.⁸

The current study was planned to ascertain knowledge of first aid among parents of burnt children presenting from all areas of Lahore.

Subjects and Methods

The cross-sectional study was conducted at the Department of Paediatric Surgery, Mayo Hospital, Lahore, Pakistan, from July 2017 to January 2018. All in-patients with no associated trauma, electric burns or congenital anomalies were selected if the parents were present at the time of the accident. Non-probability convenience sample was used and the sample size was estimated

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using 95% confidence interval (CI), 5% absolute precision and 72% expected first aid of burn patients ($n = [Z_{1-\alpha/2} \cdot p \cdot q] / d^2$).⁶

The questionnaire used was taken from literature,⁵ and it was translated into Urdu by the study team. It was pretested on 30 subjects, and was modified in the light of the pilot study as well as on the basis of discussion with the institutional ethics review board from which permission was obtained for the study. Questionnaires were filled by the duty doctor after interviewing parents from whom informed consent was obtained. Data was collected regarding demographic details of the patient, area burnt, place of injury, details of first aid, if any, application of any traditional remedies, and monthly income of parents along with their educational level and previous knowledge of first aid.

Data was analysed using SPSS 20. Mean and standard deviation (SD) of monthly income, number of siblings, total body surface area of burn (TBSA) and time period of tap water application, were measured. Outcome was measured in terms of optimal knowledge which was defined as parent's knowledge of application of tap water on burns.³

The association of monthly income, level of parental education, previous knowledge of first aid were assessed with the outcome using binary logistic regression. Also, association of application of traditional remedies with monthly income and parental education was assessed by logistic regression. $P < 0.05$ was taken as significant.

Results

There were parents of 310 children in the study. Mean TBSA was $25.11 \pm 13.80\%$. All (100%) accidents had occurred at home, and mean number of siblings was 3.61 ± 1.48 .

Regarding level of education, 141(45.5%) parents had no education, 79(25.5%) had education till primary level, 40(12.9 %) middle level, 33(10.6%) matriculation, 16 (5.2%) had graduated, and 1(0.3%) had a postgraduate degree. Overall, 39(12.6%) parents had monthly income

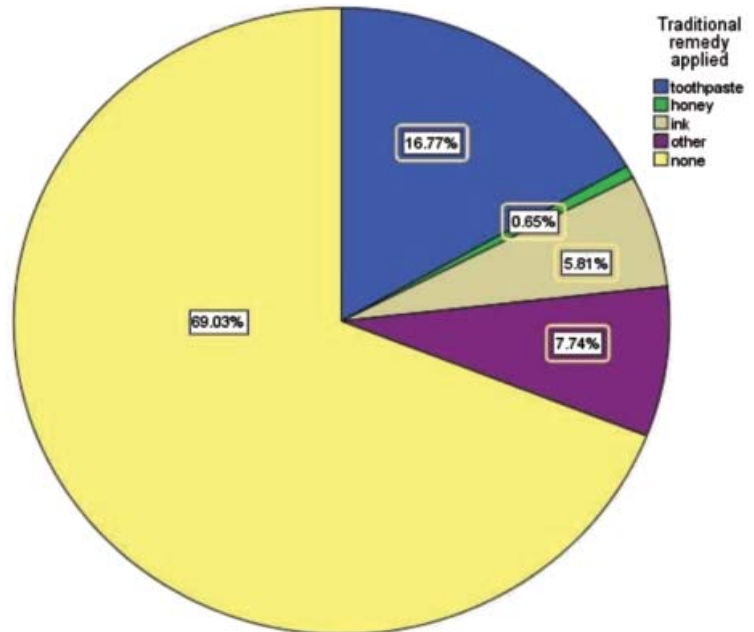


Figure: Types of traditional remedies applied.

of less than Pakistani rupees (PKR) 10,000, 75(24.2%) had PKR10-20,000, 134(43.2%) PKR21-30,000, 48(15.5%) PKR31-50,000, and 14(4.5%) had monthly income above PKR50,000.

Response to the questions regarding first aid were summarized. Only 28(9%) parents had not removed the clothes, 269(86.8%) parents had not irrigated the burnt area with tap water (Table-1), and none (0%) had irrigated it for the optimal 20 minutes. Of the total, 39(12.6%) parents had irrigated the burnt area <5 minutes, and 2(0.6%) had done it 5-10 minutes. Instead of tap water, 93(30%) parents had applied traditional remedies (Figure).

Only 1(0.3%) parent had attended a first aid course, while

Table-2: Factors associated with optimal knowledge.

Optimal knowledge	B	p-value	Odds Ratio
Level of Education	0.417	0.003	0.659
Monthly Income	0.505	0.011	1.657
Previous knowledge of first aid	4.002	0.000	54.684

Table-1: First aid treatment for burns provided by parents.

S	Strip clothes and remove from heat source	310 (100%) removed children from heat source. 282 (91%) stripped clothes of children.
T	Turn on tap water	41 (13.2%) irrigated burn area with tap water.
O	Organize help and give pain killer	310 (100%) brought children to hospital. 18 (5.8%) gave children pain killer.
P	Protect burn with sterile dressing Avoid hypothermia	21 (6.8%) applied sterile dressing on burn area. 25 (8.1%) covered the child.

13(4.2%) had knowledge of first aid because of previous history of a child having suffered burns.

Optimal knowledge was significantly associated with previous knowledge of first aid ($p=0.0001$), level of education ($p=0.003$) and monthly income ($p=0.01$) (Table-2). No correlation was noted between application of traditional remedies and monthly income or level of parental education ($p>0.05$ each).

Discussion

Burns are second most common cause of unintentional injury in paediatric population.⁹ The incidence of burn in children is directly proportional to parents' socioeconomic status, crowding and level of education.¹⁰⁻¹² The dilemma we face during practice is that the parents literally have no knowledge of first aid as our masses are predominantly illiterate and poor and this leads to increased rate of hospitalization and mortality in our country. The reported mortality rate in Pakistan in various studies has ranged from 14% to 41.3%.¹¹

All the children in our study had suffered the injury while at home and the majority had presented to the emergency department within 24 hours, which is quite close to what other studies have mentioned.¹³⁻¹⁶

In our study, 265(85.5%) children suffered up to 30% burns, 35(11.3%) patients suffered 31-60% burns and only 10(3.2%) suffered more than 60% burns. A Saudi study reported 90% kids having suffered <30% burns¹³ and a Nepalese study reported 92.99%.⁹ Increased percentage of burns in our setup is mainly due to lack of education and knowledge of first aid to manage burns.

Parents of most of the affected children were illiterate (45.5%) and 80% parents had monthly income <PKR30,000, close to US\$300) and overcrowding was noted in terms of children at home. In our study, illiteracy and poverty was associated with lack of provision of first aid. A similar study showed that education level above high school in either mother or father was associated with decreased risk of burns, while income and overcrowding were associated with high risk of burns in kids.¹⁷ Another study showed that parental education was a protective factor against burns.¹⁸

In our study, all the patients were removed from the heat source, but only in 21(6.8%) cases, the burnt area was covered with sterile dressing. Only 18(5.8%) patients were given any analgesia prior to presentation in emergency. It was given by the doctors which is similar to other studies.⁷

Of all the patients, 41(13.2%) were irrigated with water

and none was irrigated for the recommended 20min time period. This is in contrast to an Australian study where 86.1% children had received first aid treatment and 66.4% patients were irrigated with cold water.⁷ In a British study, one-third victims had got first aid and application of tap water, though not for 20 minutes.¹⁹ Our findings are similar to an African study where only 6.7% patients had received first aid.¹⁵

Traditional remedies were used on 93(30%) patients, The use of these substances is not just limited to Pakistan. Data from studies all over the world shows that people use toothpaste, eggs, butter, honey, petroleum jellies and even haemorrhoid creams for treatment of burns.^{5,19,20}

Only 14(4.5%) parents had any knowledge about first aid in burns cases. One parent had attended a first aid course while the other 13 had their knowledge based on experience. Our study revealed that previous knowledge of first aid was a significant variable which helped parents to give first aid to their children ($p=0.0001$).

Studies have shown that first aid knowledge is poor among even healthcare professionals and high-risk individuals in other parts of the world.¹⁹ Studies have also shown that first aid education campaigns reduce the severity of injury and hospitalisation.⁸ A study reported significant decrease in burns-related hospitalization in toddlers and infants in areas where intervention programmes had been implemented.²¹ We should also educate the masses to lessen the burden on our hospitals.

A recent review summarized the published literature on pre-hospital care of burns and showed that there is a major gap in awareness and knowledge of first aid by the caregivers. Major limitation noted in literature was use of convenience sampling and studies being carried out in hospital settings, instead of communities.²² These limitations are also noted in the current study. Although locally published data is available about epidemiology and preventions of burns, no study indicates awareness of caregivers about the initial management of burns.

Conclusion

The knowledge of first aid among parents was found to be inadequate and whatever knowledge they had was based on previous experience. There is an urgent need to introduce campaigns focussing on prevention and first aid relevant to cases of burns, especially among the illiterate and poor classes.

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