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# PEDIATRIC BURN IN AL-SADDER TEACHING HOSPITAL, MISSAN, IRAQ.

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## Abstract

Burn is one of leading causes of trauma and hospitalization, with mortality, morbidity and in many occasions permanent handicaps. It comes second to car accidents in both developing and developed countries. Burns are serious health problem and are the most frequent injury among pediatric patients. Fortunately, the majority of these burns can be treated by most practitioners, and most of them can be prevented by education programs.

Burn victims who were admitted to Burn unit in Al-Sadder Teaching hospital during the years 2009 and 2010 are the target of this study. Data were collected from the patients' clinical and police records along with clinical follow up. The concentration was on the causes and the mechanism of the pediatric patients burns in relation to their age and sex, disregarding the extent or depth of their burns.

From 522 patients 280 were children (up to 14 years) forming 53.636% of total admissions. Children within the age of 4 years were 61.428% of the total pediatric admissions, followed by 24.285% for age group 5-6 years. There was very slight difference in sex incidence. Regarding the causes; scalding burn was 69.642% of pediatric victims, the majority are within 4 years of age 53.928%, whereas the flame burns were 28.571% of pediatric admissions, mainly in 5-7 years age group where they were 13.571%.

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## Introduction

Burn is considered as one of the leading cause of injury throughout the world, and is one of a frequent cause of hospitalization[1]. In India, for instance, 700,000 to one million burn admissions are managed yearly[2], and in United States of America, over 410,000 burn injuries occurred, with approximately 40,000 required hospitalizations in 2008[3]. Burn injuries continue to be a major cause of mortality and morbidity from trauma in many parts of the world, particularly in the low and middle-income countries[4]. Burn trauma is the leading cause of death and disability in the first four decades of life, and the third

most common cause of death overall, as well as burn trauma constitute the second most common cause of trauma-related death after vehicular accidents, both in developed and developing world[5]. Moreover, burns are also among the most expensive traumatic injuries, because of long hospitalization and rehabilitation, and costly wound and scars treatment[6]. On the other hand, a sever non-fatal burns is one of the most devastating injuries a patient can survive, but such injuries impose a substantial medical, social, economic and personal burden on the society, victims and their families[7]. Burns are serious health problem and are the most frequent injury among pediatric patients[8], and their treatment and rehabilitation processes have a considerably marked effect on children in both physical and psychological terms[9].

The incidence of the pediatric burns have a bimodal pattern. The first, consists of half of the cases, is in the age from 0-4 years, while the second rise is in adolescence and mostly work-related[10].

Although, the non-fatal burns vastly outnumber fatal injuries, significant repercussions are possible from all burns for not only to the child, but to the families who may invest significant time and finances during the long recovery period as well[11]. Fortunately, the majorities of burns are minor and can be managed by most health care practitioners[12], and 70% of the death of children caused by burns can be prevented by education programs as well[13].

## Materials and methods

From January 2009 to end of December 2010, all patients who were admitted to Burn Unit in Al-Sadder's Teaching Hospital in Missan are included in this study. Retrospectively, depending on the patient's clinical records and police reports, in addition to the follow up in the Outpatient Department, all the necessary information was gathered, mainly about the pediatric patients (up to the age of fourteen years) including the mechanism, environment and the cause of their burn injuries in correlation with age and gender, disregarding the depth, size or the way of their treatment.

The outpatient treated victims, who are the majority of patients, are not included in this study.

## Results

From January 2009 to 31st. of December 2010, the Burn Unit in Al-Sadder's Teaching Hospital in Missan, received 522 patients, 280 of them were pediatric patients comprising 53.636% of total admissions (Table I).

**Table I: Gender distribution**

| Children | Adult Females | Adult Males | Year |
|---|---|---|---|
| 126 | 72 | 35 | 2009 |
| 154 | 110 | 25 | 2010 |
| 280 | 182 | 60 | Total |

There was no much difference in male-female distribution of burn trauma, except in 0-4 years age group where males comprise (35.357%), while females comprise (26.071%) of total pediatric admissions (Table II).

**Table II: Age distribution**

| 7-14 years | | 5-6 years | | 0-4 years | | Age |
|---|---|---|---|---|---|---|
| Females | Males | Females | Males | Females | Males | Sex |
| 7 | 12 | 18 | 18 | 32 | 49 | Year (2009) |
| 14 | 7 | 16 | 16 | 41 | 50 | Year (2010) |
| 21 | 19 | 34 | 34 | 73 | 99 | Total |

The mostly affected pediatric age group was within the first four years of life (61.428%), next was the age group of 5 to 6 years (24.285%), and the least was the age group from 7 to 14 years (14.285%), all are of total pediatric admissions Figure 1.

Hot liquids scalding burn was 53.928% in 0-4 years age group, in contrast to 10% for 5-6 years age group, and 5.714% for 7-14 years age group. The flame burn was 7.5% for both 0-4, and 7-14 years age groups. While it was 13.571% for 5-6 years age group. No chemical burns, but only 5 electrical burn accidents. (Table-III)

**Table III: Type of burn**

| Electrical Burn | Chemical Burn | Scald Burn | Flame Burn | Age group |
|---|---|---|---|---|
| ----- | ------ | 151=53.928% | 21=7.5% | 0-4 years |
| 2=0.714 | ------- | 28=10% | 38=13.571 | 5-6 years |
| 3=1.071 | --------- | 16=5.714% | 21=7.5% | 7-14 years |

The home (indoor) burn injuries were, more in age group 0-4 years, equal to 91.860%. In comparison with (27.5%) in 8-14 years age group. While the reverse is true with outdoor burn accidents; 72.5% in 8-14 years age group, and 8.139% in 0-4 years age group. For the age group 5-7 years the indoor: outdoor burn accidence is approximately 2:1. (Table-IV). Table V, shows the outcome of burned patients.

**Table IV: Location of injury**

| 8-14 years | 5-7 years | 0-4 years | Age group |
|---|---|---|---|
| 11 (27.5%) | 47 (69.117%) | 158 (91.860%) | Indoor Accidents |
| 29 (72.5%) | 21 (30.882%) | 14 (8.139%) | Outdoor Accident |
| 40 | 68 | 172 | Total |

**Table V: The outcome of burn**

| Percent | No. | Outcome |
|---|---|---|
| 60.357 % | 169 | Discharged cured |
| 23.571 % | 66 | Discharge by the family |
| 2.857% | 8 | Transferred to another hospital |

| | | |
|---|---|---|
| 13.214 % | 37 | Mortality |
| 99.999 % | 280 | Total |

## Discussion

Despite the majority of burns are minor and can be managed by most health care practitioners[12], 522 burn victims were admitted to Burn Unit in our hospital. The pediatric share (from age 0-14 years) was 522 victims comprising 53.636% of the total admissions. The affected children below the age of 6 years are 85.714% of all burn injured pediatric victims, this is the same result of Sadeghi-Bazargani et al[13], and those within the age of 4 years are 61.428% of total pediatric admissions[7].

According to Hansbourgh JF and Hansbourgh W, the incidence is bimodal, 0-4 years victims account for approximately one half, rise again in adolescence due to work related accidents[10]. This does not go with the results of our study, where the incidence is unimodal with peak within the first 4 years of life. There is a minor difference in sex incidence, more males in 0-4 years age group, on other hand, a female increase in 8-14 years age group ,the latter is mainly explained by the fact that females are being engaged in household duties as they become older. Whilst, boys are more than girls according to Ven Neikert et al[14].

Scalds are the cause five times than flames in the first three years of life[15]. In our study, is about twice. Moreover, scalds resulting injuries are of greater severity as reflected by nearly 25% of cases requiring admission, in comparison with less than 1% of the thermal burns that requires admission[16].

Review of 117 identified studies revealed basically the same descriptive epidemiology characteristics but slightly different risk factors of burns including preexisting impairments in children, lapse in child supervision, storage of flammable substances in the home, low maternal education, and overcrowding[17]. In addition, using heating devices for both heating and cooking in the living rooms increase the risk of burn accidents especially kids who may bump into them[18]. Likewise, low socioeconomic status, low educational level of the primary care givers, home overcrowding (as estimated by number of household rooms), and the psychosocial family stress are among causes that increase the burn risk[14].

In our study, the negligence and non-compliance with manufacturer's instructions, e.g. either refueling, carrying the heating or cooking devices without turning them off, or using badly fitted improper accessories for these devices, are among large number of burn accidents.

Low socioeconomic state families living in limited number of rooms , usually keep these devices which are usually used for

both heating and cooking purposes in the midst of their overcrowded rooms, in the presence of active, quarrelsome and ever moving children, cause an appreciable number of burns.

Electrical burn is the least common cause of burn, but these injuries might end with amputation[19]. As to children up to two years of age, the most frequent mechanism of electrical injury is direct oral contact through biting a cord or less commonly, placing objects in the power outlets, located within easy reached at floor level[20].

Five patients were admitted to our Burn Unit during the period of our study, two of them 5-7 years age group, while the other three are within 8-14 years age group, are all because of loss of precaution, due to the above mentioned causes, and badly installed home and neighborhood's generator wires.

Consequently, it is important to define clearly the social, cultural, and economic factors which contribute to the burn causation. So, prevention programs need to be carried out with patience, persistence, and precision and targeting the high risk groups could be a rational program[21]. However, the hazard reduction program requires significant commitment from government, communities, and individuals[22,23].

## Conclusion

Although burn injuries are common, have high mortality and morbidity, expensive, exhausting, psychologically burdening form of trauma. Yet, are the most preventable and avoidable forms of trauma.

An active role of media, community health workers, non-government organizations, and mosques orations and sermons may help prevent these accidents. On the other side, presence of specialized Burn Centers, well trained personnel reduce both mortality, handicaps and disfigurement.

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