

Paediatric Burns Patterns and Management in Khartoum Teaching Hospital

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Abstract:

Background: burn is the fourth most common type of trauma worldwide and the third leading cause of accident deaths among children in USA. The highest rate is in South-east Asia and the lowest in Northern America.

Objectives: To audit the patterns of paediatric burns in Khartoum teaching Hospital (KTH) and evaluates its management.

Methods: This is a prospective, descriptive hospital-based study.

Results: A total of 60 patients were admitted with moderate to severe burn injuries. Exposure method which is simple and less expensive method is the method of choice for burn wound management in the hospital, with regular physiotherapy; early discharge was the rule and then regular follow-up in the outpatient clinic. Most of the patients (55%) were from outside Khartoum State, and the majority (65%) belongs to low socioeconomic class families. Children below five years constituted 75% of the patients with male predominance. Scalds comprised 60% and the trunk was the most common affected site.

Conclusion: The overall outcome of burn management revealed 63.3% recovered without significant complications and 3.4% mortality. We noticed almost all burns injuries can be avoided if simple preventive measures were taken; the most important one is public education.

Key Words: Paediatric burn

Burn is the fourth most common type of trauma worldwide and the third leading cause of accident deaths among children in USA². The highest rate is in South-east Asia and the lowest in Northern America². In East Mediterranean region (EMR), which composes of 22 countries including Sudan, burn injuries remain an important public health issue, most of the patients were children³. It represents an extremely stressful experience and constitutes a major concern in the paediatric age group with respect to morbidity and mortality⁴. The disfigured and disabled children are denied social acceptance and unable to lead a productive life⁵.

Objectives:

To study the pattern and audit the management of burns in paediatric patients admitted to Khartoum Teaching Hospital.

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Patients and Methods:

This is a prospective, descriptive, hospital-based study, which was conducted in Khartoum Teaching Hospital in the period from the 15th of April 2011 to the 15th of January 2012. Sixty patients with acute burn injury were included. Inclusion criteria were both male and female of less than 14 years who agree to join the study; sample size was calculated according to the formula:

$$n = \frac{t^2 \times P(1-P)}{m^2}$$

Where: n= required sample size. t= Confidence level at 95% (standard value of 1.96). P= estimated prevalence of burn in the project area. m= Margin of error at 5% (standard value of 0,05).

Data included personal data, clinical assessment and follow up during the course of treatment. All patients were managed by strict protocol, followed in the unit. Intravenous fluid in form of dextrose 5% in 1/5 saline was given to patients with burns involving more than $\geq 10\%$ total body surface area (TBSA). The volume of fluid was calculated by Barklay formula and the TBSA by rule of

hand. A second generation cephalosporin was used initially and then antibiotics were adjusted according to the culture and sensitivity. Anaemia, electrolyte disturbances were corrected. Patients were supplied with high protein diet, all patients with burns over joints and hands underwent regular physiotherapy. The burn wounds were managed by exposure method which is a simple less expensive method. The wounds were kept exposed but protected from flies by mosquito nets and fans. Early discharges were the rule and then the patients were followed regularly in the referred clinic.

Results:

In our study 75% of patients were under 5 years, the eldest was 13 years and the youngest was 3 months. Males outnumbered females in our series (male: female ratio was 11: 9). Of them 33 (55%) patients were from outside Khartoum, 65% of patients were of low socioeconomic status. During admission, 6 patients had other concomitant acute illness and one patient was diabetic. Vaccinated children comprised 95% while 5% did not complete the vaccination schedule. Time of burn was during the day in 50%, during the night in 28.3% and in the morning 21.7%. Scalds were the main cause of burn in 60% of patients followed by flame 36.7% and electrical burn 3.3%. While 25% of the patients not used any pre-hospitalization medications to the burns wounds, 50% used water and 25% other substances like tooth paste, tomato juice, Hinna or urine. 76.7% arrived to the hospital in less than one hour, 11.7% within the same day and 11.7% after more than 36 hours. The causes of delay were far hospital, absence of the father and financial reasons. The main indication for hospital admission in our study was TBSA involved more than 10% in 66.6%, special sites in 25%, 3.4% electrical burns, 3.4% full thickness burn and one (1.8%) patient diabetic. Burn mainly affected, as in fig 1, the trunk in 60% of patients, the head and neck (11.7%), one patient sustained severe corneal burn. 55% of patients needed intravenous fluid, and 13.3% blood transfusion. 91.6% received pain pethidine. Proton Pump

inhibitors were prescribed for two patients, one of them as prophylaxis and the other after an attack of hematemesis. No one needed endo-tracheal intubation tracheostomy and/or fasciotomy. 7(11.7%) patients were catheterized for monitoring of urine output and nasogastric tube for feeding was needed in 5(8.3%) patients.

Exposure method for local management of burn wounds was used in 90%. Six patients closed method, four of them had skin graft. 41.5% stayed in hospital for (1-2) weeks, the least hospitalization period was two days and the maximum was 28 days. During follow up 38(63.3%) patients completely recovered, 33.4% developed local complications and 2(3.3%) developed systemic complications (acute renal failure and upper G.I haemorrhage). These two patients died because of the complication they sustained.

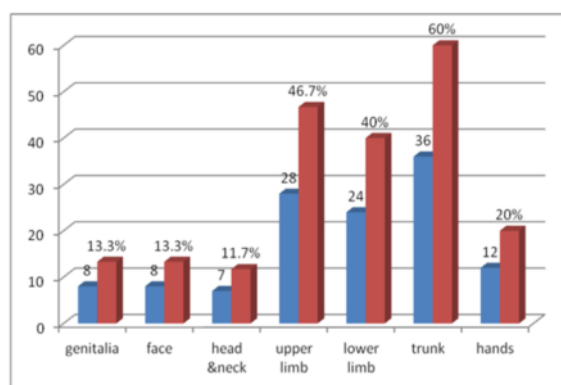


Figure 1: Distribution of the study population according to site of body affected by burn

Presence of mothers at scene not protected their children from burns because 96.7% of mothers were housewife. So, the lack of close supervision of mothers may contribute to the cause. Scalds were the commonest cause of paediatric burns in KTH, this is conform to similar studies^{6,8,9,13-15}. The mean TBSA involved was 19.33% with the trunk being the commonest site affected in 60%. The overall outcome of paediatric burns management in KTH was satisfactory as compared with other studies^{6,8,9,12}. The 3.4 mortality may be acceptable compared to data from developing countries. The credit for successful management goes to the protocol of management and the teamwork.

Conclusion:

Good and effective burn care does not necessarily imply expensive burn care. The outcome of management of paediatric burns in Khartoum Teaching Hospital was satisfactory however it may improve if a proper burn unit is established.

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