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CLINICAL OUTCOME OF PAEDIATRIC BURN CASES IN CENTRAL INDIA: A 03 YEAR RETROSPECTIVE STUDY.

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Abstract:

Introduction: Burn injuries is commonly seen in paediatric age group, and in developing countries burns are reported to be the third most common cause of death in children. Patients suffering from severe burns see mortality and survivors may have life in misery due to burn injury complications. Fame burn, scald burn, electric burn, chemical burns, contact with hot or cold objects. In India, fame burn continues to be one of the commonest causes of burn injuries due to the use of open fires and chulhas. **Material & Methods-** Retrospective hospital case record based evaluation of data over a period of 03 years from March 2019 to March 2022. Total 78 patients were enrolled of age less than 12 years of age. Data regarding age, sex, aetiology, situation and surrounding of incident, TBSA involved, history of burn injury, management and mortality was collected. In our study, we aimed to study the aetiology of infant burns, various causative factors, treatment given and outcomes. **Observation & Results:** Out of 78 patients enrolled in our study 33 were male and 45 were female. Maximum cases belongs to age group of 03-06 years followed by 0-3 years, 6-9 years and 9-12 years. Scald burns are most common in our study constituting 55% of cases. Following it are flame burns (25%) and electric burns (20%). Most cases of scald burn were 0-3 years. Similarly flame burns were common in 03-06 years of age group and electric burns in elder age group of our study. **Conclusion:** Paediatric burn accidents are common in India. High population density the cost of treating burn patients is high because the care of these patients involves multiple specialties.

Keywords: Paediatric Burn, Scald, Flame, Plastic surgery etc.

INTRODUCTION:

Burn injuries is commonly seen in paediatric age group, and in developing countries burns are reported to be the third most common cause of death in children, after road traffic injuries

and drowning, respectively [1]. Burns are the fifth most common cause of non-fatal injuries in children and 11 most common [2] cause of death in children aged 1-9 years.

Burn is very stressful situation for patients and their families. Patients suffering from severe burns see mortality and survivors may have life in misery due to burn injury complications. The occurrence of burns, their treatment and rehabilitation procedures have a major physical as well as psychological effect on children [3]. It reduces the useful productive years of the child. Most of the paediatric burns are acquired at a household acquired, majority of them are preventable if due precautions are taken.

Burn injuries represent a vast array of etiologies, namely fame burn, scald burn, electric burn, chemical burns, contact with hot or cold objects. In India, fame burn continues to be one of the commonest causes of burn injuries due to the use of open fires and chulhas.

In this study, we tried to identify and analyze the demographic, socio-cultural aspects of burns patients, various etiological factors, patients' profile affecting the outcome, mortality rate amongst paediatric burn in children up to 12 years of age.

MATERIAL AND METHODS –

We collected our sample by retrospective hospital case record based evaluation of data over a period of 03 years from March 2019 to March 2022. Our main aim was to collect burn injury data in paediatric population upto age of 12 year.

Total 78 patients were included in our study.

Inclusion criteria:- All patients between 01 month of age to 12 years of age. Burn by flame, scald, electricity, chemical.

Exclusion criteria:- <01 month and >12 years. Other comorbidity. Medicolegal issues.

Data regarding age, sex, aetiology, situation and surrounding of incident, TBSA involved, history of burn injury, management and mortality was collected. In our study, we aimed to study the aetiology of infant burns, various causative factors, treatment given and outcomes. Paediatric burns once admitted in our centre treated with standard treatment protocol. All the patients were first evaluated for general condition and immediate management of life threatening condition is provided. Percentage TBSA (total body surface area) burn involvement was calculated as per Lund and Browder charts. Patients were resuscitated as per Parkland formula. Daily dressings were carried out with silver sulphadiazine. Debridement, escharotomy or fasciotomy was done as per requirement of individual cases. Patients developing raw areas were covered with skin grafting. Those who developed contracture were treated by appropriate surgery.

OBSERVATION & RESULTS:

Table 1: Age and gender distribution of burns in children.

Age group (years)	Male	Female	Total
0-3 years	10	12	22
03-06 years	11	13	24
06-09 years	08	11	19
09-12 years	04	09	13
	33	45	78

Out of 78 patients enrolled in our study 33 were male and 45 were female. A maximum case belongs to age group of 03-06 years followed by 0-3 years, 6-9 years and 9-12 years.
Scald burns are most common in our study constituting 55% of cases. Following it are flame burns (25%) and electric burns (20%). Most cases of scald burn were 0-3 years. Similarly flame burns were common in 03-06 years of age group and electric burns in elder age group of our study.

Table 02: Distribution of burn type with age

Age group	Scald burn	Flame burn	Electric & other burn	Total
0-3 years	17	03	02	22
03-06 years	13	08	03	24
06-09 years	09	05	05	19
09-12 years	04	04	05	13
	43	20	15	78

Table 3: Total body surface area (TBSA) percentage of burns

%TBSA	Scald	Flame	Electric & other	Total
0-10%	11	05	04	20
11-20%	17	06	01	24
21-30%	06	04	03	13
31-40%	06	03	02	11
>40%	03	02	05	10
	43	20	15	78

Among patients of scald burn most of the patients were having 11-20 % burn followed by 0-10% burn. Likewise among flame burn patients mostly patients percentage of burn (TBSA) is 11-20% . Electric burn are mostly involve larger body area with 05 cases >40% burn.
Out of 78 patients enrolled 03 patients died as they were having severe burn (>40%). Also 06 patients did not complete their treatment and left against medical advice. Outcome in these patients could not be ascertained.

Discussion:

Main reason for scald burns being overcrowded homes with boiling liquid placed on a chullah / kerosene or gas stove at ground level, getting spilled. Instances of hot liquid spilling from these containers while transferring food is quite common. Accidental spillage of hot tea while the child is in the lap of parents also contributed to a number of scald burn cases. Higher incidence of scald burn is also noted other studies [4,5,6,7]
Second most common cause was thermal burn injuries with main contributor being firecracker burns during Diwali season [8,9]. In winter months, bonfires are lit to keep warm against the cold weather that leads to accidental flame burns. Flame burns are also sustained from chulhas. Similar findings were observed in the study by Verma et. al.[10].
Paediatric patients of less than one year have thin skin and less insulating layer of subcutaneous fat. As a result, they are more prone to loss of water and heat. Thin skin also leads to fallacious assessment of burn wound thickness. In comparison to adults, children

aged less than 12 months do not tolerate large thermal injuries well because of their physiology. Therefore infants with burns more than 30% of the [11,12]body surface have a higher rate of mortality than adults with identical injuries.

Burn patients exposed to several infections due to immunocompromised state and long hospital stay. In our study Pseudomonas aeruginosa and Klebsiella pneumonae were the most prevalent organisms affecting 36 patients

Conclusion:

Scald burns continues to be the major cause of burn in young children. Most of these burn accidents happen in common 7 household settings and can be easily prevented. Collagen is the best skin substitute in many cases of burn. Paediatric burn accidents are common in India. High population density the cost of treating burn patients is high because the care of these patients involves multiple specialties. It important that more emphasis is placed on burn prevention than on burn care.

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