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STUDY ON BURN INJURY IN PEDIATRIC AGE GROUP PRESENTING IN A TERTIARY HEALTHCARE CENTRE IN JHARKHAND

General Surgery

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ABSTRACT

India is a developing country and 41% of the population is made up of children between 0-18 years, thus any harm to them is an important issue. Burns account for 5th most common cause of non fatal injury to children and 11th most common cause of death in them. This was a retrospective study and our study included children between the ages of 0-16 years hospitalised in Rajendra Institute of Medical Sciences, Ranchi, Jharkhand between May 2019- May 2020.In our study it was found that children made up 7.7% of the burn patients and the incidence of burn was the highest in 0-5 years age group alone and boys were affected more than girls with a ratio of 1.3:1(M:F). Flame burn accounted for most of the cases of burn in children between the ages of 0-5 years unlike other studies which sought scald as the commonest cause. The aim of this study was to know the prevalence of burn injury and the outcome of patients belonging to age group of 0-16 years presenting in RIMS, Ranchi.

KEYWORDS

Burn, Pediatric Age Group

INTRODUCTION

Burn injuries are a serious problem in developing countries, India being one of the developing countries is also faced with the same problem. According to the WHO, every year about 100000 people suffer from moderate to severe burn injuries. Majority of the burn cases are comprised of women and children.(1) Burns are the fifth most common cause of non fatal injuries in children and 11th most common cause of death in children aged 1-9 years.(1) However, it is the infants who have a poorer prognosis as compared to other age groups.(1) Since children are inquisitive the chances of burn injuries is higher in them and not just their nature but also lack of proper care and attention to the child is a major cause of burns in them. However, their young minds are very impressionable, thus any early trauma to them can hinder their growth and cause significant disability in the long run.

Burn injuries represent a vast array of etiologies, namely flame burn, scald burn, electric burn, chemical burns, contact with hot or cold objects. In India, flame burn continues to be one of the commonest causes of burn injuries due to the use of open fires and chulhas. In children <5 years of age scald burns are much more common(2) The depth and severity of the burn is determined by the temperature of the substance causing the burn and the duration of contact.

This study aims at looking into the prevalence and the outcome of patients belonging to pediatric age group presenting to Rajendra Institute of Medical Sciences, Ranchi.

MATERIALS AND METHODS:

This is a retrospective study that was conducted on children aged 0-16yrs admitted to burn ward in Rajendra Institute of Medical Sciences, Ranchi, Jharkhand between May 2019-May 2020. Children <16 years of age, whose records were complete and had presented within 48 hrs of injury were included. All types of burns were taken into account in this study. Patients who presented after 48 hrs were excluded from the study. The children were divided into 3 groups: 0-5 years, 6-10 yrs and >10 yrs. The burn percentage was calculated by the Lund and Browder formula. The patient's records were then analysed for data which included age, sex, duration of burn injury at the time of presentation percentage of burn, areas involved, mode of burn, outcome and duration of stay of the patient.

RESULTS AND DISCUSSION:

COHORT CHARACTERISTICS:

It was found that out of a total of 736 admissions during May 2019-May 2020, a total of 57 patients belonging <12 yrs of age, were admitted to the burn ward in RIMS, Ranchi. Thus making up 7.7% of the total admissions in a year which is lower than that reported by existing studies by **Ahuja RB and Bhattacharya S**(3) and **Gupta M et al**(4) .

TOTAL NO. OF PATIENTS	736
NO. OF CHILDREN(<16 YRS OF AGE)	57
%AGE OF CHILDREN	7.7

The ratio between the males to females was 1.3:1(M:F) which is similar to the study conducted by Kai Yang L(4). The mean age of the children presenting to us was 6.64+4.28 years with 27 children being between 0-5 years of age. The incidence of flame burns accounted for most of the cases of burn injury in the 0-16 years age group unlike other studies which found that scald was the commonest cause. The figure below shows the age and sex distribution in the pediatric age group presenting with burns in RIMS.

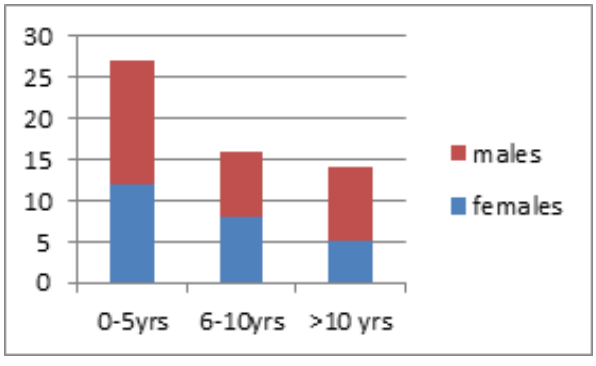

Figure 1: age and sex distribution of burn patients.

The percentage of children between 0-5 years of age was 47.36% which was highest among the 3 age groups.

The M:F ratio in the 6-10 years age group was found to be equal.The results obtained were similar to previous studies by **Carlsson et al**(5) and **Kumar P et al**(6) which stated that most of the burn injuries occurred in children of the 0-5 years age group.

BURN SEVERITY:

The TBSA involvement ranged from 29.37 $\pm$ 22.12% to 34.14 $\pm$ 22.91%. Incidence of involvement of 10-20% of TBSA was most common. The mortality rates were high (38.6%) which was higher than that reported by **Mukerji G et al**(7) (21.86%).3 patients who suffered electric burn underwent amputation which was a cause of disability in such patients. Most of the patients died due to multiorgan failure (50%) followed by septicaemia (36.3%). The mean duration of stay of all patients (including those who left against medical advice) was found to be 8.08 days.

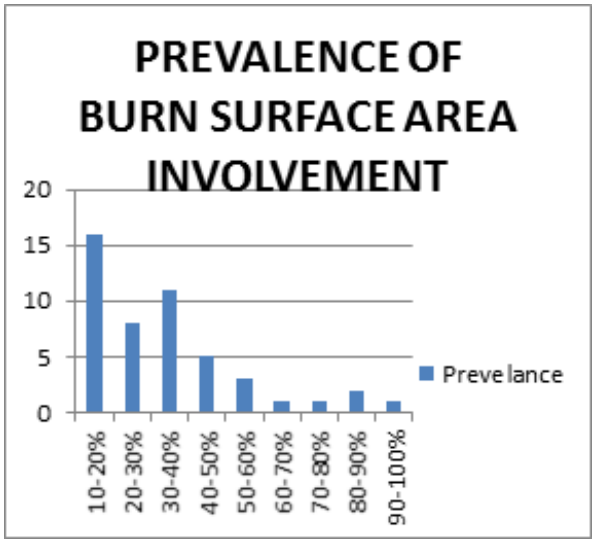

Fig 2: prevalence of TBSA involvement in cases of burns.

TYPE OF BURNS:

Fig 3:Incidence of different types of burns.

The figure above shows the incidence of the different types of burns. Highest incidence was found to be those of flame burns(n=36) and the male to female ratio in case of flame burns was found to be 1:1. Electric burn injury sufferers were 5 out of which only one was a female and the rest were males. Scald burns were mostly seen in children in the age group of 0-5 years and most of them were male(n=7). The findings of our studies seem to be different from those of the preexisting studies by **Kumar P et al**[6] .Most of the patients (n=29) presented in the winters(October to February) followed by the summer months(March-May)(n=19). This was in agreement with the study conducted by **Mukerji G et al**[7](53.6%).

Rajendra Institute of Medical Sciences, being a tertiary healthcare centre, received mostly referred cases (61.4%) and the patients were mostly of the rural and suburban areas(85.96%)

CONCLUSION:

In our study it was seen that most of the patients were male children in the age group of 0-5 years. This can be attributed to the development of milestones by the child during this time such as walking, exploratory behaviour and hand to mouth.[8] It is during these years that the child undergoes significant mental and physical growth and any harm to the child during this period is actually a cause of concern because a disability during these years leaves a lasting impact on the child. Thus protecting them from such injuries should be a priority. This can be achieved by having a small family so that proper care can be taken of the child. Proper methods to avoid any such accidents need to be taken such as supervision of the child whenever the child is around.

School going children need to be educated about the dangers of fire and electricity. This will in turn lead to them refraining from any such acts. Older children (10-16yrs) are the ones who mostly help in the household chores and are thus exposed to burn injuries hence they should be taught the proper use of appliances or should be supervised during such works.

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