



Plastic Surgery

PAEDIATRIC SCALD BURNS – EPIDEMIOLOGY AND PREVENTION IN DEVELOPING COUNTRY

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ABSTRACT Burns and burn-related trauma remain the most common form of injury in children. Pediatric burns occur commonly in developing countries, with incidence many times higher in low- and moderate-income group compared to high-income group [1,2]. Scalds consistently account for the majority of burns in childhood, typically representing approximately two thirds of burn injuries [3]. The predominance of this mechanism of burn injury in childhood has naturally helped to direct focus on prevention, first aid campaigns and wound management. The aim of this study was to provide recent prospective epidemiological data on pediatric burns, focusing important etiologies such as scald burns and suggesting preventive strategies. A prospective, single-center study of all paediatric burns presentations to the casualty and OPD of a regional burns centre in Jawaharlal Nehru Memorial Medical hospital, Aligarh was conducted.

KEYWORDS : Burn epidemiology, Scald, Paediatrics.

INTRODUCTION:-

Scald is most common cause of burn in children. The predominance of this mechanism of burn injury in childhood has naturally helped to direct focus on prevention, first aid campaigns and wound management. Various risk factors attributed to burn injuries in children are low socioeconomic conditions, poor living conditions, illiteracy, and overcrowding and floor level cooking, on either kerosene pressure stove or an open fire. The ridiculous first aid measures like application of ink, cow dung, hen's blood, haldi (turmeric), honey and other homemade remedies, surprisingly, are still frequently used. Delay in transportation and initiation of treatment due to lack of education, lack of transportation facilities and lack of economic support are still prevalent. There are a number of factors that directly influence the extent and pattern of burn injury sustained by the child, including the characteristics of the child (such as age and ethnicity), the heat source (iron, chemical agent or hot beverage), the injury mechanism (pull down or spill) and the environment in which the injury occurs (home or school, time of day the injury occurred and levels of social deprivation)^[4,5]

Epidemiological data on pediatric burns can provide vital information for developing prevention strategies, thus decreasing the occurrence of such burns and the improving health care system.

METHODOLOGY:-

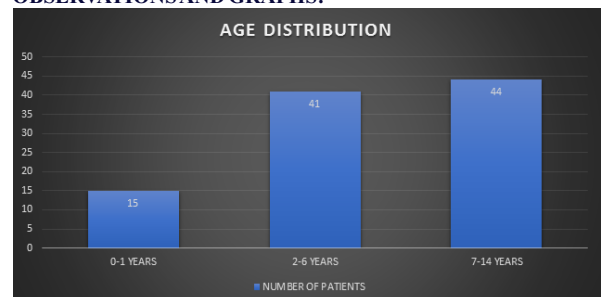
Subjects were patients up to 14 years old admitted to the Department of Burns & Plastic Surgery, Jawaharlal Nehru Memorial Medical hospital, Aligarh, between December 2017 to December 2019. Both outpatient, inpatient and emergency cases are included in the study. Patient was attended and examined as per Primary and Secondary Survey Protocol, then careful assessment of burn area was done and the percentage of burn area was calculated as per **Lund & Browder's Chart**.

In this study, empirical and prospective evaluation, admission data, data on injury situations, and clinical assessment were obtained from all patients. Resident doctors admitting the patients have been asking questions. Data were collected from the clinical notes over the next 24 hours following confirmation from the index person (doctor) who wrote the notes if necessary. Either the attendant or patient answered all the questions, depending on the patient's age and condition. Data was analyzed using IBM SPSS 20.0 package (Statistical Package of Social Science). For descriptive statistics: Frequency, Percentage, Mean and Standard Deviation, Graphs, and Cross Tabs were used to present study results.

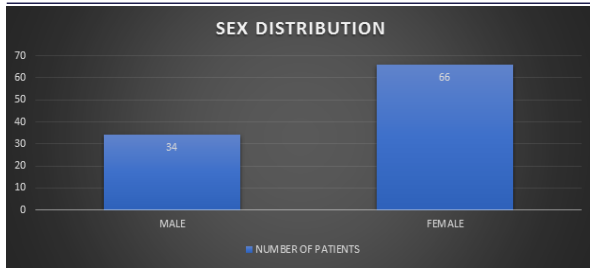
OBSERVATIONS & RESULTS:-

In the duration of study, total number of 100 cases were taken into

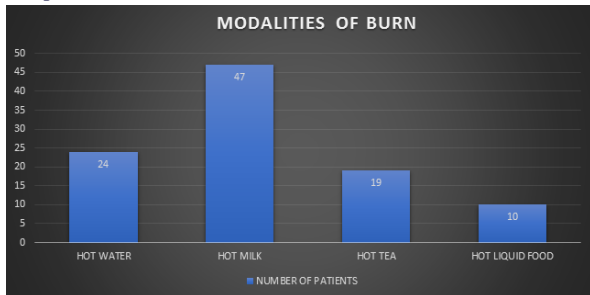
observation. In our study, maximum patients were of age group 7-14 years and minimum patients were of age less than one year. Majority of children were females. Etiology of burn is of great importance in children as it gives an idea of depth of burn. In our study maximum number of children reported to had suffered scald burn due to spillage of hot milk. Next predominant cause was due to hot water. Surface area and the part of body involved is also necessary to be evaluated during the initial assessment of burn children. Maximum children were of burn area between 6-10% TBSA and majority of them had suffered burn injuries to their upper and lower limbs. Just 40% of patients received cold water as a form of first aid. For other cases, either no first aid was given or medicinal creams, ice, ink, potato, Ratan Jot (alkane), and toothpaste are used. In this area we need to improve the knowledge of the society. Hospital stay increases the cost of treatment directly and puts extra financial burden on patient family. Mean duration of hospital stay was 9.1 days. More the number of dressings, more is the cost of treatment and more the pain and discomfort suffered by children. In our study most patients belonged to the nuclear families of low to medium socioeconomic status. This could be ascribed to the fact that children from smaller families are more at risk caring for burn injuries, because parental supervision cannot always take care of them and fewer hands are available for the kids. Majority number of burn injuries (77 per cent) occurred indoor. This finding may probably be the product of children living and playing mostly indoors, particularly younger children. Studies have also shown that indoor burns occurred mostly in the kitchen and bathroom. We observed that in households that use the floor for cooking, majority percent of injuries occurred. Such data are typical of rural India, but are also available in urban areas. This result adds considerably to the risk of burn-related injuries among people belonging to low socio-economic strata.

OBSERVATIONS AND GRAPHS:-

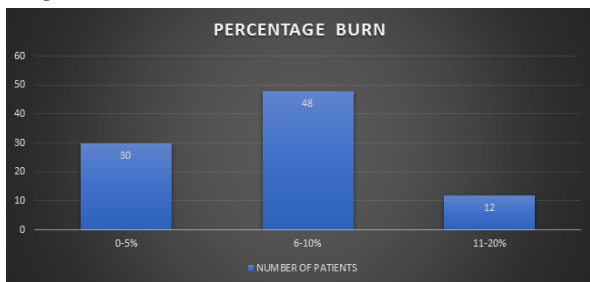
Graph 1: Age distribution of patients :-



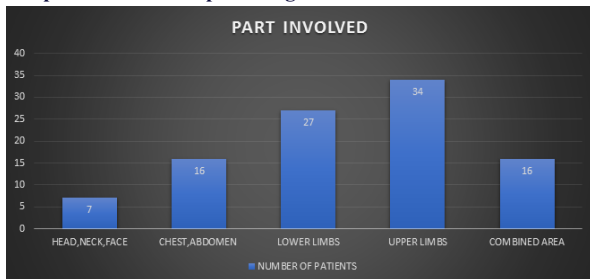
Graph 2: Sex Distribution In Patients :-



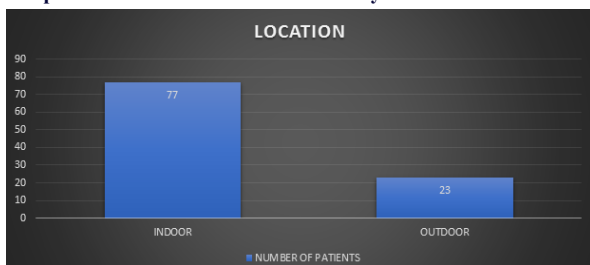
Graph 3: Various Modalities Of Burns In Children



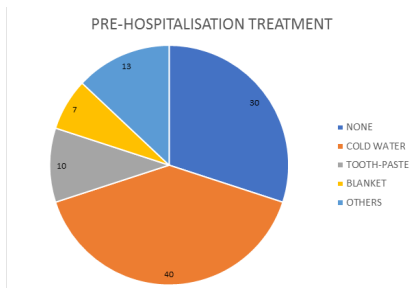
Graph 4: Distribution percentage of TBSA involved in children



Graph 5: Pattern Of Involvement Of Body Part In Children



Graph 6 :- Location Where Incident Occurred.



Graph 7: - Type Of Pre-hospital Treatment

DISCUSSION & CONCLUSION:-

Among those aged between 1 and 5 years is the most important group of pediatric burns that should be the prime target of prevention. The kitchen, bathroom, and living room are typical accident areas where appropriate precautionary measures should be taken. The patient's age, type of burns, mode of injury, presence or absence of inhalation injury, gender, and admission period (quarter) were found to be factors that influence the TBSA concerned separately. Worldwide standard recommendations are to include first aid by running cool water for 20 min. Cooling blankets are also suggested; however, factors restricting are cost and availability. We should be careful also to avoid hypothermia, particularly in children. For a burned patient, our study identified poor societal knowledge regarding first aid.

Young children playing on the floor tend to reach out to something in the kitchen that is cooking. As a result, they can experience burn injuries. This tendency is typical of both parents work and other responsible non-workers, maybe there are no grandparents to look after children. Therefore, children are taken care by maids resulting in more accidents. Regardless of a lack of supervision, children may pull overhead kitchen utensils or they may accidentally fall into containers and remain there until they are rescued by anyone. Our findings suggest that burn prevention strategies should focus on indoor burns, as that was the place where most burns in this age group were sustained [6,7]. This research highlights inadequate understanding of the community, as demonstrated by the burn patients' response to first aid.

Policies need to be implemented to avoid burn-related injuries in children through parent and guardian education. Proper child care should be promoted. In this analysis, we outlined multiple risk factors for pediatric burns in our environment. This framework should assist in the formulation of effective burn prevention programs in this country and in the development of strategies for prevention. In addition, we would like to emphasize that older children should be taught and supervised to bring down the current high incidence of burns in this age group. Better communication should be established between children and parents, as this will help address their psychological problems at an earlier stage. Parents should be more supportive and at the same time open to the perspectives and issues of their children.

This research demonstrates limited awareness of the environment, as demonstrated by burn patients' response to first aid. Measures to prevent burn-related accidents in children need to be developed through education of parents and guardians. Proper child supervision should be emphasized. In this review, we highlighted complex risk factors for pediatric burns in our setup. This framework will assist in the formulation of effective burn prevention initiatives in this country and in the development of strategies for prevention.

A major drawback of this study was the likely inability to measure accurately the occurrence and risk factors for pediatric burns, since this was a referral hospital-based study. In addition, patients who did not need admission were not included in the study. Outcomes consisting of data on morbidity and mortality are not observed, as our purpose was to focus only on epidemiology while reporting these data. Future studies will be helpful, along with results.

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