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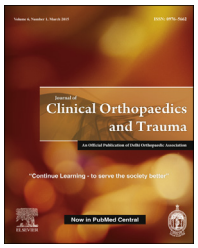

Original Article

The clinical profile of musculoskeletal injuries in children attending a major hospital in Delhi, India

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ABSTRACT

Background: Children are vulnerable to musculoskeletal injuries both at home and on the street for various reasons. Morbidity and disabilities resulting from these, mostly preventable, injuries, make them a burden to their families and society. The role of various factors associated with injuries is often not documented.
Methods: This prospective study, done on 100 children aged up to 12 years with musculoskeletal trauma, analysed in details, the various modes of injuries.
Results: One in every five patient was a child below 12 years of age. Boys were injured more than girls. Injuries, especially fractures, were most common in the extremities, the upper limb more commonly injured than the lower limb. Most of the injuries occurred at home. The most common mode of injuries was falls that happened while playing both within and outside the home, followed by road traffic accidents. Most injuries occurred during daytime.
Conclusions: Injuries in children were found to be preventable. Small interventions while constructing homes can contribute tremendously to injury prevention and control in children. Parental awareness about the various modes of injury, role of supervised playing and their responsibility towards injury prevention can play a key role in reducing the morbidity associated with childhood fractures.

1. Introduction

The WHO and Bone and Joint Decade report on 'The burden of musculoskeletal conditions at the start of the New Millennium' indicates that limb trauma is part of musculoskeletal disorders which contribute to serious economic and health care burden in both developed and developing parts of the world[12]. Accurate data on the incidence of musculoskeletal injuries is lacking in many countries. Studies in India are either not recent[1,2,7,11] or are not pertaining to childhood musculoskeletal injuries.

Children are most vulnerable to injuries both at home and on the street for a variety of reasons. These include living in an environment where the basic infrastructure is adapted for adults. Besides, children have a limited development of their own risk perception ability and behaviour apart from their inherent physical vulnerability. Children can get injuries in different forms and ways. Many of these injuries may not be reported. Injuries may vary according to age and gender. Rate of injuries is influenced by subtle variation of cultural lifestyle and behavioural patterns e.g. play behaviour of children, design and layout of homes and play area.

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Accidents, do not just happen, they are caused. The traditional view of injury as an accident has resulted in the neglect of this aspect of public health. Today injuries are low in priority for policy makers and only few plans are drawn for injury prevention. It is an irony that thousands of children saved from nutritional and infectious diseases are killed or maimed by injuries.[13] The fatalistic attitude that accidents are inevitable needs to be curbed. Prevention of childhood injuries is of great importance to both individuals and society but unfortunately, has largely been either excluded from attention or treated in an inappropriate manner.[9] Patients may survive their primary injuries only to become chronically disabled and become a burden to their families and the society.

The causes of injuries in children must be identified by epidemiological methods. Without adequate data collection, analysis and interpretation, there could be no effective countermeasures, evaluations and strategies for prevention.

2. Methods

The study was done to estimate the proportion of musculoskeletal injuries in children attending a major hospital in Delhi; to analyse the various types of injuries in children; to evaluate the common causes leading to these injuries and to identify associations between these injuries and multiple socio-demographic indicators.

A prospective study was conducted on 100 children with musculoskeletal injuries attending the Casualty and Emergency Department of Orthopaedic Surgery of a major hospital in Delhi, India. The study was conducted for a period of two months of May and June on the emergency duty days of concerned Unit of the orthopaedics department. All the children with a history of trauma referred from the department of Casualty to the concerned unit of Orthopaedics were included as per the criteria given below.

A detailed history along with an informed consent was taken from the parents/ guardians/ children regarding the injury. Various parameters like the age, sex, socio-economic status, number of injuries, exact site and type of injury (diagnosis), mode and place of injury, time of injury and presence of parents at the site of injury, were noted in a proforma for each child. The injuries were assessed clinically and by plain radiographs.

This being a descriptive epidemiological study, the statistical methodology was the frequency of various parameters identified and assessed.

2.1. *Inclusion criteria*

1. Patients less than 12 years of age sustaining musculoskeletal trauma

(Age less than 12 years was considered children as per the hospital policy)

2. Children sustaining chest and head injuries with limb injuries who are referred from the neurosurgery or pediatric surgery departments.

2.2. *Exclusion criteria*

1. Injuries resulting from birth trauma
2. Patients having abrasions and superficial skin wounds who are not referred to the orthopedic emergency from the casualty.
3. Co morbid conditions like epilepsy and neurological disorders, which are more prone to injury.
4. Children sustaining chest and head injuries without limb injuries who are directly referred from the casualty department to neurosurgery or pediatric surgery departments.

3. Results

The results of the study are depicted in the following tables and figures. These include the clinical and socio-economic profile of musculoskeletal injuries (Table 1), the gross regional distribution of the musculoskeletal injuries (Table 2), the different types of musculoskeletal injuries in children (Fig. 1), the detailed regional distribution of the musculoskeletal injuries (Table 3) with an analysis of the four common fractures in these children (Table 4). The various mode of injuries in children in this study have also been tabulated in details (Table 5).

4. Discussion

4.1. *Age distribution*

Among the 519 patients, 100 belonged to the age group of less than 12 years. Thus one in every five injured patient was a child below 12 years. Among the children the most common age group was between 8 and 12 years, constituting 42% of the musculoskeletal injuries. Injuries have been reported to occur most commonly in the age group of 5–14 years[9] with the mean age of 6.34 years.[1,9] Adolescent children are usually active and playful without the maturity of being careful hence most of childhood injuries are seen in this age group.

4.2. *Gender distribution*

In our study boys were found to be injured more commonly than girls, similar to the reports in the literature.[1,3–5,10,11] The male: female ratio in our series was found to be 3:1 which is only slightly different from the ratios of 2:1[11] and 2.2:1.[1] This is because boys are by nature more active and girls indulge more in sedentary games.

4.3. *Diurnal variation*

In our study injuries were found to be more common during the daytime (78%) than in the dark (22%). This is probably due to the fact that children are awake and more active during daytime. There is a lacuna in the literature regarding this finding.