FRACTURES IN CHILDREN;
DISTRIBUTION IN ORTHOPEDIC UNIT AT THQ HOSPITAL TANGI CHARSADDA NWFP PAKISTAN

ORIGINAL
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DR. KIFAYATULLAH
FCPS (Ortho)
Assistant professor,
Department of Orthopedics,
Mardan Medical Complex and
Bacha Khan Medical College Mardan.

DR. HAZIQ DAD KHAN
Department of Orthopedics,
Mardan Medical Complex and
Bacha Khan Medical College Mardan.

DR. FAAIZ ALI SHAH
Department of Orthopedics,
Mardan Medical Complex and
Bacha Khan Medical College Mardan.

ABSTRACT… Introduction: The epidemiology of orthopedic and traumatic disorders is as important as that of communicable diseases and as that of surgical audit. Some sort of surveillance system is essential for this purpose. **Design:** A retrospective study. **Period:** Jan 2001 to June 2006: **Setting:** Orthopedic unit at THQ Hospital Tangi. **Results:** The population of adults and children less than 16 years in the population studied is 57% versus 43%, while the fracture rates were 40% and 60% respectively. In children under 16 years fractures of the radius and ulna were the most common followed by fractures of the distal end of the humerus i.e. 45.93% and 33.40% respectively in the upper limb injuries. **Discussion:** Comprehensive data regarding orthopedic disorders are few[5]. Studies of specific injuries and specific age related disorders are even more limited. Fractures rates vary across a country and similarly it is variable in different seasons[13].

Key words: Fractures, Shoulder Dislocation, Fracture Neck of Femur, Epiphyseal Injury.

INTRODUCTION

Health and social welfare department plan their strategies according to the statistics of the incidence and prevalence of the diseases and other health related problems[1]. The epidemiology of orthopedic and traumatic disorders is as important as that of communicable diseases. Studies on these aspects are relatively few as compared to those of the effects of different operation for orthopedic and traumatic disorders. Surgical audit is done in most hospitals but outdoor patient departments have no complete records of the patients and their diagnoses, which may be as important as the surgical audit.

Incidence of orthopedic disorders means the annual diagnoses rate or the number of new orthopedic disorders diagnosed in a year. While prevalence is the number of estimated population of people who come for the management of any orthopedic disorder at any given time[2]. Acute and short-lived conditions have high incidence and low prevalence but chronic long-lived conditions have low incidence and high prevalence.

Information on the pattern of injuries and their distribution is very important for preventive strategies and injury surveillance systems[3]. Different injury surveillance systems are in use in Glasgow, Scotland, Victoria, and Australia, Netherlands and UK[3]. In Pakistan ICD10 system is used in few hospitals. As these systems are used in few hospitals so accurate geographic population cannot be represented and so accurate incidence of injury rates is not possible. Even then such efforts are effective and encouraging.

MATERIAL AND METHODS

A retrospective study was carried out of the patients who attended the THQ Hospital Tangi District Charsadda from Jan 2001 to June 2006. Those patients who attended the orthopedic unit were recorded with name, age sex locality and disease. All the data was collected and tabulated with major orthopedic disorders both congenital and acquired. Fractures and soft tissue injuries were also recorded in tabulated forms, as given in table 1.Some patients having general sugical and medical disorders who attended the orthopedic clinic were diagnosed and referred to their respective specialties. From the record the epidemiollogy of fractures in children was extracted out.

RESULTS

A total of 21326 patients attended orthopedic unit at THQ Hospital Tangi from Jan 2001 to June 2005. Five

Table-I. Fractures in children below 16 years of age

Disease	No. of patients	%age
# Clavicle	142	9.8%
# Scapula	02	0.135%
# Humerus	72	4.87%
S/C # Humerus	168	11.36%
Distal Humeral epiphyseal injury	80	5.41%
# Lateral condyle humerus	17	1.15%
# Medial epicondyle humerus	12	0.81%
# Radius Ulna	480	32.45%
# MCS and Phalanges	69	4.67%
# Ribs	11	0.74%
# Neck of femur	02	0.135%
# S/C Femur	08	0.54%
# Shaft of femur	150	10.14%
# Tibia / Fibula	149	10.07%
# Cal. Tarsals and Mts	57	3.85%
Dislocations	57	3.85%
Total	1479	-

thousand and forty nine (5049) Patients having medical, surgical and other diseases were excluded. Out of the rest of the patients (21277), 3420 were patients having fractures and traumatic disorder, having a percentage of 16.07% .The male to female ratio was 52%: 48%. Patients above 16 years were 15782 and below 16 years were 5544 having a ratio of 3:1. Fractures of radius and ulna ranked top 901 followed by fractures of the humerus 426 and then tibia/fibula i.e. 355, in adults and children combined.

In children the most common fracture was fracture of radius and ulna, which were 480, followed by s/c fracture of humerus i.e. 168 and distal humeral epiphyseal injuries, which were 80. In adults fractures of the radius and ulna also ranked first i.e. 421. Of these Colle's

Table-II. Joint injuries

Joints	No. of patients
Shoulder dislocation	5 (8.77%)
Elbow dislocation	19 (33.33%)
Pulled elbow	20 (35.08%)
Entrapped medial epicondyle	6 (10.53%)
MP joints	4 (7.02%)
Other dislocations	3 (5.26%)
Total	57

fractures were 259. Femoral fractures occurred more in children while tibial fractures occurred more often in adults.

Fractures of long bones viz. humerus, radius/ulna, femur and tibia/fibula, above 16 years were 777 and below 16 years were 1915 having a percentage of approximately 40% and 60% respectively.

DISCUSSION

Despite the huge number of trauma, most of which are orthopedic in nature, comprehensive data regarding orthopedic trauma are few[5]. While the accident and emergency department in most teaching hospitals keep records of all attendees, such data is lacking in hospitals on a district and tehsil level. Even in teaching hospitals data is not kept up-to-date. Studies on specific injuries are further limited and similarly age specific studies[5,7]. In our study fractures of the radius and ulna were most common i.e. 480(45.9%), followed by elbow fractures i.e. 277(26.5%). In a study, fractures of radius ulna, elbow and tibia were 43%, 19% and 7%respectively 6. Humerus shaft was the least affected bone[6]. In another study it was observed that supracondylar fractures were 55% and fractures of radius ulna were 25%[7]. Comparing our study with it shows that fractures involving radius and

ulna in children were 45.93% and the distal humeral injuries were 33.40%.

In one study it is evaluated that fracture rate is highest in 4-9 years age group and is 44%[8]. It was also estimated that odds of fracture was higher for children versus adults. It is also evident from our study that fracture occurrence is more in children i.e. 3:2. While patients attending orthopedic unit, less than 16 years and above 16 years were having a ratio of 1:3. It means that other orthopedic disorders were more in adults while fractures were observed more in children. In another study a fracture rate of 36.1/1000 children was noted, and also discovered that fractures are more common in boys than girls. Fractures of radius ulna were more frequent i.e. 36%[9]. Population of children less than 16 years of age in our community is 43%, while the children population of Esberg County less than 15 years is 10.5%[3]. In one study researchers have documented that tibia is the most commonly fractured bone of the lower limb in children population[1,2]. But it was observed in our study that tibia/fibula accounted for 40.7% of fractures of lower limbs and femoral fractures for 43.7%.

In our study the adult and children specific fractures are given in the table, which shows that in the upper limb fractures of radius and ulna are the most common in children followed by elbow fractures having a percentage of 45.9% and 26.5% respectively. In adults Colle's fracture was most common followed by fractures of the radius and ulna having a percentage of 52% and 32.5% respectively. A total of 57 joint injuries were encountered. Elbow was the commonest joint involved in the injuries i.e. 78.9%. Frank elbow dislocation and entrapped medial epicondyle accounted for 43.8% cases.

For accurate rate of fractures or incidence of fractures in a population of children the collection of data from all treatment centers is mandatory[12]. But in our study area it is not possible as fractures are managed by many bone settlers in villages, Hakims, Paramedical staff and school teachers at their home or village clinic. Other reason is that census is not carried out correctly and regularly and birth and death reporting systems are not of the international standards.

Falls and subsequent upper limb injury is the commonest mechanism underlying sport related injuries. Domestic play in all age groups at the time of injury had a higher risk for fracture than field sports[11]. However a sizeable proportion of fractures occur in children running and falling on hard surfaces in school playgrounds. Many these fractures can be prevented by the use of impact absorbing surfaces such as used in modern children's playgrounds[11].

The commonest fractures were of radius and ulna i.e. 36% occurring in skaters and soccer players could be prevented by the use of wrist protectors and forearm gaurds[12] and this strategy should be followed by our children in schools. Fracture rates in children vary across Europe with substantially higher rates in South Wales than in the Scandinavian countries[13]. Similarly seasonal variation is also observed with more fractures rates in spring season[13]. In our country no such data is available to our knowledge so variation of fracture cannot be compared. However it can be said that fracture rate will be more in big cities having more accidents and more sport activities than at the Tehsil level and more chances of fractures in spring and playing season.

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Correspondence Address:
Dr. Kifayatullah FCPS (Ortho)
Assistant professor,
Department of Orthopedics,
Mardan Medical Complex and
Bacha Khan Medical College Mardan
kifayat58@yahoo.com

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"I have often regretted my speech, never my silence."

Xenocrates (396-314 B.C.)