Spectrum Of Admissions For Sports Related Injuries At The University Hospital Of The West Indies Kingston Jamaica: A Look At Injury Prevention

J Williams Johnson, E Williams, N Meeks Aitken, A McDonald, P Sing

Citation

J Williams Johnson, E Williams, N Meeks Aitken, A McDonald, P Sing. *Spectrum Of Admissions For Sports Related Injuries At The University Hospital Of The West Indies Kingston Jamaica: A Look At Injury Prevention*. The Internet Journal of Third World Medicine. 2006 Volume 5 Number 2.

Abstract

Objective: There has been no local study regarding the admissions for sports-related injuries. The purpose of this retrospective survey was to examine the spectrum and epidemiology of admissions for sports- related injuries at the University Hospital of the West Indies and to consider recommendations on injury prevention.

Methods: The study involved all patients with sports and recreational injuries registered in the Trauma Registry at the University Hospital of the West Indies over the five-year period from January 1999 to December 2003. Patients were assessed for age, gender, site of injury, and type of sport played.

Results: A total of 101 patients were admitted. There were 93 men and 8 women, the ages ranged from 6 to 56 with a median age of 21 years. Most of the injuries were seen in the 11 to 20 age group. The sporting activities included soccer, cricket, basketball, track, fencing, go-cart racing and horseracing.
The majority of the admissions were for soccer related injuries. These were predominantly lower limb injuries followed by head and trunk injuries.

Conclusions: This study determined that most admissions for sports related injuries were for soccer and the most common anatomic site was the lower limbs. General recommendations for injury prevention are suggested.

INTRODUCTION

Sports are part of the socio-cultural fabric of Jamaica and as such permeate all levels of the society. Injuries related to sports vary. Injury from spots participation are a significant cause of hospitalisation and heath care costs in children and adolescents ([1]) The Emergency Medicine Division at the University Hospital of the West Indies frequently sees patients who have sustained sports-related injuries. Prior to this survey there was no information regarding admissions for sports-related injuries in this institution and the purpose of this retrospective survey was to examine the spectrum and epidemiology of admissions for sports related injuries over the five-year period from January 1999 to December 2003. The gender, age group, sporting activity, anatomic site of injury and the length of admission were examined. Unfortunately little systemic research has been done to obtain baseline information and the spectrum of injuries in sports and the efforts towards injury prevention have been limited. Before preventive measures can be implemented effectively it is important to determine what types of injuries are most prevalent who sustains the injuries and why and where they occur. This can be accomplished through surveillance and research which is mandatory if progress is to be made for the prevention in sports injuries. It is on this basis that this study was done.

METHODS

The information was obtained from the Trauma Registry at the University Hospital of the West Indies Mona, Jamaica. This is a teaching institution located in the country's capital Kingston. It is a five hundred-bed hospital and the Division of Emergency Medicine cares for approximately sixty thousand patients per year. The University Hospital is one of the two major admitting public hospitals and serves a population of approximately one million people.

The Trauma Registry has been in existence in the hospital since 1998. This registry utilizes the software programme Trauma! ® developed by Cables and Associates, Kentucky, USA. All injured patients admitted to our institution are entered into the database. Demographic data and detailed information on the cause, severity of injury, treatment and disposition are entered in the computer before the patient is discharged from hospital. The data entered into the Trauma Registry is obtained from patient records and from logbooks kept in the Emergency Department. This registry is an accurate reflection of admissions for sports-related injuries that enter the hospital. Sports-related injuries are defined as injuries occurring from a sport-related event requiring physician evaluation and acute curtailment of the sport. All patients in the study population were admitted. A descriptive statistical data analysis was the method used to generate the various figures for this study including the medians and frequencies of proportions.

RESULTS

A total of 101 patients were admitted for sports related injuries. There were 93 males and 8 females, the ages ranged from 6 to 56 with a median age of 21 years. Most of the injuries were seen in the 11 to 20 age group (adolescents) (Fig1). The sporting activities included soccer, cricket, basketball, track, fencing, go-cart racing and horseracing (Table1). Injuries involved the upper limb (fractured ulna and radius), the lower limb (fractured femur, knee injuries), the head (cerebral concussion), and the face (Table 2).

Figure 1

Figure 1: Age and Gender Distribution

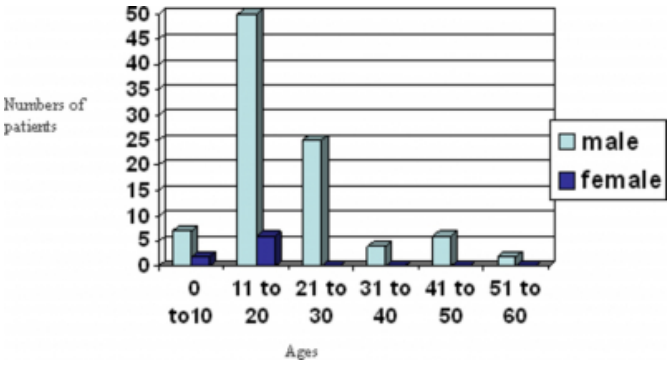

Figure 2

Table 1: Number of admissions related to each sport

Sport	Number of patients n
1. Soccer	68
2. Cricket	9
3. Horse racing	4
4. Track	3
5. Skating	3
6. Other	15
Total	**101**

Figure 3

Table 2: Frequency of Injury -type for each sport

	SOCCER	CRICKET	OTHER	TOTAL
Lowe limb injury	22	0	8	30
Head Injury	12	3	6	21
Trunk Injury	13	0	5	18
Upper limb injury	11	0	2	13
Facial injury	8	5	3	16
Pelvic Injury	1	0	0	1
Neck Injury	1	1	0	2
Total	68	9	24	101

The majority of admissions were for soccer-related injuries. These were predominantly lower limb injuries followed by head and trunk injuries (Table 3). The main lower limb injuries included fracture of the shaft of the femur, knee injuries and fracture of the ankle. The causes for soccer injuries needing admission included players colliding with each other and in one instance, a player collided with the goal post. It is of interest to note that four of the nine injuries which occurred at cricket were due to the player being struck in the eye by a cricket bat.

Figure 4

Table 3: Lower limb injuries sustained in soccer

Injury	Number (Percentage %)
Fracture shaft of femur	7 (32)
Tibia/ Tibial plateau fracture	5 (23)
Hip Dislocation	2 (9)
Dislocated ankle	2 (9)
Fracture toe	2 (9)
Patella fracture/knee injury	2 (9)
Open lateral maleolar fracture	1 (4.5)
Lower limb laceration	1 (4.5)
Total	22 (100)

The number of days admitted to hospital for all the patients ranged from one (1) to thirty eight (38) with a median hospital stay of 5.2 days. The median admission time for soccer was however 4.5 days, even though cumulatively this sport accounted for the majority of inpatient days.

DISCUSSION

The popularity of sporting activities and the potential for preventable injuries has always stimulated the interest of the medical community and led to the firm establishment of sports medicine as a subspecialty in its own right. This has stimulated the study of the epidemiology and mechanics of sports related injuries in an effort to identify and nullify those factors which are amenable to correction. Although some amount of prevention is practical given the large number of participants in sports, health care professionals are faced with a real challenge

The majority of the injuries in this study were for soccer (66%) (Table 1). This correlated with other studies in the region including one by Procope who reported a similar figure in a paediatric population in a Barbadian general practice ([1]). Dr. Ronald Wilson, another Barbadian physician surveyed young athletes involved in sporting activities over a nine year period ([2]). He discovered that lower limb injuries were the commonest type of injury as was found in our study and injuires to the upper limb were next, followed by injuries to the head and trunk (Table 2). Lower limb injuries relate to improper conditioning and improper warming up prior to the sporting activity([3]). Other studies have also shown that the part of the body most often injured in sports activities is the lower limb ([3], [4]). The lower extremities are at an overall greater risk for injury due to the emphasis of most sports on the lower limb for locomotion and speed, regardless of age. The most frequent soccer related lower limb injuries were femoral shaft fractures (32%) followed by tibial plateaux fractures (23%)(Table 3).

The age group most frequently involved in sports related admissions in our study was the adolescent age group (55%) (Figure1) which has been found universally to be the group with the highest incidence of sports- related injuries ([3], [5], [6]). The benefits of sports participation in children include factors such as confidence building, establishing a lifelong habit of fitness and of course, providing a controlled outlet for youthful energy. It is for these reasons that sports participation in adolescents is to be encouraged, but the factors predisposing to injury must be identified and treated ([4]).

Literature research revealed studies which reviewed all visits to the Emergency Department for sports injuries not just admissions as in this study ([5]). However, these reports still pointed to soccer as the sport causing most injuries, the adolescent age group being the age most affected and that lower limb injuries featured predominantly ([3]). Soccer originated in the 19th century and is the most popular team sport in the world ([7]). Worldwide, there about 200 million players and in the USA there are 3 million players with the number increasing. The University Hospital of the West Indies data revealed that 66% of the study population sustained soccer related injuries. Soccer is a contact and collision sport and 70% of the time is spent in running and so the sport requires lower extremity strength endurance and flexibility and neck muscle strength ([7]). The sport places significant stress on the hips, knees and abdominal muscles.

The ways in which the severity and incidence of sports related injuries can be reduced can be summed up in three areas, personal countermeasures, behavioural interventions and environmental modification ([5]). It is estimated that up to fifty percent of all injuries sustained while playing organised sports by children and adolescents maybe preventable([2]). A recent report on the prevention of sports injuries in children listed the following factors as modifiable for injury prevention:- the need for coaches and teachers to emphasize that general fitness is the basis for sports participation, the rules for adult games should be modified as appropriate for young people, opponents of a sport should be ideally matched for age weight and maturity. It was suggested

further that comprehensive preparticipation exams should be encouraged and training sessions should be include warm up and cool down periods and flexibility exercises.

Sports injuries are not accidents, they are predictable incidents that are amenable to prevention, with each athlete having individualised risk factor and each sport poses its own risk for injury. The above factors should have a multidisciplinary approach involving, the coach parents and the athletes. The soccer player in particular should have pre-participation evaluation tests of endurance and lower extremity muscle strength. Shin guards may reduce the severity of leg injuries and proper shoes are very important. The use of well secured goal posts and adequately prepared running surfaces are also encouraged as are smaller balls and reduced field size for players under 12 ($_{7}$).

The limitations of the study included the fact that we were unable to assess for physical conditioning of the athletes, their level of professionalism and the use of protective devices.

This study could serve as a basis for a prospective study which would examine all visits to the hospital for sports related injuries (not just the admissions) to evaluate the patient type and injury profile.

SUMMARY

Admissions for sports related injuries are myriad and over a five year period one hundred and one persons were admitted to the University Hospital for such injuries. Most of the injuries were for soccer and occurred in the adolescent age group.

References

1. Procope NE. An analysis of sports injuries in a general practice with special interest in sports medicine. In: Fraser HS, Hoyos MD. Problem in adolescent medicine in the Caribbean. St. Michael, University of the West Indies (Cave Hill). Faculty of Medical Sciences, 1983.p.69-74
2. Wilson R. An overview of athletic injuries in adolescents In: Fraser HS, Hoyos MD. Problem in adolescent medicine in the Caribbean. St. Michael, University of the West Indies (Cave Hill). Faculty of Medical Sciences, 1983.p.75-9.
3. Williams JM, Wright P, Currie CE, Beattie TF. Sports related injuries in Scottish adolescents aged 11-15. British Journal of Sports Medicine 1998; 32: 291-6.
4. Hutchinson MR, Nasser R. Common Sports Injuries in Children and Adolescents. Medscape General Medicine 2 (4)http://www.medscape.com/viewarticle/408524 searched on March 25th 2004
5. MMWR Nonfatal sports and Recreation related injuries treated in Emergency Department United states 2002; 51(33):736- 40.
6. Burt CW. Overpeck MD. Emergency visits for sports related injuries. Annals of Emergency Medicine. 2001; 37: 301-8.
7. Patel DR, Stier B, Luckstead EF. Major International sport profiles. Paediatric Clinics of North America 2002; 49:769-92.

Author Information

Jean Williams Johnson, DM Emergency Medicine (UWI)
Emergency Medicine Division Department of Surgery Radiology Anaesthesia and Intensive Care, University of the West Indies

Eric Williams, DM Emergency Medicine (UWI)
Emergency Medicine Division Department of Surgery Radiology Anaesthesia and Intensive Care, University of the West Indies

Nicola Meeks Aitken, RN
Department of Surgery Radiology Anaesthesia and Intensive Care, University of the West Indies

Archibald H. McDonald, FRSC (Edin)
Dean, Faculty of Medical Sciences, University of the West Indies

Praimanand Sing, MPH
Emergency Medicine Division Department of Surgery Radiology Anaesthesia and Intensive Care, University of the West Indies