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RESEARCH ARTICLE

PATTERN OF LIMB FRACTURES AMONG RTA PATIENTS ATTENDING THE EMERGENCY DEPARTMENT IN GMC JAMMU J&K- A RETROSPECTIVE STUDY

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ABSTRACT

Introduction: The aim of this study was to analyze the pattern of limb injuries in road traffic accident patients.
Methods: This study is a retrospective study of patients who had sustained a road traffic accident and have attended the emergency department of Government Medical College Jammu from June 2013 to Dec 2014, showing relevant clinical information including age, gender, bone fractured, site of fracture (upper 3rd, middle 3rd, lower 3rd), side involved (Right, left), fracture pattern, open or closed fracture and any associated injuries (Head injury, Chest injury, abdominal injury, vascular injury and Nerve injuries). Data obtained were analyzed in frequencies.
Results: During the 18 months study period, 1222 injured patients were seen in the emergency department. Out of these 826 (67.5%) patients were confirmed cases of fracture. Majority of fractures were seen in lower limb. In patients with confirmed fracture cases most (69.7%) were closed fracture and remaining (30.2%) were open fractures. The majority of patients were in the 3rd and 4th decades. Males were involved more than females (1.83:1). Femur was the most common individual fractured bone.
Conclusion: Road traffic accidents (RTA) were observed to be the leading cause of bone fractures especially in individuals in their 3rd and 4th decades of life, constituting most of its victims. Males were observed to be predominantly involved with the lower extremity the most affected site of bone fractures. A large proportion of these patients have associated visceral injuries with high morbidity and mortality, therefore various strategies for prevention, early recognition and treatment of injuries due to road traffic are required for optimal outcome.

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INTRODUCTION

The understanding of the Epidemiology of a disease is one of the methods that help to find out the etiology of a disease and the factors that may lead to its control. The same way Epidemiology of fractures is of no less importance as Accidents in general and Road traffic accidents in particular remain a major community health problem. Fracture has been defined as a break in the continuity of a bone (Frey and Lutwick, 2009). The fracture occurs due to excessive force, stress, or trivial injury as occurs in pathologic fractures.

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(Marshall and Browner, 2012) Road traffic accidents (RTA) are responsible for a substantial proportion of deaths & injuries and are responsible for more years of life lost than most human diseases. Road traffic accidents in worldwide accounts for around 1.2 million deaths and over 50 million injuries annually (World Health Organization, 2004).

It is expected that by the year 2020 RTA will rank third in the global burden of diseases (Murary and Lopez, 1996). The RTA is 3rd most common cause of death in all age groups in developed countries such as the United States of America (AHA, 1985). This article was aimed at determining the pattern of fractures in RTA patient and will no doubt prove very useful to epidemiologist and health sector managers to prevent the injuries due to road traffic accidents by appropriate strategies.

MATERIALS AND METHODS

This study was a one and a half year retrospective study which involved records of all patients who presented in the emergency orthopaedic department government medical college jammu between June 2013 to Dec 2014. Relevant clinical information including age, gender, bone fractured, side involved (Right, left), site of fracture (upper 3rd, middle 3rd, lower 3rd) fracture pattern, associated injuries (Head injury, Chest injury, abdominal injury, vascular injury and Nerve injuries) and compounding of fractures. Data obtained were analyzed in frequencies.

RESULTS

During the 18 months study period, 1222 injured patients were seen in the emergency department. Out of these 826 (67.5%) patients were confirmed cases of fracture. 264 (31.9%) were upper limb fractures, 562 (68.03%) were lower limb fractures and remaining 396 cases were having soft tissue injuries like sprain and strains in 48 (12.1%) patients, only laceration in 56(14.1%) patients, contusion with intact skin in 66(16.6%) patients, Degloving injuries in 42 (10.6%), major vascular injuries 56(14.1%) patients, nerve injuries in 33 (8.3%) patients and tendon injuries in 95 (23.9%) patients. In the patients with confirmed fractures, 576(69.7%) were closed fractures and remaining 250 (30.2%) were open fractures. The maximum (n=366, 44.3% percent) were in the age group of 21–44 years (Table 1). There were 535 male (64.75%) and 291 (35.2%) female patients (Table 2). Single bone fractures were seen in 410 (49.6%), two bone fracture in 296 (35.8%) and multiple fractures in 120 (14.5%) patients (Table 3). Crush injuries were seen in 88 (10.6%) of cases.

Table 1. Age of patients with fractures

Age group	No. Of patients	%
0-20	156	18.8%
21-40	366	44.3%
40-60	210	24.5%
>60	94	11.3%

Table 2. Gender distribution

Sex	No. Of patients	%
Male	535	64.7%
Female	291	35.25

Table 3. Number of fractures

No. Of fractures	No. of patients	% age
Single bone fracture	410	49.6%
Two bone fracture	296	35.8%
Multiple bone fracture	120	14.5%

It was observed that lower extremity fractures are more common, the tibio-fibular fractures being the most fractured bones accounting for 224 (27.1%) followed by the femur 144(17.13%). The most common fractured bones in the upper extremity were radio-ulnar fractures 106 (12.8%) followed by the humeral fractures 96 (11.6%) (Table 4,5).

Table 4. Bones involved upper limb

Bone	No. Of patients	% age
Scapula	2	0.24%
Clavicle	66	7.9%
Humerus	96	11.6%
Radius	56	6.7%
Ulna	18	2.1%
Radio/ulnar	32	3.85
Hand	88	10.6%

The femur was the most fractured individual long bone with 34 (23.6%) of its fractures occurring at its distal third, 66 (45.8%) of fractures at proximal third, while as 144 (30.5%) at the midshaft.

Table 5. Bones involved in lower limb

Bone	No. Of patients	% age
Femur	144	17.4%
Tibia	76	9.2%
Fibula	46	5.5%
Tibio /fibular	102	12.3%
Patella	22	2.6%
Foot bones	56	6.75
Pelvis	22	2.6%

Table 6. Location of fracture

Bone	Proximal	Middle	distal
Clavicle	8 (12.1%)	38 (57.5%)	20 (30.3%)
Humerus	26 (27.08%)	38 (39.5%)	32 (33.3%)
Radius	20 (35.7%)	16 (28.5%)	30 (53.5%)
Ulna	10 (55.5%)	6 (33.3%)	4 (22.2%)
Radioulnar	2 (6.2%)	26 (81.2%)	4 (12.5%)
Femur	66 (45.8%)	44 (30.5%)	34 (23.6%)
Tibia	30 (39.4%)	32 (42.1%)	14 (18.4%)
Fibula	7 (15.2%)	9 (19.5%)	30 (65.2%)
Tibio fibular	15 (14.7%)	76 (74.5%)	11 (10.7%)

Table 7. Type of fracture

Type	Transverse	Oblique	Comminuted	Non specified
Simple 576 (69.7%)	256 (44.4%)	140 (24.3%)	142 (24.6%)	38 (6.5%)
Open 250(30.2%)	66 (26.4%)	82 (32.8%)	90 (36%)	12 (4.8%)

This was followed by the humerus with midshaft accounting for 38(39.5%), proximal third 26 (27.08%) and the distal third 32 (33.3%) of its fractures. The next common individual fractured bone was the tibia with fractures at its distal third, midshaft and proximal third accounting for 14 (18.4%), 32 (42.1%) and 30 (39.4%) of its fractures respectively (Table 6). As shown in Table 7, fractures were classified as either simple or open. Simple fractures accounted for 576 (69.7%) of cases while as open fractures accounted for 250(30.2%) of cases. The study showed that out of 576 simple fractures, 256 (44.4%%) were transverse, 140 (24.3%) oblique, 142 (24.6%) comminuted and 38 (6.5%) unspecified type of fractures respectively. In open fractures 66 (26.4%) were transverse, 82 (32.8%) oblique, 90 (36%) comminuted and 12 (4.8%) unspecified fracture types respectively. Head injury was the most common associated injury seen in 226 (18.4%) of cases. Thoracic, abdominal and genitourinary injuries were seen in 46 (3.7%), 64 (5.2%), and 16 (1.3%) respectively.

DISCUSSION

The study recorded 1222 cases of injuries due to road traffic accidents including 826 cases of comfirmed bone fractures over a period of 18 months. Fractures were seen more in the lower extremities, with the femur being the most single fractured bone. Similar observations are reported by several authors (Admasie *et al.,* 2009; Mubashir *et al.,* 2008; Nwandingwe *et al.,* 2006; Okoro and Ohadugha, 2006; Olaitan, 2003). In our study the most common fractured bone in the upper extremity was the humerus. This is similar to a study in Ethiopia in which the humerus was found to be the most common fractured bone in the upper extremity (Admasie *et al.,* 2009).

The upper extremities play an essential role in mobility and control especially with the use of motorcycles. Extensive contractions of the muscles of the arm have been shown to be responsible for fractures which occur in this region of the body (Roger and Skeletal, 1995). This may have been the reason for the predominance of humeral fractures in this study. In our study the fractures were seen more in males within their 3rd to 4th decades of life as reported by other authors as well (Mubashir *et al.,* 2008; Khanbhai and Lutomia, 2012; Tytherleigh-Strong *et al.,* 1998; Balogun and Abereoje, 1990). Furthermore, male predominance for fractures could be attributed to the more day to day activities (construction, vehicular driving, motorcycle riding etc.) which may result in RTA. Individuals in their 3rd and 4th decades of life commonly display carefree behaviours which could result in increased incidence of RTA (Adoga and Oziolo, 2014). The majority of the cases in this study were having simple fractures. This is similar to other studies (Taiwo *et al.,* 2013).

Conclusion

In this study, Road Traffic Accidents (RTA) were seen to be the leading cause of bone fractures especially in individuals in their 3rd and 4th decades of life, constituting most of its victims. Males were observed to be predominantly involved with the lower extremity the most affected site of bone fractures. A large proportion of these patients have associated visceral injuries. Fractures were the most common pattern of orthopaedic injuries. Multiple strategies for prevention of injuries due to road traffic are required like enforcement of strict traffic rules, avoiding alcohol during driving, remediation therapy for drink driving offenders, reduction in permitted blood alcohol concentration, random breath testing, car restraints (seat belts, child restraints), speed limits, road design, roadside guardrails, vehicle design, road safety education, helmets, heavy penalty for rash driving, driving tests for issuing licenses etc.

REFERENCES

Admasie, D., Tekle, Y.Y. and Wamisho, B.L. 2009. Radiological and Clinical Details of Major Adult Limb Fractures in a Teaching Hospital, AAU, Ethiopia. East. and Cent. *Afr. J. Surg.,* 14(1):88-97.

Adoga, A.A. and Oziolo, K.N. 2014.The Epidemiology and Type of Injuries Seen at the Accident and Emergency Unit of a Nigerian Referral Centre. *J. Emerg. Trauma. Shock*, 7(2):77-82.

AHA, publication 55-005-1 1985. Leading Causes of death, United States 1982 estimate, heart facts. In: Instructors Manual for basic life support, 171.

Balogun, J.A. and Abereoje, O.K. 1992. Pattern of Road Traffic Accident Cases in a Nigerian University Teaching Hospital Between 1987 and 1990. *J. Trop. Med. And Hyg.,* 95(1):23-29.

Frey, R.L. and Lutwick, L.I. 2009. Fracture. 1st ed. U.X.L encyclopedia of diseases and disorders. Detroit: Gale, 2: pp384.

Galano GJ, Vitale MA, Kessler MW, Hyman JE and Vitale MG. 2005. The most frequent traumatic orthopaedic injuries from a national pediatric inpatient population. *J. Pediatr. Orthop.,* 2005 Jan-Feb 25(1):39-44.

Khanbhai, M. and Lutomia, M.B.L. 2012. Motorcycle Accident Injuries Seen at Kakamega Provincial Hospital in Kenya. East. and Cent. *Afr. J. Surg.,* 17(1):43-46.

Marshall, S.T. and Browner, B.D. 2012. Emergency care of musculoskeletal injuries in Sabiston D, Townsend C. Sabiston Textbook of Surgery. 1st ed. Philadelphia: Elsevier Saunders; pp480-520.

Mubashir, A., Tahir, M.T., Syed, A.A., Waseem, A.M., Nasra, B. 2008. Non-Fatal Limb Injuries in Motorbike Accidents. *J. of the Col. of Phys. and Surg., Pakistan*, 18(10):635-638.

Murary, C.J.L. and Lopez, A.D. 1996. (Editors). Global Burden of Disease: A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020. Harvard School of Public Health, 1996.

Nwandingwe, C.U., Ihezie, C.O. and Iyidiobi, E.C. 2006. Fractures in Children. *Niger. J. Med.,* 15(1):81-84.

Okoro, I.O. and Ohadugha, C.O. 2006. The Pattern of Fractures and Dislocations among Accident Victims in Owerri, Nigeria. *Niger. J. Surg. Res.,* 8(1-2):54-56.

Olaitan, O.L. 2003. Fractures: Pattern of Incidence! Causative Factors and Treatment at Olives Hospital, Ibadan, Nigeria. Health. and Fitness. *Journal International,* 4(1-2):8-20.

Roger, W.S. 1995. Skeletal System, In Gray's Anatomy, Anatomical basis of medicine and surgery 38th Ed, Churchill Livingstone, London G Britain; 623-627.

Taiwo, A.O., Soyele, O.O. and Godwin, Ibinkule A.A. 2013. Facial Fracture Management in Northwest Nigeria. *J. Surg. Tech. Case. Rep.,* 5(2):65-71.

Tytherleigh-Strong, G., Walls, N. and McQueen, M.M. 1998. The Epidemiology of Humeral Shaft Fractures. *J. of Bone. and Joint. Surg.,* 80-B(2):249-253.

World Health Organization, 2004. World report on road traffic injury prevention. World Health Organization, Geneva,

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