ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 11, Issue, 04, pp.3356-3357, April, 2019

DOI: https://doi.org/10.24941/ijcr.35037.04.2019

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

THE EPIDEMIOLOGY OF MULTIFOCAL UPPER LIMB FRACTURES

***Dr. Amar Saharan, Dr. Rakesh Sharma, Dr. Aamir Hussain, Dr. Sumeet Charak and Dr. Nitin Choudhary**

GMC, Jammu, India

ARTICLE INFO

Article History:
Received 10th January, 2019
Received in revised form
26th February, 2019
Accepted 24th March, 2019
Published online 30th April, 2019

Key Words:

Osteoarthritis;
Health Awareness, Pharmacists led;
Patient Educations.

Corresponding author:* **Amar Saharan

ABSTRACT

Aim: The aim of this study is to identify the epidemiology of multifocal upper limb fractures and define any commonly occurring patterns. Patients: Patients included were those over the age of 13 years who presented to one orthopaedic trauma unit, in an eight-year period, and who sustained a multifocal upper limb fracture. **Results:** There were 83 patients with 171 multifocal upper limb fractures. Mean age 60 years; range 13 to 80 years. 78 patients had bifocal fractures and 5 had trifocal. The most common pairing of fourteen different combinations was distal radius and proximal humerus. All but nine patients had involvement of the proximal humerus or distal radius. The most common injuries were the two-part proximal humerus fracture, the simple intra-articular olecranon fracture and the extra-articular fracture of the distal radius with metaphyseal comminution. **Conclusion:** This study has shown that multifocal fractures of the upper limb are most likely to occur in the middle aged to elderly women who have had a fall from standing height. As previously demonstrated osteopenic fractures are increasing in incidence in developed countries, where the population is ageing, which implies that the incidence of multifocal fractures of the upper limb is likely to increase.

***Citation: Dr. Amar Saharan, Dr. Rakesh Sharma, Dr. Aamir Hussain, Dr. Sumeet Charak and Dr. Nitin Choudhary,* 2019.** "The epidemiology of multifocal upper limb fractures", *International Journal of Current Research*, 11, (04), 3356-3357.

INTRODUCTION

Multiple fractures in the same upper limb are considered usually to be related to high energy injury but the true epidemiology has never been analysed. Where there are co-existing injuries one or more may be overlooked. Study of the epidemiology of multifocal upper limb fractures may be able to identify the demographic information that might indicate the possibility of multiple fractures being present and identify patterns of injury that should raise suspicion that other injuries may be present in the same limb. The aim of this study is to identify the epidemiology of multifocal upper limb fractures and define any commonly occurring patterns.

PATIENTS AND METHODS

All patients over the age of 13 years who presented to the Orthopaedic Trauma Unit of Government Medical College Jammu, in an 2year period from 2017 to 2019 inclusive and who sustained a multifocal fracture of their upper limb excluding the hand were included in the study. Hand fractures were excluded because prospective data were not available. Patients presenting to the unit are drawn from a defined population of approximately 502,197. The unit is the single orthopaedic trauma unit in the local area therefore ensuring a high capture rate.

A multifocal injury was defined as the presence of more than one fracture in the same limb provided the fractures were independent of each other. Basic demographic data was collected prospectively and added clinical and radiological data were collected retrospectively from case notes and radiographs. The fractures are classified using the AO system and the Gustilo classification for the open fractures.

RESULTS

In the two years of the study there were 83 patients with 171 multifocal fractures of the upper limb. During the same time period 13,560 upper limb fractures were treated. Multifocal fractures are therefore 1.3 % of all upper limb fractures. The mean age was 60 years with a range from 13 years to 80 years. 24 were male and 59 female. Over half of the injuries were caused by falls from standing. 78 patients had bifocal fractures and 5 had trifocal fractures. The most common fractures were fractures of the distal radius and ulna of which there were 56, closely followed by proximal humeral fractures of which there were 51. The most common pairing of fourteen different combinations was distal radius and proximal humerus. All but nine patients had involvement of the proximal humerus or distal radius (89.2 %). The most common injuries to be combined with other upper limb fractures are the two-part proximal humerus fracture, the simple intra-articular olecranon fracture and the extra-articular fracture of the distal radius with metaphyseal comminution. Ten patients had open fractures: 7

were Gustilo type 1, and 3 were Gustilo type 2. Three of the five trifocal injuries were open. The majority of patients were sent home from the acute hospital (75 %), while 12 % were sent to a rehabilitation hospital.

DISCUSSION

This study has shown that multifocal fractures of the upper limb are most likely to occur in the middle aged to elderly women who have had a fall from standing height. The incidence shows a bimodal distribution with a large peak of women from the age of sixty onwards. This is the post wage-earning pattern described by Buhr and Cook (1) and is highly suggestive that these injuries occur in osteopenic bone. Other studies have shown that this is the predominant pattern in unifocal upper limb fractures (2, 5, 7, 8). Osteopenic fractures are increasing in incidence in developed countries where the population is ageing. This implies that the incidence of multifocal fractures of the upper limb is likely to increase also. Very few multifocal upper limb fractures occur due to high-energy injury. This differs from the lower limb. Keating and his co-authors (4) showed that bifocal fractures of the tibia and fibula occurred in a higher proportion of middle-aged men (mean age 45), the majority of which occurred in association with high-energy injury. This study is based on a defined population of approximately 502,197 who are served by only one orthopaedic trauma unit. Although it is always possible that patients will go outside their area for treatment introducing potential weaknesses in the data, we believe that this number is minimal as this would require them to travel for some distance. It is likely that this study represents a very high capture rate of data. It is important that the treating surgeon is aware of the possibility of a separate injury in the same limb to avoid delays in treatment. Our study has shown that the commonest association is between distal radial fractures and proximal humeral fractures both of which are common individually. This emphasizes the importance of examining the rest of the upper limb when a fracture is diagnosed. Most of our patients were treated either as outpatients or discharged to their own home. This implies that although elderly they are the fit and active elderly who retain their independence. Awareness of the possibility of multifocal injury in this group is of particular importance so that their independent status is not compromised.

REFERENCES

Buhr AJ., Cook AM. 1959. Fracture patterns. Lancet, 1:531–536

Court-Brown CM., Garg A, McQueen MM. 2001. The epidemiology of proximal humeral fractures. *Acta Orthop Scand.,* 72:365–371

Gustilo RB., Anderson JT. 1976. Prevention of Infection in the treatment of one thousand and twenty five open fractures of longbones. J Bone Joint Surg (Am)., 59-A:453–457

Keating JR., Kuo RS., Court-Brown CM. 1994. Bifocal fractures of the tibia and fibula: Incidence, classification and treatment. J Bone Joint Surg (Br). 76-B:395–400

McQueen MM. 1999. Epidemiology of fractures of the forearm. In: Eds McQueen MM, Jupiter JB. Radius and Ulna, Butterworth-Heinemann, Oxford, 1–11

Müller ME., Nazarian S., Coch P., Schatzker J. 1990. A comprehensive classification of fractures of long bones. Berlin: Springer-Verlag.

Singer BR., McLaughlan GJ., Robinson CM., Christie J. 1998. Epidemiology of fractures in 15000 adults: The influence of age and gender. J Bone Joint Surg (Br) 1998;80-B:243–248

Tytherleigh-Strong G., Walls N., McQueen MM. 1998. The epidemiology of humeral shaft fractures. *J Bone Joint Surg*., (Br)., 80-B:249–253

****