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**Original Article**

# Assesment of Frequency of Distal Radius Fracture in Tertiary Care Hospital

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## Abstract

**Background:** Fracture of the distal radius is one of the most common fractures. It has been estimated to account for one-sixth of all fractures that are seen and treated in the emergency department. No other fracture has a greater potential to devastate hand function. Understanding the epidemiology of distal radius fractures may be of great importance to clinicians for identifying the risk groups and protect them.

**Objective:** The aim of the present study was to asses the frequency of distal radius fracture.

Methods: A prospective observational study was conducted from July 2016 to June 2018 among 32 patients attending at Orthopaedics and Traumatology department of the Dhaka Medical College Hospital after obtaining requisite consent from the patients. The collected data were entered into the computer and analyzed by using SPSS (version 20.1) to know the epidemiology of distal radius fracture. The study was approved by the institutional ethical committee.

**Results:** 32 patients were enrolled for the study. The mean age of the patients was 37.56±11.82. More than half of the respondents were male (68.75%). Highest number (31.25%) of patients came from worker community. The commonest cause (62.52%) of distal radius fracture was road traffic accidents. Most of the patients (78.12%) had closed fractures. Out of 32 patients only 6 patients had associated major injury which represents 25.01%.

**Conclusion:** Male and elderly populations are considered at high risk for distal radius fracture.

**Keywords:** Distal radius fracture, open fracture, closed fracture.

## Introduction

Distal radius fractures are one of the most common types of fractures, accounting for around 25% of fractures in the pediatric population and up to 18% of all fractures in the elderly age group. Although the pediatric and elderly populations are at the greatest risk for this injury, distal radius fractures still have a significant impact on the health and well-being of young adults.[1] The incidence rate of distal radius fractures is known to be higher in males than in females. Patients with fracture of distal end of radius have serious complications more frequently than generally appreciated and failure in management may cause permanent disability.[2] Understanding the epidemiology of this fracture is an important step towards the improvement of the treatment strategies and preventative measures which target this debilitating injury.

## Materials & Methods

A prospective observational study was conducted from July 2016 to June 2018 among 32 patients attending at Orthopaedics and Traumatology department of the Dhaka Medical College Hospital after obtaining requisite consent from the patients. Purposive sampling was done to collect the data. The collected data were entered into the computer and analyzed by using SPSS (version 20.1).

## Result

Table-I shows distribution of patients by age. In this study the highest number of patients 9 (28.13%) were within 35-43 years. The mean age was 37.56±11.82 years.

**Table-I: Age distribution of the study population (n=32**

| Age in years | Frequency | Percentage (%) |
|---|---|---|
| 18 – 25 years | 7 | 21.88 % |
| 26 – 34 years | 8 | 25 % |
| 35 – 43 years | 9 | 28.13 % |
| 44 – 52 years | 3 | 9.38 % |
| ≥53 years | 5 | 15.63 % |
| **Total** | **32** | **100 %** |

Among the study population male (68.75%) was found 22 and female (31.25%) was 10 (Table-II).

**Table-II: Sex Distribution of the study population (n=32)**

| Parameters | Number | Percentage |
|---|---|---|
| Sex | | |
| Male | 22 | 68.75 % |
| Female | 10 | 31.25% |
| **Total** | **32** | **100** |

According to table III, highest number of patients 10 (31.25%) came from worker community. Next highest group was housewife 7 (21.88%)

**Table III: Occupation status of the study population (n=32)**

| Occupation | Frequency | Percentage (%) |
|---|---|---|
| Community worker | 10 | 31.25 % |
| Housewife | 7 | 21.88 % |
| Farmer | 5 | 15.63 % |
| Businessman | 4 | 12.5 % |
| Student | 3 | 9.38% |
| Service holder | 3 | 9.38% |
| **Total** | **32** | **100%** |

Distal radial fractures of this series resulted from different causes. Table IV shows that the commonest cause was road traffic accidents. It happened in 20 (61.90%) out of 32 patients.

**Table-IV: Distribution of patients according to the cause of injury (n=32)**

| Causes of injury | Frequency | Percentage (%) |
|---|---|---|
| Road traffic accidents | 20 | 62.50 % |
| Fall on slippery ground | 10 | 31.25 % |
| Occupational accident | 2 | 6.25 % |
| **Total** | **32** | **100 %** |

According to table V, most of the patients had closed fractures. Number of such cases was 25 (78.12%)

**Table-V: Distribution of patients according to soft tissue involvement (n=32)**

| Type of fracture | Frequency | Percentage (%) |
|---|---|---|
| Open fracture | 7 | 21.88 % |
| Closed fracture | 25 | 78.12 % |
| **Total** | **32** | **100 %** |

Table VI shows that out of 32 patients only 8 patients had associated major injury which represents 25 %. Among them, patients presented more with distal ulnar fracture (12.50%)

**Table-VI: Distribution of associated injury (n=32)**

| Associated injury | Frequency | Percentage (%) |
|---|---|---|
| Trochanter fracture | 3 | 9.38 % |
| Shoulder dislocation | 1 | 3.13 % |
| Fracture distal end of ulna | 4 | 12.50 % |

## Discussion

In this study it is observed that mean age of the patient was 37.56 ± 11.82 years and the maximum number of the patients belonged to the age range between 35 to 43 years. Bacron & Kurtzke in a study with two thousand cases in New York between the period of 1945 to 1949 had found that the average age of the patients was 48.2 years 3.In this study 22 patients were male (68.75%) and 10 were female (31.25%). Dissimilar results were obtained in the study conducted by Baron, JA et al.(1996) study. In their study they stated that womens were approximately 4.88 times more likely than men to obtain a distal forearm fracture.[4] In this study most of them (20 patients) sustained injury by road traffic accident, followed by fall on

out-stretched hand (10 patients). It represent 61.90% and 31.25% respectively. In the study by Bacron & Kurtzke, it has been mentioned that fall on the out stretched hand was the most common cause of the injury.[3] In our study only 8 patients out of 32 patients presented with aasociated injury. Common associated injury was fracture of the distal end of ulna. Ahmed bazzi in his study stated that distal radius fractures are commonly associated with ulnar fractures, either at the same level or at the ulnar styloid.[5]

## Conclusion

Male and elderly populations are considered at high risk for distal radius fracture. Understanding the frequency of distal radius fractures can help physicians choose the most appropriate treatment options for the fracture, as well as effectively target preventative measures towards at-risk populations.

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