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Orthopedic Surgery

The Management of Distal Radius Fracture for Adult Patients in Bangladesh

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Abstract **Original Research Article**

Background: Distal radius fractures are one of the most common fractures patients experience. Although there are a variety of treatments, there is a lack of standardization as it relates to treatment of such fractures. ***Objective:*** In this study our main goal is to evaluate the management of distal radius fracture for adult patients in Bangladesh. ***Method:*** This observational prospective study was carried out at Chittagong Medical College Hospital and private hospitals in Chittagong from May 2015 to November 2020. Where a total of 30 Patients with unstable distal radial fracture attending at the emergency and outpatient department of Chittagong Medical College Hospital and Private Hospitals in Chittagong were included in this study. ***Results:*** During the study, according to mechanism of injury 60% patients fall on out stretched hand followed by 33.3% injuries responsible from MVA and 6.7% cases were occupational. most of the injuries belong to type II Fernandez classification, 33%. Followed by 30% injury cases belong to type II Fernandez classification, 23.3% cases belong to type I Fernandez classification, 6.7% cases belong to type IV and V classification. 86.7% cases need physiotherapy for <6 weeks followed by 13.3% cases need physiotherapy for >6 weeks. Also, according to distribution of overall assessment of anatomical outcome 80%cases were satisfactory and 20% cases unsatisfactory. ***Conclusion:*** Distal radius fractures are a common orthopedic injury. Advanced nursing practice providers either directly or indirectly participate in the care of these patients. Also, management of distal radius fracture for adult patients with volar locking plating system results in satisfactory results.

Keywords: Distal radius fracture, volar locking plating system.

INTRODUCTION

Distal radius fracture is one of the most common fractures encountered in orthopedic care. Patient out-comes from such fractures will have an impact on overall functioning and quality of life. A variety of treatment options are available including closed reduction and casting, Kirschner wire stabilization, external fixation and the increasingly popular use of open reduction and internal fixation (ORIF) with volar locking plates [1, 2]. Volar plating is more common and effective due to lower risk of tendon irritation and rupture as opposed to dorsal plating. Initial treatment with casting or closed reduction and casting is simple and con-venient. Treatment with ORIF carries surgical risks but has a more rapid initial rehabilitation period [3].

However, whether an operative or non-surgical approach is best for treating a DRF in an elderly patient remains controversial because the fracture reduction does not appear to be as strongly associated with functional outcomes as it does in younger patients [4, 5].

In this study our main goal is to evaluate the management of distal radius fracture for adult patients in Bangladesh.

OBJECTIVE

- To assess the management of distal radius fracture for adult patients in Bangladesh.

METHODOLOGY

Type of study: This is an observational prospective clinical study.

Place and period of study: This study was conducted at Chittagong Medical College Hospital and private hospitals in Chittagong from May 2015 to November 2020

Study population: Patients with unstable distal radial fracture attending at the emergency and outpatient department of Chittagong Medical College Hospital and Private Hospitals in Chittagong.

Inclusion Criteria:

- Unstable fracture of distal radius.
- Closed or open with soft tissue injury (Gustillo I & II)
- Age-any adult patient.(18-70 years)

Exclusion Criteria:

- Open fracture (Gustillo type III)
- Stable fracture.
- Undisplaced fracture.
- Acute medical illness.
- Poly traurna patient.
- Patients with mental or psychic issues.

Sample Selection

A total of 30 Patient attended at Emergency Department and Outpatient Department of Chittagong Medical College hospital & Private Hospital in Chittagong were selected considering the inclusion criteria.

RESULTS

In Figure-1 shows age distribution of the patients where most of the patients belong to 31-45 years age group, 56.7%. The following figure is given below in detail.

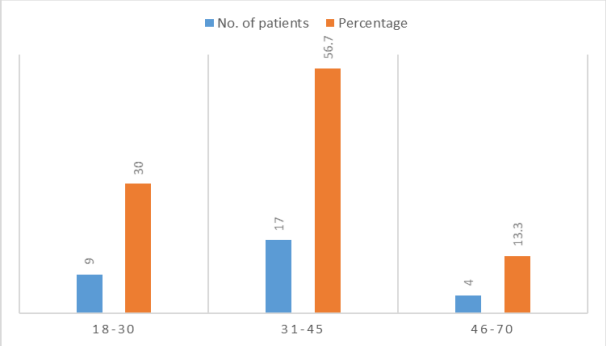

Figure-1: Age distribution of the patients.

In table-1 shows gender distribution of the patients where most of the patients were male. 90% patients were male and 10% patients were female. The following table is given below in detail:

Table-1: Distribution of patients by gender

Gender	No. of patients	Percentage
Male	27	90
Female	3	10
total	30	100

In table-2 shows distribution mechanism of occupations where 46.7% were labor, 16.7% were service holder, 16.6% were businessman and 6.7% were housewife. The following table is given below in detail:

Table-2: Distribution mechanism of occupations

Occupation	No. of patients	Percentage
Office Service	05	16.7
Businessman	05	16.6
Labor	14	46.7
House Wife	02	6.7
Others	04	13.3
Total	30	100

In table-3 shows Distribution mechanism of injury. 60% patients fall on out stretched hand followed by 33.3% injuries responsible from MVA and 6.7% cases were occupational. The following table is given below in detail:

Table-3: Distribution mechanism of injury

Mechanism of injury	No. of patients	Percentage
Fall on out stretched hand	18	60.0
MVA	10	33.3
Occupational	2	6.7
Others	0	0.0
Total	30	100

In table-4 shows distribution of type of fracture according to Fernandez classification. Where most of the injuries belong to type II Fernandez classification, 33%. Followed by 30% injury cases belong to type II Fernandez classification, 23.3% cases belong to type I Fernandez classification, 6.7% cases belong to type IV and V classification. The following table is given below in detail:

Table-4: Distribution of type of fracture according to Fernandez classification

Fernandez type	No. of patients	Percentage
Type I	7	23.3
Type II	10	33.3
Type III	9	30.0
Type IV	2	6.7
Type V	2	6.7
Total	30	100

In table-5 shows distribution of need for carpal tunnel release where 86.7% cases didn't have carpal tunnel release. The following table is given below in detail:

Table-5: Distribution of need for carpal tunnel release

Carpal tunnel release	No. of Patients	Percentage
Yes	4	13.3
No	26	86.7
Total	30	100

In table-6 shows distribution of patients for physiotherapy. 86.7% cases need physiotherapy for <6 weeks followed by 13.3% cases need physiotherapy for >6 weeks. The following table is given below in detail:

Table-6: Distribution of patients for physiotherapy

	No. of Patients	Percentage
<6 weeks	26	86.7
>6 weeks	4	13.3
Total	30	100

In Figure-2 shows distribution of overall assessment of anatomical outcome where 80%cases were satisfactory and 20% cases unsatisfactory. The following table is given below in detail:

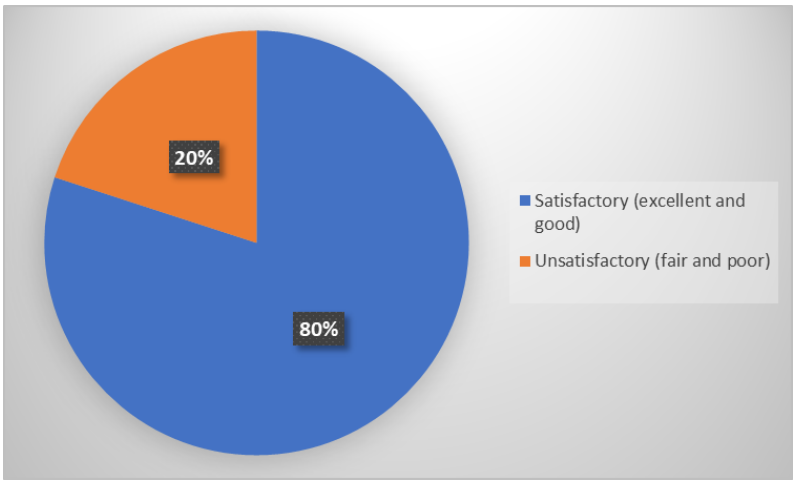

Figure-2: Distribution of overall assessment of anatomical outcome.

DISCUSSION

The selection of treatment method for distal radius fracture often demands surgeon's opinion on the correlation between anatomical and functional end result [6]. Some authors reported a positive correlation while others have not substantiated these finding [7]. The surgeons have shown that the anatomic achievement of radial length, radial angle, and dorsal angle are directly related to the functional out-come [8]. They have shown that radial length and dorsal angle is directly related to dorsiflexion and palmar flexion and radial angle is related to radial deviation and ulnar deviation of the wrist. Others have shown that there is no significant correlation between final anatomical and functional outcome [9].

In this study average follow-up period was 6 months. The mean Gartland and Werley score improves significantly from 4 points at 6 months to 2 points at two years.

Hard laborer, office worker, dominant handed people were more interested for surgical fixation of

unstable distal radial fractures with VLPS at the expense of cost of the implant and cost of surgery. Male attended more for 'Volar Locking Plating System expecting good functional hand for the cost of procedure.

CONCLUSION

Distal radius fractures are a common orthopedic injury. Advanced nursing practice providers either directly or indirectly participate in the care of these patients. Also, management of distal radius fracture for adult patients with volar locking plating system results in satisfactory results.

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