

Effectiveness and Functional Outcome of Extra-Articular Distal Radius Fracture Reduced in Hematoma Block in Adult Population in A Tertiary Care Hospital

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ABSTRACT

Objective: To determine the effectiveness and functional outcomes of extra-articular distal radius fracture reduced via hematoma block in adult population.

Study Design: Descriptive/Observational

Place and Duration: Study was conducted at Orthopaedic department of Dr. Ruth K.M Pauf Civil Hospital Karachi for period of one year from 1st September 2019 to 31st August 2020.

Methodology: Eighty Two patients of both genders presented with extra-articular distal radius fractures were enrolled in this study. Patients ages were ranging between 18 to 70 years. After taking written consent, detailed demographics including age, sex, BMI, fracture duration and side of fracture were recorded. Patients were managed by reduction in a hematoma Block. Pre and post reduction radiographs were obtained. Effectiveness of hematoma block were assessed by VAS during reduction. Patients were followed for 3 months. Functional outcomes were examined by Mayo Wrist Score after 3 months. Data was analyzed by SPSS 24.0.

Results: There were 45 (54.88%) females and 37 (45.12%) were males with mean age 42.46±10.58 years. Mean fracture duration was 8.26±3.74 hours. Effectiveness of hematoma block was found in 68 (82.93%) in term of pain by VAS. 50 (60.98%) patients had excellent, 24 (29.27%) had good, 6 (7.32%) had fair and 2 (2.44%) had poor functional outcomes at final follow-up via Mayo wrist score

Conclusion: Hematoma block is an effective and safe way of reducing extra-articular distal radius fractures.

Keywords: Distal Radius Fractures, Extra-articular, Hematoma Block, VAS, Mayo Wrist Score

INTRODUCTION

Distal radius fracture (DRF) accounts for 20% of all fractures managed in casualties [1]. Every year, one out of every six fractures managed in a casualty department is a distal radius fracture. It has two peaks in life; the first is between the ages of 5 and 24, and the second is in females over the age of 65 [2]. There are various methods for managing it, but the best methods have yet to be identified [3]. DRF are not rare fractures that an orthopedic surgeon manages throughout his or her practice. Nonetheless, DRF are complicated fractures with a variable prognosis, and if not treated properly, they can result in a number of complications [4]. Management options have grown over the years, ranging from non-surgical to surgical approaches [5].

In the emergency room, patients are normally given benzodiazepines and opioids, and then reduction is attempted [6]. Narcotics are used to relieve pain, while benzodiazepines are used to treat muscle relaxants, respiratory arrest, and seizures [6]. Hematoma block local anesthesia is a safe and effective alternative [7]. According to one study, 51.43 percent of patients had no discomfort during reduction and cast application for extra-articular DRF with hematoma block [8]. Another research found that intravenous benzodiazepines reduced pain by 20%, while Bier's block reduced pain by 17% [9]. The hematoma block has a benefit over conscious sedation in that it provides

pain relief without the added risk of cardiac arrest, increased hospital costs, and reduced management time [9].

The present study was conducted aimed to determine the outcomes of hematoma block in patients with extra-articular distal radius fractures managed non-operatively.

MATERIALS AND METHODS

This descriptive/observational study was conducted at Orthopaedic department of Dr. Ruth K.M Pauf Civil Hospital Karachi for period of one year from 1st September 2019 to 31st August 2020. Total 82 patients of both genders with distal radius fractures of extra-articular type on radiographic assessment and managed by hematoma block were enrolled in this study. Patients ages were ranging between 18 to 70 years. After taking written consent, detailed demographics including age, sex, BMI, fracture duration and side of fracture were recorded. Patients with intra-articular fractures, multi-system trauma, neuro-vascular injury, skin infection at wrist, blood disorders, allergic to medicines use in this study and addicted individuals were excluded from the study.

Patients area was scrubbed first with Methylated Spirit and then with Pyodine (7.5% Povidone iodine) then 5 milliliter of 1.5% Xylocaine was injected into hematoma from the dorsum with 10 ml disposable syringe of 22G needle. After five minutes of waiting time for the pain relief,

the fracture was reduced and immobilized in cast splintage. Pain was recorded on visual analogue scale at the start of attempted reduction. Pulse, blood pressure and pulse oximetry were checked throughout the procedure. Patients were followed for 3 months. Functional outcomes were examined by Mayo Wrist Score which consisted of parameter of pain, satisfaction, range of motion, grip strength. Data was analyzed by SPSS 24.0.

RESULTS

Out of 82 patients, 45 (54.88%) were females and 37 (45.12%) were males with mean age 42.46±10.58 years. Mean fracture duration was 8.26±3.74 hours. Mean BMI of patients was 25.23±2.46 kg/m². 46 (56.10%) patients had left side fracture and 36 (43.90%) had right side fracture. (Table 1)

Effectiveness of hematoma block was examined by VAS and was found in 68 (82.93%) in term of pain (<2 VAS score) while 14 (17.07%) patients had VAS >3 noted as non-effective. (Table 2)

At final follow-up, 50 (60.98%) patients had excellent, 24 (29.27%) had good, 6 (7.32%) had fair and 2 (2.44%) had poor functional outcomes. (Figure 1)

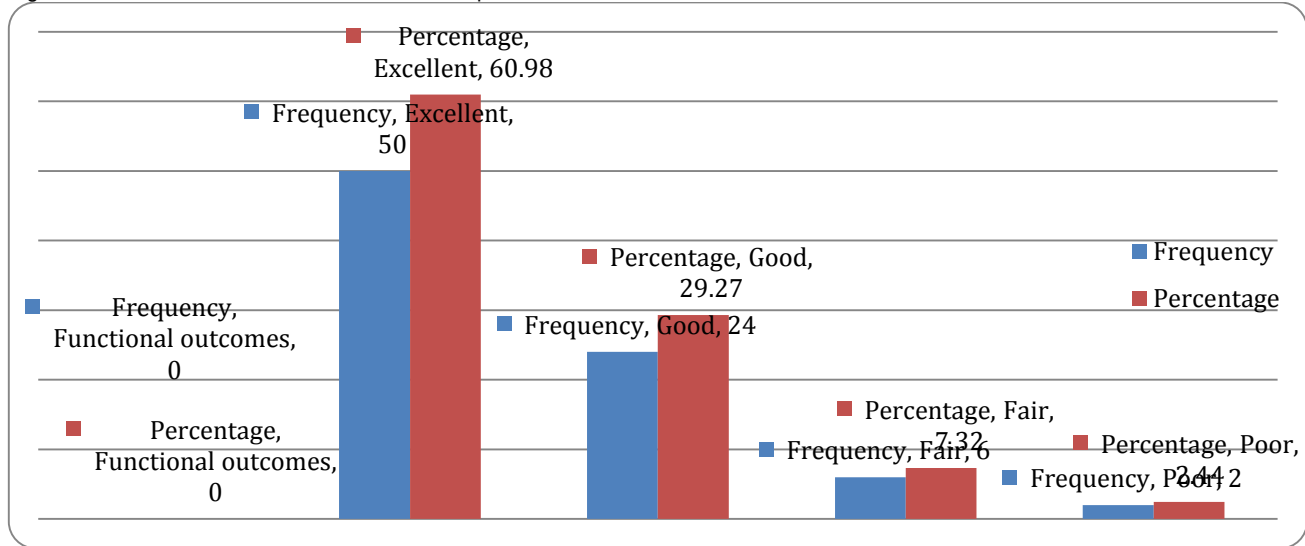
Table No 1: Baseline details of all the patients

Variables	Frequency No.	%age
Mean Age (Years)	42.46±10.58	-
Mean BMI (Kg/m)	25.23±2.46	-
Fracture Duration (Hrs)	8.26±3.74	-
Gender		
Male	37	45.12
Females	45	54.88
Fracture Side		
Left	46	56.1
Right	36	43.9

Table No 2: Effectiveness of Hematoma Block

Variables	Frequency No.	%age
Effectiveness		
Yes	68	82.93
No	14	17.07

Figure No 1: Functional outcomes at final follow-up



DISCUSSION

If a patient comes in with a fracture of the distal radius, they are as many as five times more likely to have another fracture somewhere else in the body. more common in the elderly population. The metaphyseal fractures counted for one out of every six total fractures treated in A and E. The majority of these fractures occur between the ages of 20 and 24, although a minority is over the age of 65. Fragility is a much more common phenomenon in females [10-We conducted present study to examine the effectiveness of hematoma block in patients with distal radius fractures managed via close reduction via hemoatoma block and cast application. In this regard 82 patients were analyzed. Majority of patients were females 54.88% as compared to males 45.12% with mean age 42.46±10.58 years. Mean fracture duration was 8.26±3.74 hours. These results showed similarity to many of previous study conducted regarding treatment of distal radius fractures and reported

females were high in numbers 60% to 75% and the average age of patients was 45 years [13-14].

In present study we found that hematoma block was effective in 68 (82.93%) in term of pain (<2 VAS score) while 14 (17.07%) patients had VAS >3 noted as non-effective. A study conducted by Shabir M et al [15] demonstrated that hemotoma block was effective in 68% patients of distal radius fractures with VAS >3.

Another study by Ismatullah [16] regarding outcomes of Hematoma Block for closed reduction of distal radius fractures, where he reported that out of 70 patients, 51.43% patients had no pain and 34.29% patients had mild pain after closed reduction by hematoma block.

A study by TazioMaleitzke et al [17], in which 42 distal radius fractures were treated by hematoma block and they reported 2.3% patients had major complications with higher rate of effectiveness of hematoma block as compared to Intravenous analgesia.

In our study, patients followed for 3 months after closed reduction of distal radius fractures and we found that 50 (60.98%) patients had excellent, 24 (29.27%) had good, 6 (7.32%) had fair and 2 (2.44%) had poor functional outcomes at final follow up. Mean union time was 7.26±2.02 weeks. 1 patient had non union at final follow-up. These results were comparable to some previous studies in which patients treated with reduction by a hematoma block for colles fractures had overall 85% excellent to good functional outcomes [18-19]. A study by Suraj Bajracharya [20] reported that overall mean mayo wrist functional score was 80.58 ± 12.3 (good results) at final follow up in patients who treated non-operatively for distal radius fractures.

CONCLUSION

Distal radius fractures are one of the most common fractures in orthopedic settings and may lead to major complications if not managed accurately with efficient procedure. We concluded from this study that Hematoma block is effective and safe method for reduction of distal radius fractures with effectiveness found in 82.93% patients. Moreover, more than 90% had excellent to good functional scores achieved after a follow-up of three months.

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