



## A STUDY OF EFFECTIVENESS OF HEMATOMA BLOCK AS A MODALITY OF ANALGESIA IN DISTAL END RADIUS FRACTURE

### Orthopaedics

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### ABSTRACT

#### Aims and objectives

- To assess the effectiveness of hematoma block as a modality of analgesia in distal end radius fracture

#### Materials and methodology

- Prospective study
- 30 patients with distal end radius fracture chosen within 1-2 days from the day of injury
- 10ml of 2% loxicard was injected in fracture site
- Results evaluated on basis of time of onset/ latency, duration of analgesia and effectiveness thru visual analog scale (vas) and faces pain rating scale

#### Results

- Average duration of onset-5min, duration of analgesia-1 hour, vas -2 and faces pain rating scale-1

#### Conclusion

- Hence hematoma block can be considered as one of the safe and effective modality of analgesia for manipulation and reduction in patients with fracture of distal end radius with hematoma at fracture site

### KEYWORDS

Hematoma Block, Distal Radius Fracture, Loxicard, Analgesia, Visual Analog Score

#### INTRODUCTION

- Fractures of distal radius are one of the **most common fractures** among patients treated in emergency rooms.
- They have bimodal age distribution affecting younger age group due to high energy trauma and elderly age group due to low energy trauma. Incidence in females more than males, increase in frequency with advancing age, and result from low energy falls more often than high energy trauma.
- Distal radius fractures require manipulation and reduction in the emergency department for immediate pain relief, reduction of local tissue pressure over median nerve<sup>14</sup> and reduces the discomfort, irrespective of the necessity and the timing of surgical intervention. Even in elderly patients who have other comorbidities, closed reduction and casting is the only treatment option
- Reduction being cumbersome and painful itself, various methods of analgesia are used to decrease the patient's pain during the procedure. These include intravenous regional anesthesia (IVRA), demand-valve nitrous oxide, haematoma block, intramuscular sedation, conscious sedation and general anesthesia.
- Each of these methods has potential complications and may also result in inadequate anesthesia, analgesia and/or muscle relaxation, which could compromise the treatment process and results. Adverse drug reactions and background heart disease can also endanger the patient
- Concerns over the toxicity of local anesthetics have been raised and the serious dangers of leakage of anesthetic from a poorly contained Bier's block, perhaps resulting from an insufficient cuff, are well known.
- Hematoma block can be used at times. It needs a single person for the procedure, with the effect acting immediately and followed by reduction, it may also aid in surgical intervention with K wiring. It also provides long duration post reduction analgesia
- Hematoma block is also used in reduction of distal tibia, fibula fracture and shoulder dislocation<sup>18</sup>
- As spontaneous respiration is present, no intervention for maintaining airway is needed<sup>14</sup>
- The side effect of this procedure is related to the drugs used, which includes nausea, vomiting, cardiorespiratory depression and post reduction lethargy associated with intravascular infiltration
- Here, 2% loxicard was used, it was free of the preservative i.e. methylparaben. It was to avoid the allergic/contact dermatitis,

anaphylaxis, serum sickness, arthus reaction) as well as toxic side effects (CNS toxicity-nervousness, dizziness, tremors, blurred vision, convulsions, unconsciousness and respiratory arrest)<sup>15</sup> of the preservative due to Ca<sup>2+</sup> influx and histamine release from mast cells<sup>16</sup>

#### OBJECTIVES

- To study effectiveness of hematoma block and its advantages in fresh distal end radius fracture as a modality of analgesia for either reduction or surgical intervention

#### MATERIALS AND METHODOLOGY

- It is a **prospective randomized cross-sectional study** from 2017-2019 performed in **30 subjects** who presented at **GCS Medical College Hospital And Research Centre** within a day or two of injury with distal end radius fracture

#### Inclusion criteria:

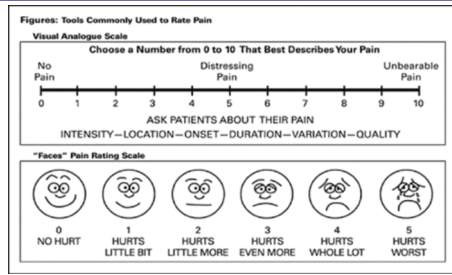
- Age group 15-60
- Presentation within 48 hours of injury
- Stable / unstable distal radius fracture (dorsal comminution greater than 50% width laterally, initial dorsal tilt >20 degree, distal ulna fracture, age >60 years, intrarticular disruption)<sup>19</sup>
- No other concomitant injuries

#### Exclusion criteria:

- Age group <15 and >60 years
- Delayed presentation
- Pregnancy
- Cardiorespiratory history
- History of seizures

#### Technique:

- After proper aseptic precaution
- Skin over the dorsum of the wrist is anaesthetised by 2ml of 2% loxicard
- a 22g 1.5 inch needle inserted into the fracture site from the dorsum and then aspirated to confirm the presence of hematoma
- 10ml of 2% loxicard (maximum 5mg/kg) is injected
- The time for latency was noted and the effectiveness was evaluated by visual analogue score (vas) and faces pain rating scale



- After 10-15 mins, closed reduction with casting is performed.
- Patients were followed for 1 hour after procedure for side effects.
- The time till wean off of the effect was noted

**RESULTS**

- Out of 30 patients, mean age was 55.1 years, male: female ratio was 8:22, where the youngest was 27 and eldest was 75
- Mean time from admission to fracture reduction was 120 minutes.
- Mean time for onset of analgesia or latency was 5 minutes.
- Average VAS during reduction was 3
- Average faces pain rating scale was 1
- 10 minutes after reduction VAS was 2.
- Being a day care procedure, average discharging time was 125 mins

**Table-1- Time taken from admission to reduction and reduction to discharge**

Time	Admission to reduction no. Of patients	Reduction to discharge
<30 minutes	5	3
30 min to 1 hour	8	5
1-2 hour	17	22
> 2 hours	0	0

**Table 2- Visual Analog Score (VAS score) 10 minutes before reduction, during reduction and 10 mins after reduction**

Vas scoring	10 mins before reduction (no. Of patients)	During reduction (no. Of patients)	10 mins after reduction (no. Of patients)
0	0	0	2
1	0	4	10
2	0	9	8
3	0	7	3
4	3	4	2
5	5	3	3
6	8	2	1
7	4	0	1
8	6	0	0
9	2	0	0
10	2	1	0

**Table 3- Faces Pain Rating Scale**

Scale	0	1	2	3	4	5
No of pts	9	10	5	3	2	1

**DISCUSSION**

- Pain control is achieved by different methods in patients with distal radius fracture referring to emergency departments for manipulation and fixation.
- An analgesia method which is easy, less time consuming, efficient, and requires short hospitalization is important in emergency. There are concerns about the safety of analgesia methods. There is a chance of infection, local anaesthetic toxicity, and compression by volume of local anaesthetic leading to compartment syndrome, hence, little attention had been paid to hematoma block, however the probability of such events is very low<sup>18</sup>.
- Also adequate muscle relaxation was not obtained, leading to difficulty in manipulation and achieving desired reduction
- No complication was observed in the patients of our study.
- Singh et al. Studied about analgesia for reduction of Colles' fracture by double blind rct between conventional sedation and hematoma group. Sixty six out of 80 consecutive cases with the fracture were studied.
- They concluded the pain scores during reduction in the xylocaine group (i.e. Hematoma group) were acceptably low, that is < 3

(median=1.8) as compared to the unacceptably high, that is >3 pain scores in the conventionally practiced sedation group (median =8.7), at a very high level of clinical and statistical significance.

- Similarly, in our patients too, the average visual analog score was 3 and faces pain rating scale was 1 (hurts too little)
- Therefore they concluded that hematoma block by local anesthesia is a safe and effective alternative to sedation in reduction of Colles' fracture. Our study also showed comparable results.

**CONCLUSION**

- Thus, we conclude that hematoma block for reduction of distal end radius fracture is a safe, less time consuming, easily available, cost effective and efficacious alternative to other type of anesthesia with little or no side effects. Hence it can be performed as a day care procedure too.

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