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Original Research Article

Assessment of pain management intervention for treatment of long bone fractures in tertiary care hospital

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ABSTRACT

Background: Musculoskeletal trauma represents a considerable global health burden. Pain is a complex, subjective personal experience. The assessment of pain is the essential perquisite for successful pain management. It is useful to decide the plan of initial treatment but also to reassess the degree of success. So the purpose of the study was to do assessment of pain management intervention, post-op analgesics for treatment of long bone fractures.
Methods: All adult patients (more than IS years) reporting to Emergency Medicine Department of a tertiary care hospital with long hone fractures of lower limb were included in the study. Patient pain management was assessed by visual analogue score (VAS). Pain is a complex, subjective personal experience. The assessment of pain is the essential perquisite for successful pain management. It is useful to decide the plan of initial treatment but also to reassess the degree of success. The entire data is statistically analyzed using SPSS software. p-values less than 0.05 are considered to be statistically significant.
Results: 74 cases got operated, 64 cases (86.5.0%) did not have any intra-op complications and 10 cases (13.50%) had intra-op complications .Postoperative analgesia the 74 cases operated was as follows: 17 cases (23.0%) epidural anaesthesia 41 Cases (55.4%) had epidural + intravenous analgesics. Recent was managed with 1.V, analgesics alone; 12 cases (16.20%) had tramadol, 2 cases (2.7%) received paracetamol and 2 cases (2.7%) had dynaper for post-operative analgesia.
Conclusion: Adequate pain management on arrival in the Emergency Department is an important aspect in patient care and is not at all difficult to achieve. Femoral nerve block in Proximal lower limb fractures is very effective and easy to perform.

Keywords: Follow up period , Long bone fractures, Pain management, Postoperative analgesia, Tertiary care hospital

INTRODUCTION

Musculoskeletal trauma represents a considerable global health burden. Extremity fractures are commonly seen in prehospital care. They demonstrate a wide variety of injury patterns which depend on the patient's age, mechanism of injury and premorbid pathology.[1]

The motorcyclist in collision with a car may have injuries from the impact with the vehicle, the ground, or surrounding object e.g. street furniture. Sporting injuries, especially football tackles, may result in ankle or tibial fractures. Falls from a height may cause multiple fractures in the lower limbs including fractures of the calcaneum, fractures of the tibial plateau fractures, fractures of the shaft of the femur, and acetabular fractures.[2,3]

Patients at risk of pathological fractures, for example secondary carcinoma or myeloma may suffer fractures with minimal or no trauma.

Long bone lower limb fractures include fractures of femur, tibia and fibula and they are commonly seen at a tertiary care hospital. Mode of injury in these cases include fall while walking, fall from heights, road traffic accidents (RTA), sporting injuries and assault. Prompt action is required at all stages of management as it has a very significant bearing on the morbidity and in some cases on the mortality of these patients. Compound fractures have an additional comorbidity in the form of infection. Early mobilization after surgery helps to achieve good range of movements and also ensures a good quality of life.[4]

Wherever indicated, changes are implemented at an individual, team or service level and further monitoring is used to confirm improvement in health care delivery.[5]

Lower limb long bone fractures are seen as a serious concern at the individual and population level. Given the high morbidity and mortality associated with long bone fractures of lower limb, and the cost to the health system it was decided to carry out a clinical audit of patients of long bone fractures of lower limb reporting to our tertiary care hospital for treatment. Pain is a complex, subjective personal experience. The assessment of pain is the essential perquisite for successful pain management. It is useful to decide the plan of initial treatment but also to reassess the degree of success.[6]

So, the purpose of the study was to do assessment of pain management intervention, post-op analgesics for treatment of long bone fractures.

METHODS

This study was conducted as a prospective observational study. Total 100 cases aged between 20 to 92 yrs were included in the study. A written consent was taken from each patient. All adult patients reporting to Emergency Medicine Department of Bharati Hospital Pune, Maharashtra, India. Patients with long hone fractures of lower limb were included in the study.

Patients GCS of <8 or who are on ventilator support were excluded from the study. Duration of study was 1 year from September 2015 to September 2016 and follow up was done at 1, 3 and 6 months for all cases.

Total number of 80 orthopaedic patients presented to emergency medicine department of hospital as per the audit inclusion and exclusion criteria are considered into the study.

Patients who took leaving against medical advice (LAMA) and discharge against medical advice (DAMA) are taken into consideration for incidence calculation, prehospital care, and management in emergency department but excluded from the detailed study.

Patient pain management was assessed by visual analogue score (VAS).[7] Pain is a complex, subjective personal experience. The assessment of pain is the essential perquisite for successful pain management. It is useful to decide the plan of initial treatment but also to reassess the degree of success.

Visual analogue scale: It is 10 cm scale with end points labelled 0 for NO PAIN and 10 for worst possible pain. The person was asked to compare the severity of current pain with worst pain he ever faced in his life.

Complications during post-operative period are noted and it was correlated with the hospital stay of the patient. Post discharge quality of life was assessed by assessing the status of ambulation, physiotherapy and ability to resume daily work by the patients through telephone after 1st 3rd and 6th months in all operated patients and the patients discharged with conservative management. Compilation of data and its analysis was done. The entire data was statistically analyzed using SPSS software 21.0.

RESULTS

Table 1 showed 100 cases studied, 5 cases (5.0%) pain between 0-3 on VAS, 72 cases (72.0%) had pain between 4-7 on VAS and 23 cases (23.0%) had pain between 8-10 on VAS.

Table 1: Distribution of cases according to Pain score before treatment (VAS).

Pain Score	No. of cases	% of cases
0-3	5	5.0
4-7	72	72.0
8-10	23	23.0
Total	100	100.0

Table 2: Distribution of cases according to type of pain management intervention given.

Type of Intervention	No. of cases	% of cases
Analgesics + Immobilization	71	71.0
Femoral Block + Immobilization	6	6.0
Only Analgesics	2	2.0
Only Femoral Block	2	2.0
Only Immobilization	19	19.0
Total	100	100.0

Table 2 showed 100 cases studied. 71 cases (71.0%) had analgesics + Immobilization. 6 cases (6.0%) had femoral block + Immobilization, 2 cases (2.0%) had only analgesics, 2 cases (2.0%) had only femoral block given

and 19 cases (19.0%) had only immobilization given as a pain management intervention.

Table 3 : The distribution of pain management before and after the Intervention.

	Before Intervention		After Intervention		P-value
	Mean	SD	Mean	SD	
Pain score (VAS)	6.20	1.41	3.02	0.93	0.001*** (Highly Significant)

Table 3 showed the distribution of mean pain score before intervention is significantly higher compared to the mean score after intervention (p-value < 0.001). The mean pain score significantly reduced after intervention compared to the pain score before intervention (p-value<0.001).

Table 4 : Distribution of cases according to type of post-op analgesics given.

Post-op Analgesics	No. of cases	% of cases
Epidural	17	23.00
Epidural + IV analgesic	41	55.40
Tramadol	12	16.20
Paracetamol	2	2.70
Dynaper	2	2.70
Total	74	100.0

Table 4 showed 74 cases operated, 17 cases .(23.0%) received epidural anesthesia, 41cases (55.4%) had epidural ± intravenous analgesics, 12 cases (16.20%) had tramadol, 2 cases (2.7%)had paracetamol and 2 cases (2.7%) had dynaper for post-operative analgesia.

DISCUSSION

Bone fractures are considered a major public health problem. In the modern world with increase in population and increase in life expectancy, the number of patients with fractures in extremities is on an increasing trend. Lower limb long bone fractures are more in today's world worth increase in road traffic accidents.[7]

This study was undertaken to know the incidence, clinical presentation, pain management in the emergency ward, events in intra-hospital stay and outcome of patients after discharge in long bone lower limb fractures. Correlation between surgical delays from time of admission with hospital stay is difficult because it is affected by intraoperative & postoperative complications.

L J White et al, study on prehospital use of analgesia for suspected extremity fractures was conducted over a period of 1 year, where paramedics are permitted to give morphine or nitrous oxide for pain management at the field and the result was only 1.8% patients received analgesia. Administration of analgesics to prehospital.[8,9]

Of 74 cases got operated, 64 cases (86.5.0%) did not have any intra-op complications and 10 cases (13.50%) had intra-op complications.

Postoperative analgesia the 74 cases operated was as follows: 17 cases (23.0%) epidural anaesthesia 41 Cases (55.4%) had epidural + intravenous analgesics. Recent was managed with 1.V, analgesics alone; 12 cases (16.20%) had tramadol, 2 cases (2.7%) received paracetamol and 2 cases (2.7%) had dynaper for post-operative analgesia. Analgesia using the epidural catheter placed for surgery was the most popular method for postoperative pain management.

Limitation of our study was short follow-up period, but our study is a prospective study. Another limitation of our study was that follow-up was done by telephone which will not give us a chance to assess the range of mobility of the joint. Degree of patient's mobility was noted but that will only give us a rough idea of joint mobility.

Adequate pain management on arrival in the Emergency Department is an important aspect in patient care and is not at all difficult to achieve. Femoral nerve block in Proximal lower limb fractures is very effective and easy to perform.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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