

**ASSESSMENT OF PRESCRIPTION PATTERN AND PAIN INTENSITY IN POST-
OPERATIVE PATIENTS WITH LOWER EXTREMITY LONG BONE FRACTURE*****Arya Sunil and Dr. Soumya A.**¹Pharm D. Intern, Acharya & BM Reddy College of Pharmacy, Soladevanahalli, Bangalore.²Assistant Professor, Department of Pharmacy Practice, Acharya & BM Reddy College of Pharmacy, Soladevanahalli, Bangalore.***Corresponding Author: Arya Sunil**

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Article Received on 10/10/2024

Article Revised on 31/10/2024

Article Accepted on 21/11/2024

ABSTRACT

A fracture is a medical condition in which there is a partial or complete break in the continuity of bone. The most frequently fractured bones in the human body are the long bones, such as the femur, tibia, and humerus. Long bone lower limb fractures include fractures of the femur, tibia, and fibula. Mode of injury in these cases include fall while walking, fall from heights, road traffic accidents (RTA), sporting injuries and assault. The goal of the study is to assess the prescription pattern in patients with lower extremity long bone fracture, it will help in the optimization of medication and also in the assessment of pain intensity in post-operative patients with pain intensity. An educational observational study was carried out among 86 in the In-Patient Department of Orthopedics, ESIC MC-PGIMS, Rajajinagar. The data was collected by using a self-designed data collection form and with the use of a visual analogue scale for pain intensity. All data obtained was processed and analyzed by using Microsoft Excel. It was found that the prescription pattern of drugs used in post-operative patients with lower extremity long bone fractures. Analgesics are the most commonly prescribed agents for the treatment of pain, with the most common drug used as paracetamol and the most common combination being tramadol+ paracetamol. The study also shows the other medications prescribed for fracture such as antibiotics for prophylaxis of infection and gastroprotective (pantoprazole) agents for gastric irritation and supplementary agents such as multivitamins for bone strengthening as well as Chymoral forte for wound healing. The study shows the different types of analgesics used in post-operative lower extremity long-bone fracture and their route of administration. The study shows the pain intensity in post-operative patients along with the length of stay. In conclusion, this study sheds light on the prescription patterns and pain intensity experienced by postoperative patients with lower extremity long bone fractures. The findings underscore the need for personalized pain management strategies, considering the diversity in prescription approaches. Healthcare providers should strive for a balance between effective pain relief and minimizing potential side effects. Further research and clinical attention are warranted to enhance postoperative care, ensuring optimal recovery and improved quality of life for these patients.

KEYWORDS: Fracture, Pain, Analgesics.**INTRODUCTION**

A fracture is a medical condition in which there is a partial or complete break in the continuity of bone.^[1] Patients with weakened bones who sustain an accident are more susceptible to fractures. As a result, the pathophysiology of fractures involves a wide range of elements that affect bone strength, including bone mass, bone quality, age, and skeletal geometry, as well as the frequency, type, and outcomes of injuries.^[2] The most frequently fractured bones in the human body are the long bones, such as the femur, tibia, and humerus. Tibia fractures are common, but unplanned damage causes a painful, drawn-out recovery that is frequently accompanied by problems.^[3] Lower limb long bone fractures are seen as a serious concern at the individual

and population levels. Long bone lower limb fractures include fractures of the femur, tibia and fibula. Mode of injury in these cases include fall while walking, fall from heights, road traffic accidents (RTA), sporting injuries and assault.^[4]

In 2019, there were 178 million (95% UI 162-196) new fractures (an increase of 33.4%), 455 million (428-484) occurrences of prevalent acute or long-term fracture symptoms (an increase of 70.1%), and 25.8 million YLDs (an increase of 65.3%). The age-standardized rates of fractures in 2019 were 2296.2 incident cases per 100 000 people, 5614.3 prevalent cases per 100 000 people, and 319.0 YLDs per 100 000 people, all of which have decreased since 1990 by a combined 96%. The most

frequent most debilitating fracture in 2019 was a lower leg fracture of the patella, tibia, or ankle, with an age-standardized incidence rate of 419 occurrences per 100 000 people.^[5]

The increased morbidity and mortality, lost productivity, and direct and indirect treatment expenses associated with long bone fractures have a negative impact on society. Long-term bone fracture management and treatment significantly raise the expenses of any health care system because of the high expense of surgery, the possibility of rehospitalization, and the physical rehabilitation required for the patient.^[6] In Edinburgh, Scotland, the epidemiology of fractures in adults and children was studied. It was discovered that the prevalence of fractures in children was about twice that of fractures in adults. Adult males and females were afflicted in equal measure; but, in paediatric instances, there is a significant male predominance. Adults who have several open fractures are more common. One significant distinction is that children tend to mineralized limb fractures more often than lower limb fractures.^[7]

The National clinical guidelines centre (NCGC UK) formed a guideline for management of guidelines as given. The initial management for individuals (16 years of age or older) with suspected long bone fractures of the tibia, fibula, or arms (humerus, radius, or ulna) oral paracetamol for minor discomfort, Codeine and paracetamol used orally for mild discomfort, for severe pain, titrated intravenous morphine is added to intravenous paracetamol. In elderly or fragile persons, use intravenous opioids with extreme caution. Do not provide elderly or fragile persons with fractures non-steroidal anti-inflammatory medicines (NSAIDs). If a person above the age of five has a suspected ankle fracture, use the Ottawa ankle and foot rules to assess whether an X-ray is necessary. After a comprehensive clinical examination, persons with suspected scaphoid fractures may want to consider MRI as their initial imaging option. Before the patient is let go from the emergency room, a radiologist, radiographer, or other qualified reporter should deliver the final written report of emergency department X-rays of suspected fractures. When treating people (16 years of age or older) with dorsally displaced distal radius fractures in the emergency room, take into account intravenous regional anaesthetic (Bier's block).^[8]

The guidelines for treatment of fracture according to NICE Vascular damage.

To identify vascular injury, look for hard indications such as no palpable pulse, persistent bleeding, or increasing haematoma. Capillary return and Doppler signals should not be used to rule out vascular damage. After any necessary restoration of limb alignment and joint reduction, do prompt surgical investigation if firm evidence of vascular injury continue. Use a vascular shunt as the first surgical procedure in patients with a

devascularized limb after a lengthy bone fracture, followed by skeletal stabilisation and permanent vascular repair.

Revascularization for angiography in patients with complicated fractures shouldn't be postponed. Consider observation rather than prompt vascular intervention in youngsters (under 16) with humeral supracondylar fractures with a well-perfused hand but no palpable radial pulse.

Compartment syndrome

Maintain awareness of compartment syndrome in patients with tibia fractures for 48 hours following injury or fixation by: routinely evaluating and recording clinical symptoms and signs in hospitals considering continuous compartment pressure monitoring in hospitals when clinical symptoms and signs cannot be easily identified (for instance, because the patient is unconscious or has a nerve block) teaching patients how to self-monitor for compartment syndrome symptoms, when necessary body scan with various injuries. Use a whole-body CT in individuals (16 and older) with blunt severe trauma and probable multiple injuries. This test consists of a vertex-to-toes scanogram followed by a CT from the vertex to mid-thigh. During whole-body CT, patients shouldn't be moved.^[9]

Currently, intramedullary nailing, external fixation, and plate fixation are the surgical procedures utilised to treat long bone fractures. Open reduction and internal fixation (ORIF) is a well-liked therapeutic option for fractures of the femur, tibia, and humerus despite the lack of agreement over the optimal course of action. The shattered bone is surgically reduced or repositioned during ORIF. In order to ensure that the bone is stabilised for the best possible healing after reduction, an internal fixation device (such as a screw, plate, rod, or pin) is put on and/or inside the bone.^[10,11,12]

Drug utilization studies are conducted to discover, assess, and record medication use issues, as well as keep track of the effects of interventions, to determine the proper level of drug therapy. Data on patients who visited the orthopedics department's drug consumption studies were scarce. These nuggets of information help assess the current state and projected trends in drug use, for making rough estimates of illness prevalence, drug costs, the appropriateness of prescriptions, and compliance with evidence-based recommendations.

Medication utilization studies do assist in identifying new approaches to implementing rational drug therapy as well as opportunities for advancement in terms of better, efficient, cost-effective treatments with fewer side effects and less suffering for the patient.^[13,14]

Drug utilization studies are essential for gathering baseline information on drug use and building a database for future research. It can reveal the type or profile of

drug use and the extent to which substitute medications are utilized to address specific illnesses. It can be used to compare drug use for treatment of certain disease with the guidelines.^[15]

Pain is a unpleasant sensory or emotional sensation that is connected to actual or potential tissue damage or is defined in terms of such damage. Through early-life events involving damage, each person acquires the word's application.^[16] Pain is a complex, subjective personal experience. The assessment of pain is the essential prerequisite for successful pain management. The assessment of pain can be done by the Visual Analogue scale [VAS], Numerical Rating scale [NRS], and Verbal Categorical Rating scale [VRS]. It is useful to decide the plan of initial treatment and also to re-assess the degree of success.^[17] Researchers studying the effectiveness of pain-relieving interventions may need to use a multidimensional tool, such as the McGill Pain Questionnaire (Melzack 1975), which examines the patient's sensory, affective, and emotional aspects of their pain experience.^[18,19]

The VAS is a straight line whose bounds convey verbal descriptions of each extreme of the symptom to be assessed and provides a continuous scale for subjective magnitude measurement. Although alternative lengths and orientations have been employed and have worked satisfactorily, the line is typically 10 cm long and vertical. There have been reports of errors brought on by poor reproduction during mass photocopying. The VAS is frequently used to assess the analgesic efficacy of various treatments, and it does so by assessing either pain alleviation or pain intensity.^[20]

A better result for patients after surgery relies on the best possible pain management; nevertheless, poor pain management can increase morbidity, lengthen hospital stays, and cause other issues. Significant muscular and skeletal tissue restoration after orthopaedic surgery leads to severe pain experienced following the procedure. It will exacerbate and complicate the postoperative pain if it is not properly treated. Analgesics are characterized as "drugs that significantly affect sensory function without stopping nerve impulse conduction or relieving pain".

The use of sophisticated technology, such as epidural catheters, and even cognitive-behavioral therapies, including meditation, music, and other educational activities, can all be used to regulate pain in the postoperative period. Analgesics can be prescribed at specific times to prevent pain peaks. In this way, improved pain management prevents suffering, promotes greater patient satisfaction, and lowers expenses related to potential problems that result in longer hospital stays.^[21,23]

This study is used to determine the treatment pattern for lower extremity long bone fracture (femur, tibia) to understand the prescribing pattern among post-operative

patients in orthopedics department to improve rational drug use and also to assess pain intensity and to evaluate the different analgesics used for pain management, along with length of stay and complications in post-operative patients. According to National Institutes of Health, UTI occur more frequently in diabetic patients. Diabetes is a chronic health condition that affects fat, carbohydrates and protein metabolism. Our body breaks down most of the food we eat into sugar and releases it into our bloodstream. When our blood sugar level goes up, it signals our pancreas to release insulin. There are two types of diabetes Type 1 and Type 2. In diabetes our body either doesn't make enough insulin or can't use it well. When the body cannot use the insulin too much blood sugar stays in our blood stream and this can lead to severe health problems such as heart disease, vision loss and kidney disease.

OBJECTIVES

The objectives of the study are

1. To assess the prescription pattern for subjects with lower limb fracture.
2. To assess the pain intensity of lower limb fracture.

MATERIALS AND METHODS STUDY DESIGN

A hospital - based Descriptive Study.

STUDY SITE

The study was conducted at Department of Orthopedics, ESI PGIMSR, Rajajinagar.

STUDY PERIOD

The study was carried out for a period of 6 months.

SAMPLE SIZE

All patients who meet the inclusion and exclusion criteria within 6 months will be included. A total of 86 subjects were selected for the study. the sample size for study was determined as 86

$$N = z^2 P(1-P)/m^2$$

$$N = \text{Sample size } Z = 1.96$$

$$P = \text{Population proportion} = 0.06 \quad M = \text{Margin of error (10\%)} \\ q = 0.93$$

$$n = (1.96)^2 \times 0.084 \times 0.916 / (0.1)^2 = 86$$

STUDY APPROVAL

The study was approved by Institutional Review Board of ESI PGIMSR, Rajajinagar, Bangalore.

STUDY POPULATION

The study population consist of 86 Subjects with post-operative lower extremity fracture at ESI PGIMSR, Rajajinagar, Bangalore.

STUDY CRITERIA

Inclusion criteria.

Subjects in the age of 18 -55 years of both genders admitted to the Orthopedics unit. Subjects willing to give consent.

Exclusion criteria.

Pregnant and lactating women

SOURCES OF DATA

1. Patients case sheet / Medication chart
2. Patient interview

STUDY PROCEDURE

After obtaining clearance from Institution Ethics Committee, the study has been commenced.

Subjects meeting inclusion and exclusion criteria has been identified from the orthopedics unit. Consent shall be obtained from the patients. A self-designed case report form has been used to obtain the required demographic, disease and other relevant information.

VISUAL ANALOGUE SCALE has been used to determine the pain intensity in patients with lower extremity fractures using emojis.

All the obtained data was entered in Microsoft Excel Sheet and a descriptive statistical analysis was performed.

STATISTICAL ANALYSIS

All recorded data were entered into Microsoft Excel software, statistical analysis was done and result were obtained.

RESULTS

The study was conducted in the In-Patient Department of Orthopedics, ESIC MC –PGIMSR, Rajajinagar. The study was carried out over a period of 6 months. A total of 86 participants were included in the study.

DISTRIBUTION OF SUBJECTS ACCORDING TO AGE

Out of 86 subjects, the highest number of subjects were in the age group of 35-44 years with 32 subjects of 37.21% and the mean age is 39.21 years (SD=11).

Table 1: Distribution of subjects by Age.

AGE	NUMBER OF PATIENTS	PERCENTAGE
18-24	7	8.14%
25-34	10	11.63%
35-44	32	37.21%
45-54	27	30.23%
55-64	10	11.63%

DISTRIBUTION OF SUBJECTS ACCORDING TO GENDER

Out of 86 subjects, 71(82.56%) were males and 15(17.44%) were females.

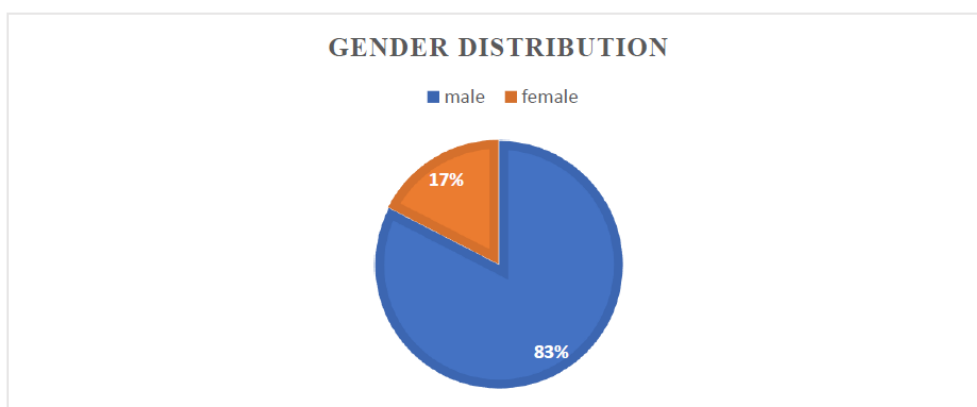


Figure 1: Distribution of subjects by gender.

DISTRIBUTION OF SUBJECTS ACCORDING TO LENGTH OF STAY

Out of 86 patients, the mean value of stay is 7.7 days

(SD=0.39), and the highest number of patients had a stay in hospital for 7-14 days.

Table 2: Distribution of subjects to length.

LENGTH OF STAY	NUMBER OF PATIENTS	PERCENTAGE
1-5 DAYS	26	30.23%
6-10 DAYS	45	52.33%
11-15 DAYS	11	12.79%
16-20 DAYS	4	4.65%

DISTRIBUTION OF SUBJECTS ACCORDING TO TYPE OF BONE FRACTURE

There was 3 type of bone fracture found with the most common being femur fracture for 3 patients (44.19%)

followed by both bone fracture of tibia and fibula for 30 patients (34.88%) and then tibia fracture for 18 patients (20.93%).

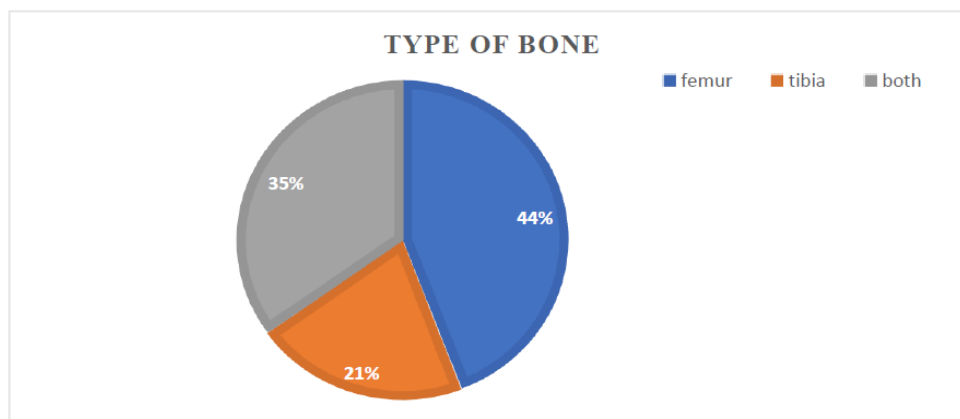


Figure 2: Distribution of subjects to type of bone fracture.

DISTRIBUTION OF SUBJECTS ACCORDING TO LATERALITY OF FRACTURE

The subjects are categorized based on the laterality of the

fracture, out of 86 subjects 48 patients (44.19%) had left leg fractures and 38 patients (55.81%) had a right leg fracture.

LATERALITY OF FRACTURE

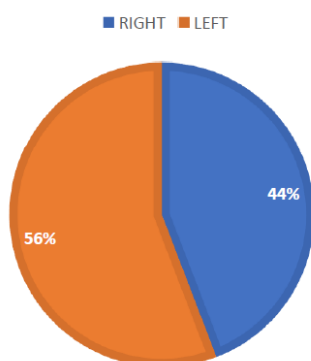


Figure 3: Distribution of subjects to laterality of fracture.

DISTRIBUTION OF DRUGS ACCORDING TO ROUTE OF ADMINISTRATION

The drugs administered to the patients are categorized

based on the route of drug administration and it was found that most of the drugs are given through parenteral route of 11 drugs (55%).

ROUTE OF ADMINISTRATION

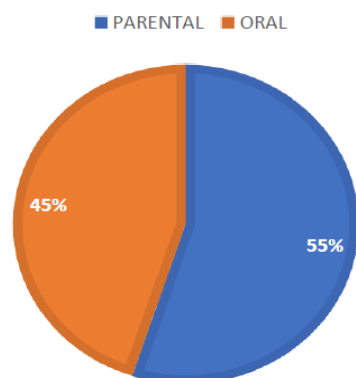


Figure 4: Distribution of Drugs to Route of Administration.

DISTRIBUTION OF SUBJECTS ACCORDING TO DRUGS PRESCRIBED FOR LONG BONE FRACTURE BASED ON ROUTE OF ADMINISTRATION

The subjects are categorized based on drugs given, the most commonly used drugs were in. ceftriaxone, inj.

amikacin, inj. paracetamol, inj. Ondansetron, T. chymoral forte, and T. calcium vitamin d that was given to all patients. For 86 patients a total of 16 drugs are given along with 3 supplementary agents and a diluent.

Table 3: Distribution of subjects to drugs used for long bone fracture based on route of administration.

DOSAGE FORM	DRUGS	NO OF SUBJECTS	PERCENTAGE
Parenteral	Ceftriaxone	86	100%
	Amikacin	86	100%
	Paracetamol	86	100%
	Ondansetron	86	100%
	Pantoprazole	64	74.41%
	IVF Normal Saline	52	61.62%
	Tramadol	13	15.11%
	Heparin	12	13.95%
	Linezolid	9	10.46%
	Metrogyl	8	9.30%
	Amoxiclav	8	9.30%
Oral	Chymoral Forte	86	100%
	Calcium+ vitamin d	86	100%
	Cefixime	49	56.97%
	Multivitamins	45	52.32%
	Tramadol+ paracetamol	42	48.83%
	Diclofenac	35	40.69%
	Paracetamol	5	5.81%

DISTRIBUTION OF SUBJECTS ACCORDING TO DRUGS PRESCRIBED FOR LONG BONE FRACTURE BASED ON TYPE OF MEDICATION PRESCRIBED

The subjects are categorised based on the type of

drugs prescribed and it was found that 3 analgesics, 6 antibiotics, 1 antiemetic drug, diluents, PPI, multivitamins, anticoagulants.

Table 4: Distribution of subjects according to drugs prescribed for long bone fracture based on type of medication prescribed.

DOSAGE FORM	DRUGS	NO OF SUBJECTS	PERCENTAGE
Analgesic	Paracetamol	91	105.81%
	Diclofenac	35	40.69%
	Tramadol	13	15.11%
Antibiotic	Ceftriaxone	86	100%
	amikacin	86	100%
	Cefixime	49	56.97%
	Linezolid	9	10.46%
	Metrogyl	8	9.3%
	Amoxiclav	8	9.3%
Antacid	Pantoprazole	108	125.58%
Antiemetic	Ondansetron	86	100%
Wound healing	Chymoral forte	86	100%
Diluent	IVF Normal saline	52	61.62%
Supplementary agent	Multivitamins	45	52.32%
Anticoagulant	heparin	12	13.95%
Combination therapy	Calcium+vitamin d	86	100%
	Tramadol+ Paracetamol	42	48.83%

DISTRIBUTION OF SUBJECTS ACCORDING TO THE NUMBER OF ANALGESICS

Out of 86 subjects, it was found that most of the

subjects were given 2 analgesics of 66 patients (76.74%) and analgesic was given combination therapy.

Table 5: Distribution of subjects to number of analgesics prescribed.

NUMBER OF ANALGESIC PRESCRIBED	NUMBER OF PEOPLE	PERCENTAGE
Mono analgesic	5	5.81%
Dual analgesic	66	79.06%
Triple analgesic	15	15.11%

PAIN SCORE BASED ON DURATION OF STAY

The pain score based on length of stay was categorised and

it was found that the highest pain score was 5.35 and it was during 6-10 days of length of stay.

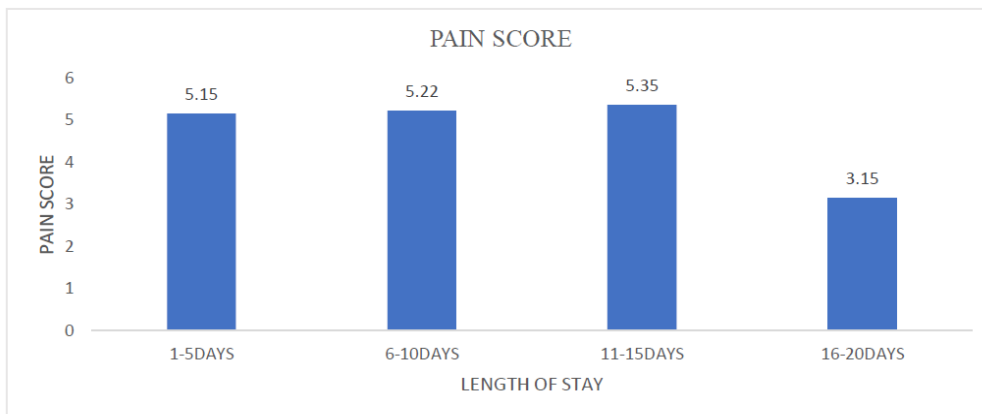


Figure 5: Distribution of pain based on length of stay.

PAIN SCORE BASED ON DURATION OF STAY

The pain score for different types of lower extremity long bone fracture were categorised based on length of stay and

it was found that the most pain was found in femur fracture (5.70) and the least pain was for tibia fracture (4)

Table 6: Distribution of Pain score based on length of stay and type of fracture.

	FEMUR	TIBIA	BOTH	BONE FRACTURE (TIBIA AND FIBULA)
1-5 DAYS	5.34	5.34		4.75
6-10 DAYS	5.37	5.24		5.05
11-15 DAYS	5.70	5.18		5.18
16-20 DAYS	5.44	4		0

DISTRIBUTION OF SUBJECTS ACCORDING TO ANAESTHESIA PRESCRIBED

The subjects are categorized on the basis on type of anesthesia given during surgery and it is found that the

most commonly prescribed anesthesia is lignocaine for 86 patients (100%) and the least prescribed anesthesia is bupivacaine for 23 subjects (26.77%).

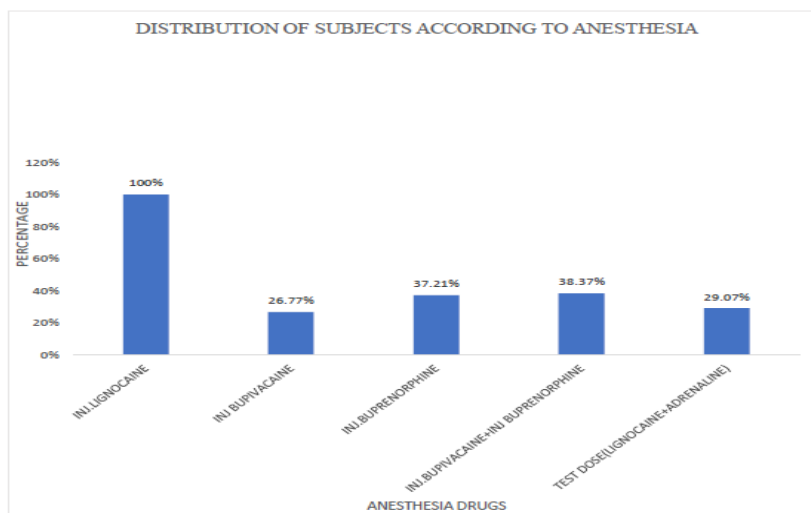


Figure 6: Distribution of subject to anaesthesia use.

DISTRIBUTION OF SUBJECTS ACCORDING TO LENGTH OF STAY
Out of 86 subjects most patients had a length of stay of 6-

10 days and the most common analgesic prescribed during the period was paracetamol followed by tramadol.

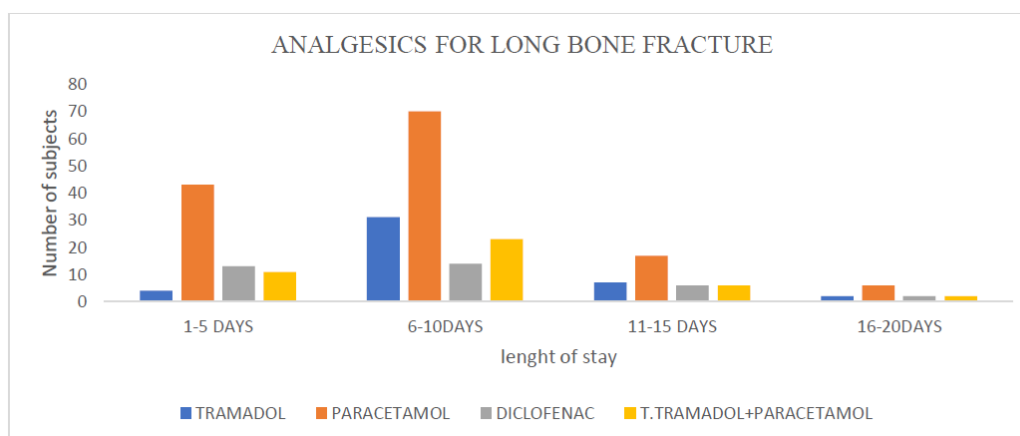


Figure 7: Distribution of subject according to length of stay and analgesics prescribed for fracture.

DISTRIBUTION OF SUBJECTS ACCORDING TO PAIN SCORE AND ANALGESICS PRESCRIBED FOR FRACTURE

The subjects are categorized based on pain score and

analgesic prescribed for fractures and the most commonly prescribed analgesic was paracetamol followed by tramadol.

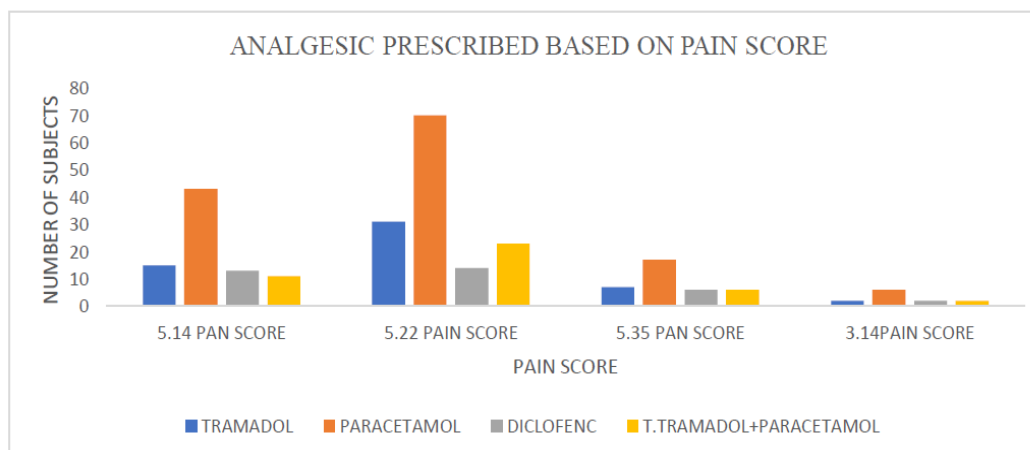


Figure 8: Distribution of subject according to Pain score and analgesics prescribed for fracture.

The study was conducted in the In-Patient Department of Orthopedics, ESIC MC –PGIMSR, Rajajinagar. The study was carried out over a period of 6 months. A total of 86 participants were included in the study.

DISCUSSION

An observational descriptive study was performed in the selected hospital in North Bengaluru on 86 subjects with lower extremity long bone fractures, carried out for a period of 6 months.

Considering the distribution of subjects based on the age group, Out of 86 patients, most of the subjects belonged to the age group of 35-44 (31.27% n=32), and the least number of subjects belonged to the age group of .the mean age was found to be 39.21 years which was similar to the study conducted by **Awolola AM et al.**, whereas, in the study conducted by **Chandran B et al.**, **A S Chitnis et al.**, and **Bhageal R et al.**, they identified that most of the patients belong to age of 50-69 years with a mean value of 51.84±18.84. The distribution of subjects based on the age group is demonstrated in the table 1 and figure 1.

Considering Out of 86 subjects, most of the patients were males (82.56%) which was similar to the study conducted by **Awolola M et al.**, **Chandran B et al.**, whereas, the study conducted by **Divya et al.**, **dalela R et al.**, found that females were more compared with males.

Considering Out of 86 patients' the majority of patients had a length of stay of 6-10 days which was similar to that of the study conducted by **A S Chitnis et al.**, which was a study on long bone fractures: treatment patterns and factors contributing to use of intramedullary nailing. (reason for length stay)

In Our Study, it was found that the highest lower extremity long bone fracture was found in the femur (44.19%) and then both bone fractures (34.88%) whereas the study conducted by **Awolola M et al.**, shows that more fracture was in the tibia (46.3%) followed by fibula (37.6%).

Out of 86 patients, most of them had a right-sided fracture (55.81%) which is similar to study conducted by **Nana CT et al.**, which has a right-sided fracture. (50.3%).

In our study it was found that 55% of the medications were administered through parenteral route (n=11) there is a more use of parenteral form of drug than oral form of drug which is similar to that of study done by **Bhageal R et al.**, which shows that injections were used in 63%. (parental form has more rapid action) find an article

In our study the most commonly (based on the) administered analgesic was paracetamol followed by tramadol, the same results were observed in a previous

study which by **Awolola M et al.**, that found that the most commonly prescribed analgesic was paracetamol (92.5%) followed by NSAIDs (55%), whereas the study conducted by **Sada EC et al.**, found that the most commonly used post-operative analgesia was epidural +IV analgesic (65%) followed by tramadol (16%) and the study conducted by **Choudhary DK et al.**, shows that NSAIDs are the most common drug given for pain and inflammation in post-operative cases.

Our study found that mostly PPI were co-prescribed with analgesics as a gastro-protective agent which is similar to the study conducted by **dalela R et al.**, **Choudhary DK et al.**, where they had conducted a study on prescription pattern and rationality of drugs in orthopedics department in Madhya Pradesh.

In this study, the number of analgesics prescribed per person was analyzed and it was found that most of the patients were given 2 analgesic agents (79.06%) followed by 3 analgesic agents (15.11%) which is similar to the study conducted by **Chandran B et al.**, which shows that most of the patients were given 2 analgesics (54.50%) followed by 1 analgesic agent (27.50%). However, the study conducted by **Choudhary DK et al.**, found a lesser mean value of 1.46 drugs per prescription.

This study shows that the majority of combination of analgesics given is paracetamol+tramadol which is in line with the study conducted by **Chandran B et al.**, The most commonly prescribed antibiotic in the study was ceftriaxone and amikacin which was contradictory to the study conducted by **Chandran B et al.**, which found that cefazolin (39.1%) as the most commonly prescribed antibiotic.

CONCLUSION

The most common fracture is the fracture of long bones. For fractures most commonly analgesics and NSAIDs are prescribed for pain and treatment of fracture. The management of pain mainly depends on the assessment of pain intensity. The pain intensity can be measured mainly by using different tools such as the VISUAL ANALOGUE SCALE (VAS), and NUMERICAL RATING SCALE (NRS) as the commonly used tools. The study has provided valuable insights into the prescription patterns for postoperative patients with lower extremity long bone fractures. The observed variations in prescription practices emphasize the importance of individualized treatment plans. Healthcare professionals should consider a tailored approach to address pain management, taking into account factors such as patient characteristics and surgical procedures. Future research and clinical guidelines should aim to standardize prescription practices for enhanced postoperative care and improved patient outcomes.

The study evaluates the prescription pattern of drugs used in post-operative patients with lower extremity long bone fractures, analgesics are the most commonly

prescribed agents for the treatment of pain, with the most common drug used as paracetamol and the most common combination being tramadol+paracetamol. The study also shows the other medications prescribed for fracture such as antibiotics for prophylaxis of infection and gastroprotective (pantoprazole) agents for gastric irritation and supplementary agents such as multivitamins for bone strengthening as well as chymoral forte for wound healing.

In addition to reducing hospital stays, effective pain management can enhance the patient's quality of life. The study shows the different types of analgesics used in postoperative lower extremity long-bone fracture and

their route of administration. The study shows the pain intensity in post-operative patients along with the length of stay.

ACKNOWLEDGEMENT

I gratefully acknowledge the support and contributions of everyone involved in this project. Your expertise, guidance, and encouragement have been invaluable, and I appreciate your collective efforts in making this a success.

LIST OF ABBREVIATIONS

WHO	World health organization
NICE	National institute of health and care excellence
YLD	Years of health life lost due to disability
NLEM	National list of essential medicine
ORIF	Open reduction and internal fixation
VAS	Visual analogue scale
RTA	Road traffic accidents
NCGC	National clinical guidelines Centre
CT	Computerized tomography
NRS	Numerical Rating scale [NRS]
VRS	Verbal Categorical Rating scale
CRIF	Closed Reduction and Internal Fixation
LSI	limb salvage index score
DASH	Disability of arm, shoulder, and hand
OPD	Outpatient department

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