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PATTERN OF ANALGESIC USAGE AMONG POST-OPERATIVE PATIENTS IN THE ORTHOPEDICS DEPARTMENT IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Pain is an essential function of the nervous system in providing the body with an advance notice of potential or actual injury. Pain assessment is a broad concept involving clinical judgement based on observation of the type, significance and context of the individuals pain experienced. Pain assessment is crucial for pain management to be effective, which can be challenging due to the subjectivity and multidimensional nature of pain The aim of the study was to evaluate the prescription pattern of analgesics in the departmentof orthopaedic for ensuring efficient pain management. A prospective longitudinal study was conducted for over a period of six months in Orthopaedic department of SH medical centre, a tertiary care hospital in Kerala in India. A total of 100 patients satisfying the inclusion criteria were analysed to study the prescription pattern of analgesics among postoperative patients in orthopaedic department. All the relevant and necessary data of the patients were collected with consent from the patients case records, by interviewing the patient or patients caregiver, prescription of patient and were reviewed for demographic data, clinical presentations, investigations and management. The study provided an insight into the prescription pattern of analgesics being used in the tertiary care hospital.

KEYWORDS: Analgesics, Prescription, Orthopedics, Pain.

INTRODUCTION

According to the International Society for the Study of Pain, pain is “an unpleasant sensory

and emotional experience related to the actual or potential tissue damage or described in terms of such harm.[1]

Pain accompanies human kind since the beginning of its existence, and so long, people seek resources for pain suppression and mitigation.[4]

In the majority of developed countries, pain is the most frequent cause for doctor visits. It can affect a person's quality of life and everyday functioning**.** Pain is more complex than just physiology. It is a subjective experience, and sometimes the amount of pain does not appear to equal the extent of tissue damage.[2]

Surgically induced pain, or postoperative pain, typically develops following surgery. The intensity of postoperative pain may differ from person to person depending on the type and extent of the surgery, the medical team's technique, and the patient's tolerance.[1]

The World Health Organization and International Association for the Study of Pain have recognized pain relief as a human right. Poorly managed postoperative pain can lead to complications and prolonged rehabilitation. Uncontrolled acute pain is associated with the development of chronic pain with reduction in quality of life. Appropriate pain relief leads to shortened hospital stays, reduced hospital costs, and increased patient satisfaction. As a result, the management of postoperative pain is an increasingly monitored quality measure.[4]

SIGNS AND SYMPTOMS OF PAIN

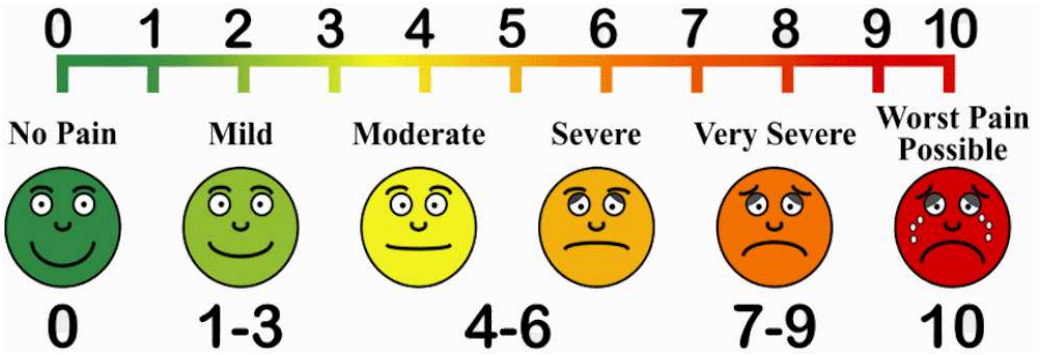
- Increased respiratory rate
- Increased heart rate
- Pallor
- Elevated B.P
- Aching
- Burning
- Inflammation
- Stinging
- Insomnia[2]

COMPLICATIONS

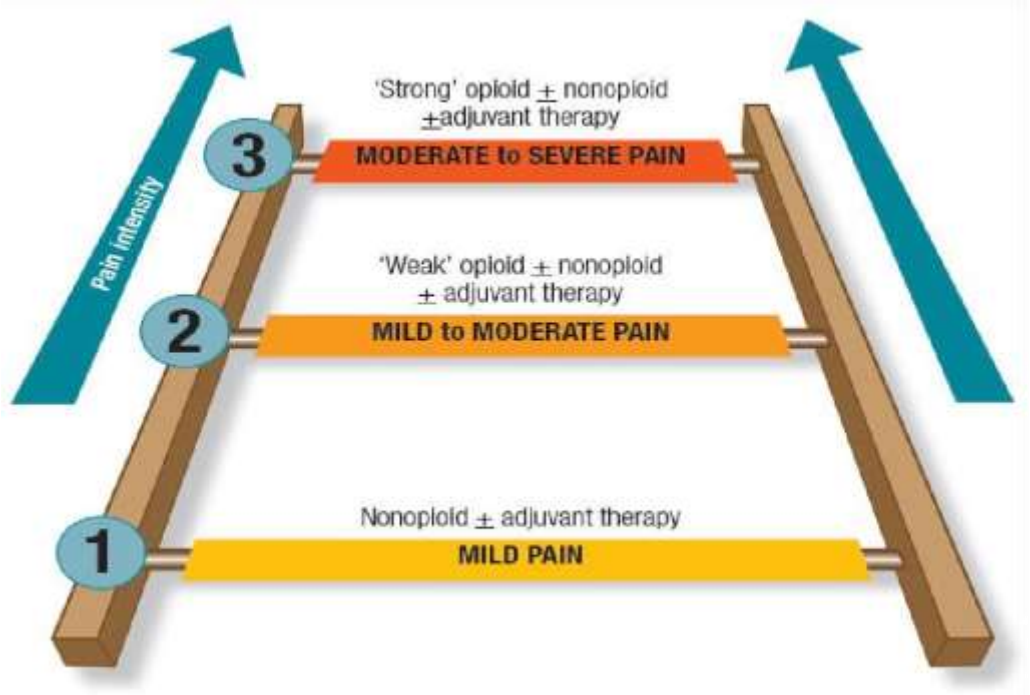
- Affects quality of life
- Depression
- Anxiety
- Inflexibility and worsening symptoms of chronic pain
- Difficulty in sleeping, suicidal thoughts, and so forth.[5]

DIAGNOSIS

- It is very well known that pain is only subjective.
- The numerical rating scale, perhaps one of the most widely used pain measures in healthcare, allows the person experiencing pain to rate their level of pain. The number scale allows users the option to either mark a line to indicate their level of pain or speak rate a range from 0 to 10. The pain scale goes from 0 (no pain) to 10, which is the maximum amount of discomfort. This enables the medical professional to categorise the pain as mild, moderate, or severe.[5]



- The World Health Organization's (WHO) "pain ladder," which describes its recommendations for the use of medications in the management of pain, can also be used to measure pain.[3]



MATERIALS AND METHODS

STUDY DESIGN: Prospective Longitudinal study.

STUDY SETTING: SH Medical Centre, Kottayam.

STUDY DURATION: 6 Months.

STUDY POPULATION

The study population included all the patients satisfying the inclusion criteria. A minimum sample size of 100 patients were required to meet the objectives for our study to get a statistically significant data. Sample size was calculated by the Cochran formula.

$$N = \frac{(Z_{1-\frac{\alpha}{2}})^2 \, p \, q}{E^2}$$

Where Z = 1.96 (95%), p = 0.19, q = 0.81, E= 0.08 (8%)

STUDY SAMPLE SIZE

A minimum sample size of 100 patients were required to meet the objectives for our study to get a statistically significant data.

Criteria for Patient Selection

Inclusion Criteria

- Patients admitted in orthopaedic department
- Post-operative patients
- Patients who are cooperative
- Patients who are more than 18 years of age.
- Cases with at least 3 days of hospitalization.

Exclusion Criteria

- Patients who have undergone traumatic surgery and cannot comply withthe study.
- Patient case charts which does not contains analgesics and pain score.
- Patients who are referred from other departments.

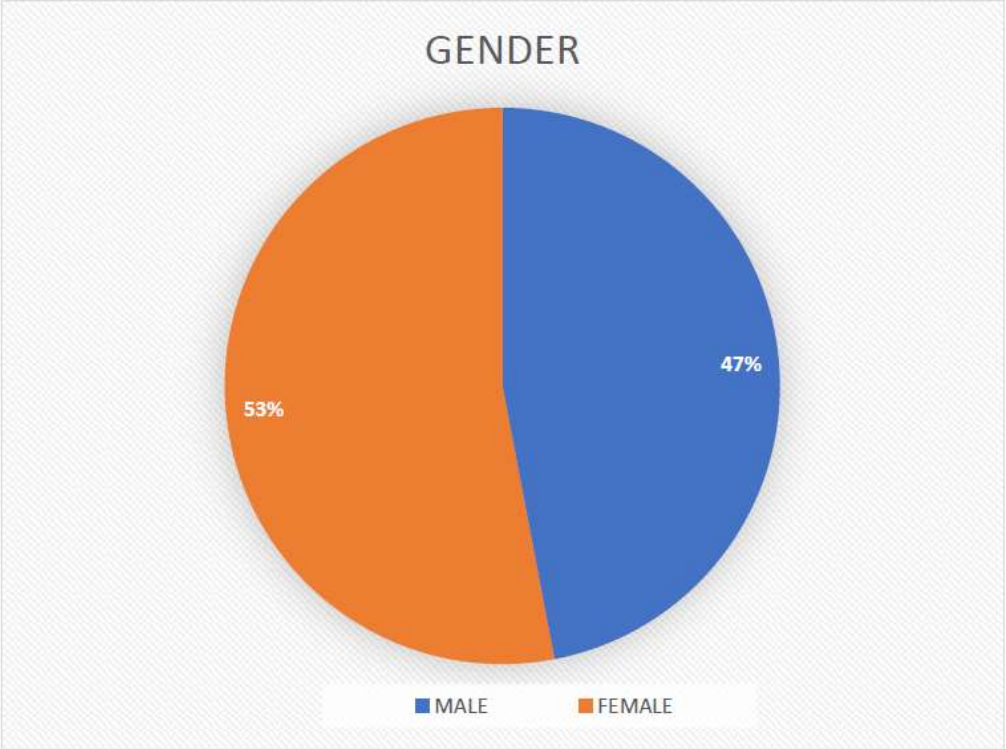
RESULT

A total of 100 patients who met with the inclusion criteria were included in the study.

Distribution of study population based on gender (N=100)

GENDER	NO.OF PATIENTS (n)	PERCENTAGE OF PATIENTS (%)
MALE	47	47%
FEMALE	53	53%
TOTAL	N=100	100%

Gender distribution of study population

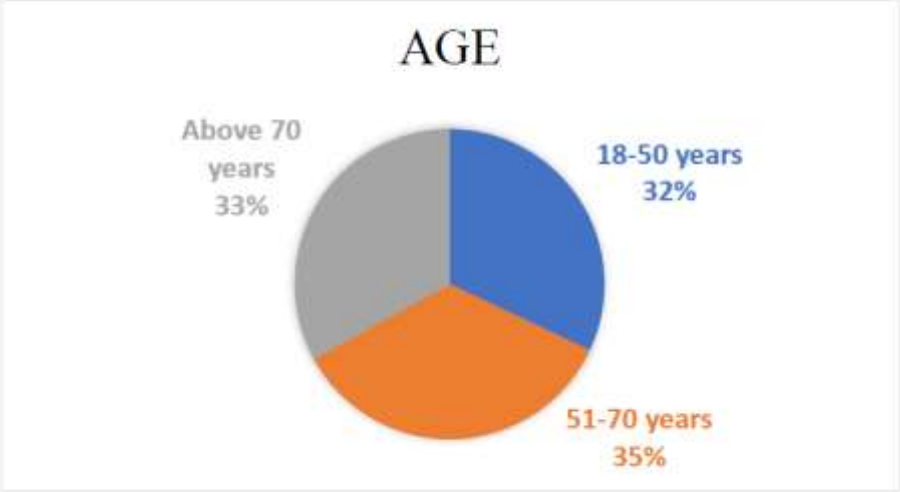


Inference: The study population contains 53% female and 47% male population.

Distribution of study population based on age (N=100)

AGE GROUP	NO OF PATIENTS (N)	PERCENTAGE OFPATIENTS (%)
18-50 years	32	32%
51-70 years	35	35%
Above 70 years	33	33%
TOTAL	N=100	100%

Age wise distribution of the study population

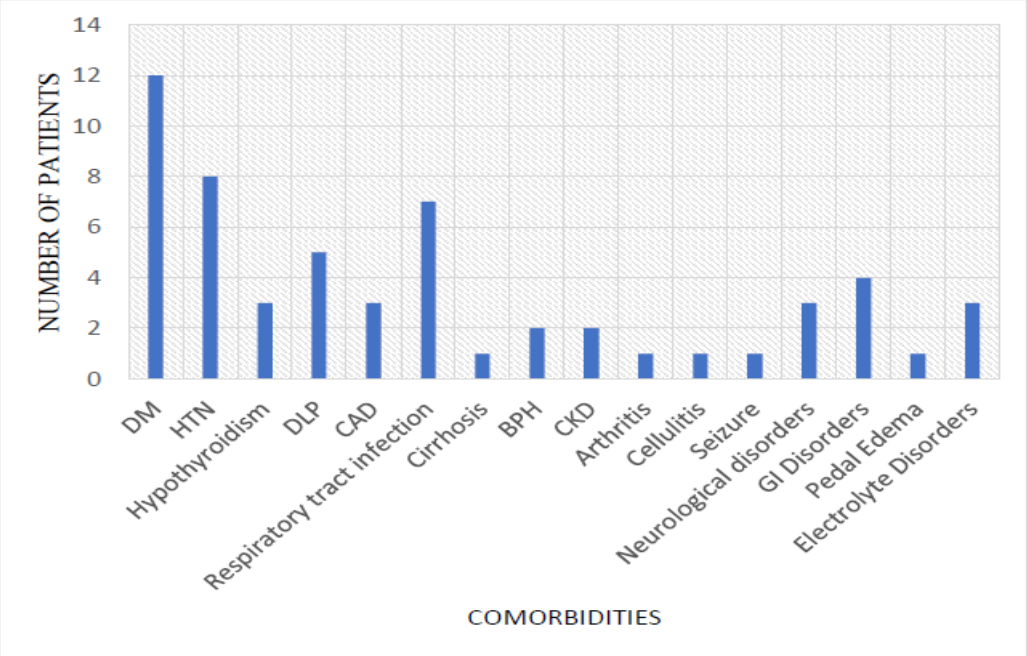


Inference: Most of the cases were reported between age group of 51 and 70 years (35%) followed by those above 70 years (33%) of population.

Pattern of comorbidity in study population

COMORBIDITY	FREQUENCY	RELATIVE FREQUENCY
Diabetes Mellitus	12	23.5%
Hypertension	8	14%
Hypothyroidism	3	5%
Dyslipidemia	5	9%
Coronary ArteryDisease	3	5%
Respiratory TractDisease	7	12%
Cirrhosis	1	2%
BPH	2	3.5%
Chronic KidneyDisease	2	3.5%
Arthritis	1	2%
Cellulitis	1	2%
Seizure	1	2%
NeurologicalDisorders	3	2%
GastrointestinalDisorders	4	7%
Pedal Edema	1	2%
Electrolyte disorders	3	5%

Pattern of comorbidity among study population

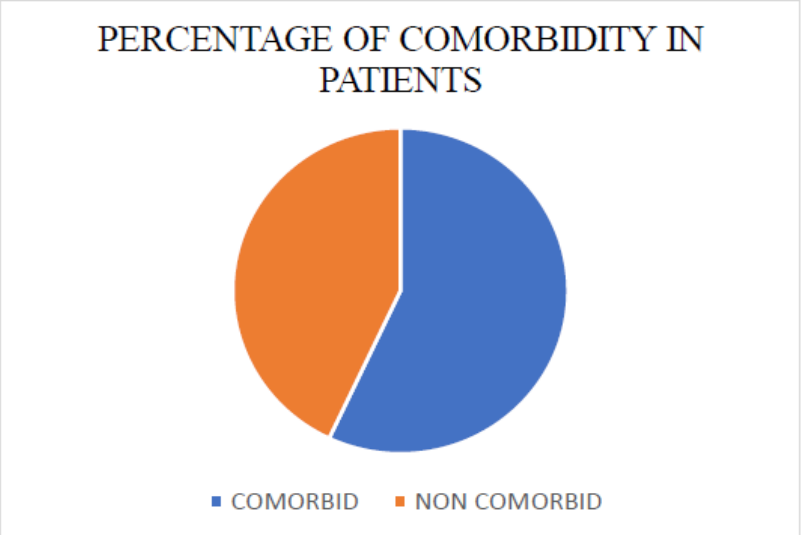


Inference: A total of 16 different types of comorbidities were observed from samples out of which 12(23.5%) was Diabetes mellitus followed by Hypertension 8(14%) and Respiratory Tract Diseases 7 (12%).

Percentage of comorbidity in patients

PATIENT	FREQUENCY	PERCENTAGE
COMORBID	57	57%
WITHOUT COMORBID	43	43%
TOTAL	100	100%

Percentage of comorbidity

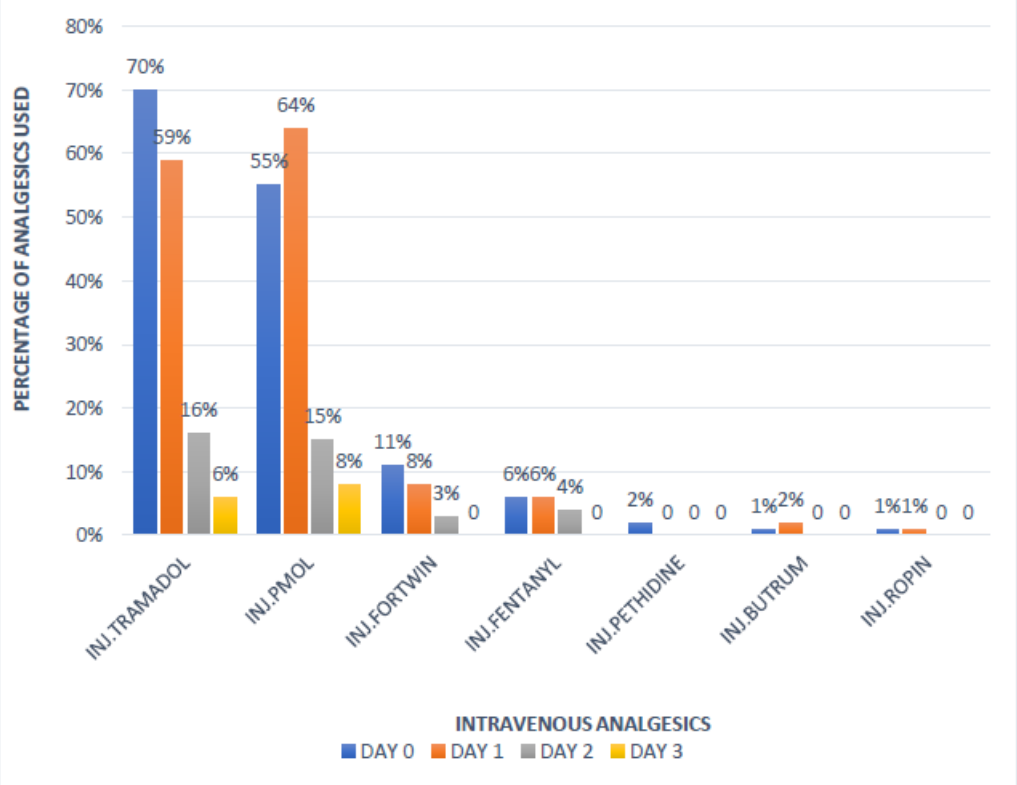


Inference: The above table and figure shows that among 100 patients, 57% were having comorbid conditions and 43% without comorbid conditions.

Pattern of intravenous analgesics used during post-operative days

IV ANALGESICS	DAY 0	DAY 1	DAY 2	DAY 3
INJ TRAMADOL	70%	59%	16%	6%
INJ PMOL	55%	64%	15%	8%
INJ FORTWIN	11%	8%	3%	0
INJ FENTANYL	6%	6%	4%	0
INJ PETHIDINE	2%	0	0	0
INJ BUTRUM	1%	2%	0	0
INJ ROPIN	1%	1%	0	0

Pattern of IV analgesics used during post operative day

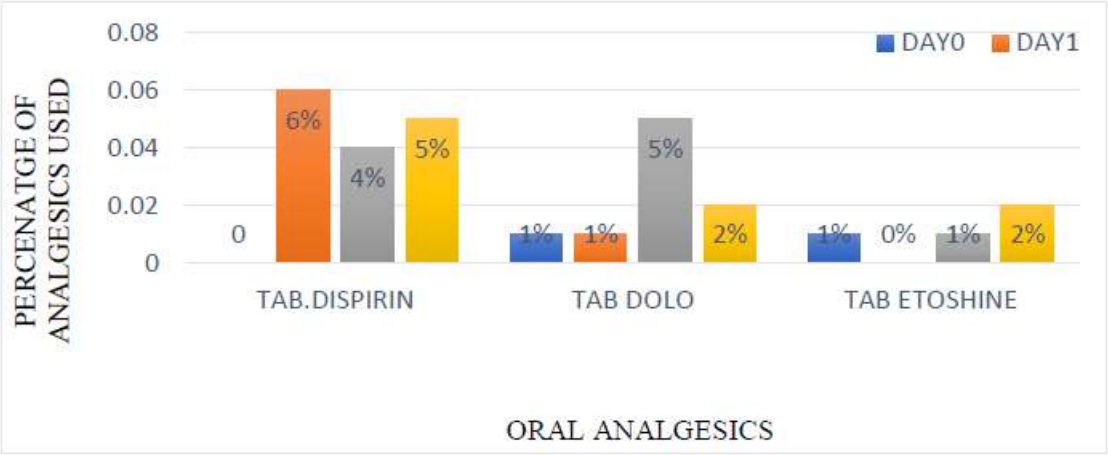


Inference: Among the intravenous analgesics, Tramadol was mostly used on Day 0 (70%) and Day 2 (16%) followed by Paracetamol on Day 0 (55%) and Day 2 (15%). Paracetamol was used mostly on Day 1 (64%) and Day 3 (8%) followed by Tramadol on Day 1 (59%) and Day 3 (6%).

Pattern of oral analgesics used in post operative days

ORAL ANALGESICS	DAY 0	DAY 1	DAY 2	DAY 3
TAB DISPIRIN	0	6%	4%	5%
TAB DOLO	1%	1%	5%	2%
TAB ETOSHINE	1%	0	1%	3%

Pattern of oral analgesics during post operative days

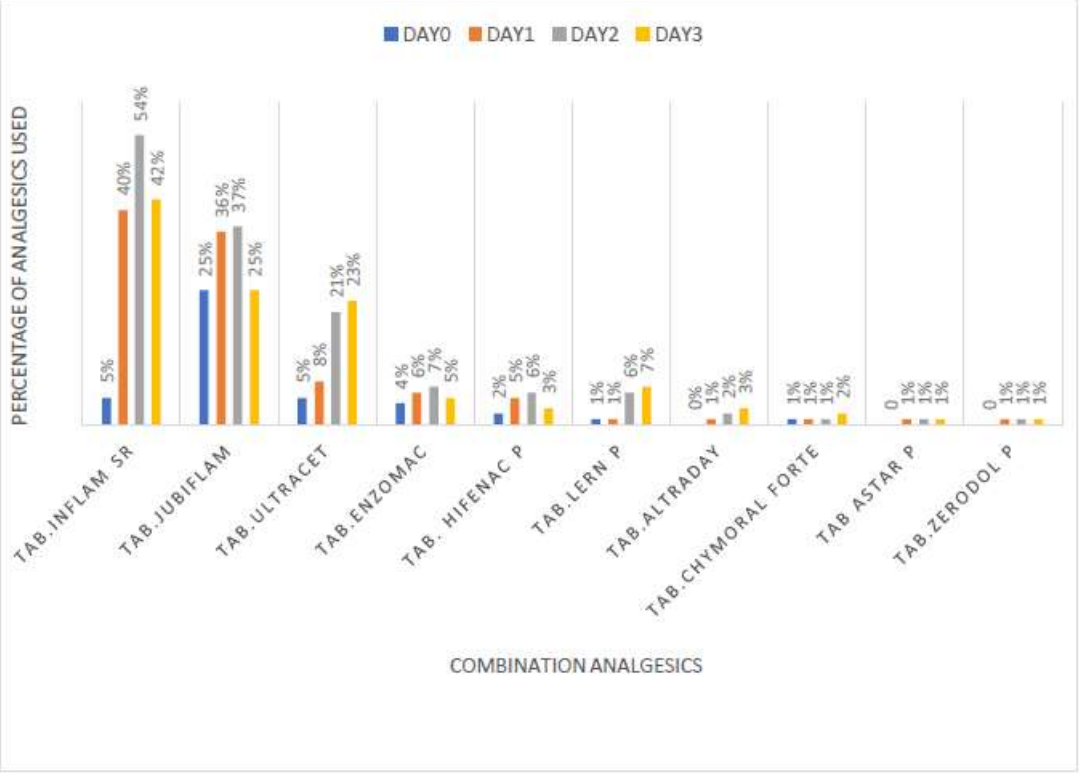


Inference: Among the oral analgesics, Tab. Dispirin was used most on Day 1(6%) and Day 3 (5%). Tab.Dolo was used mostly on Day 0 (1%) and Day 2 (5%)

Pattern of combination analgesics used in post-operative days

COMBINATIONANALGESICS	DAY 0	DAY 1	DAY 2	DAY 3
TAB.INFLAM SR	5%	40%	54%	42%
TAB. JUBIFLAM	25%	36%	37%	25%
TAB. ULTRACET	5%	8%	21%	23%
TAB.ENZOMAC	4%	6%	7%	5%
TAB. HIFENAC P	2%	5%	6%	3%
TAB.LERN P	1%	1%	6%	7%
TAB.ALTRADAY	0	1%	2%	3%
TAB.CHYMORAL FORTE	1%	1%	1%	2%
TAB.ASTAR P	0	1%	1%	1%
TAB.ZERODOL P	0	1%	1%	1%

Pattern of combination analgesics used in post-operative days



Inference: The most commonly prescribed combination analgesic was Tab. Jubiflam on Day0 (25%). Tab. Inflam SR was mostly prescribed on Day 1 (40%), Day 2 (54%) and Day 3(42%) followed by Tab.Jubiflam on Day 1 (36%), Day 2 (37%) and day 3 (25%)

Pattern of analgesic usage on the day of surgery(day-0)

Drugs	Route of administration		Total	Percentage
	Oral	Parenteral		
PARACETAMOL		56	56	22.2
TRAMADOL		70	70	27.8
INFLAM SR	5		5	2.0
ULTRACET	6		6	2.4
FORTWIN		11	11	4.4
ALTRA DAY	56		56	22.2
HIFENAC P	2		2	0.8
ENZOMAC	4		4	1.6
FENTANYL		6	6	2.4
JUBIFLAM	26		26	10.3
LERN P	1		1	0.4
DISPIRIN	1		1	0.4
ETOSHINE	1		1	0.4
CHYMORAL FORTE	2		2	0.8
PETHIDINE		2	2	0.8
ASTAR P	0		0	0.0

BUTRUM		1	1	0.4
DOLO	1		1	0.4
ZERODOL P	0		0	0.0
ROPIN		1	1	0.4
Total	105	147	252	100.0

Inference: The most prescribed analgesic on Day 0 was Tramadol (27.8%) followed by Paracetamol (22.2%).

Pattern of analgesic usage on the day of surgery(day-1)

Drugs	Route of administration		Total	Percentage
	Oral	Parenteral		
PARACETAMOL		63	63.0	25.3
TRAMADOL		59	59.0	23.7
INFLAM SR	39		39.0	15.7
ULTRACET	9		9.0	3.6
FORTWIN		8	8.0	3.2
ALTRA DAY	1		1.0	0.4
HIFENAC P	5		5.0	2.0
ENZOMAC	5		5.0	2.0
FENTANYL		6	6.0	2.4
JUBIFLAM	38		38.0	15.3
LERN P	1		1.0	0.4
DISPIRIN	7		7.0	2.8
ETOSHINE	0		0.0	0.0
CHYMORAL FORTE	2		2.0	0.8
PETHIDINE		0	0.0	0.0
ASTAR P	1		1.0	0.4
BUTRUM		2	2.0	0.8
DOLO	1		1.0	0.4
ZERODOL P	1		1.0	0.4
ROPIN		1	1.0	0.4
Total	110	139	249	100.0

Inference: The most prescribed analgesic on Day 1 is Paracetamol (25.3%) followed by Tramadol (23.7%).

Pattern of analgesic usage on the day of surgery(day-2)

Drugs	Route of administration		Total	Percentage
	Oral	Parenteral		
PARACETAMOL		16	16.0	8.2
TRAMADOL		15	15.0	8.7
INFLAM SR	54		54.0	29.3
ULTRACET	21		21.0	11.4
FORTWIN		3	3.0	1.6
ALTRA DAY	2		2.0	1.1

HIFENAC P	6		6.0	3.3
ENZOMAC	6		6.0	3.3
FENTANYL		4	4.0	2.2
JUBIFLAM	38		38.0	20.7
LERN P	6		6.0	3.3
DISPIRIN	4		4.0	2.2
ETOSHINE	0		0.0	0.0
CHYMORAL FORTE	2		2.0	1.1
PETHIDINE		0	0.0	0.0
ASTAR P	1		1.0	0.5
BUTRUM		0	0.0	0.0
DOLO	5		5.0	2.7
ZERODOL P	1		1.0	0.5
ROPIN		0	0.0	0.0
Total	146	38	184	100

Inference: The most prescribed analgesic on Day 2 was Tab.Inflam SR (29.3%) followedby Tab.Jubiflam (20.7%)

Pattern of analgesic usage on the day of surgery (day-3)

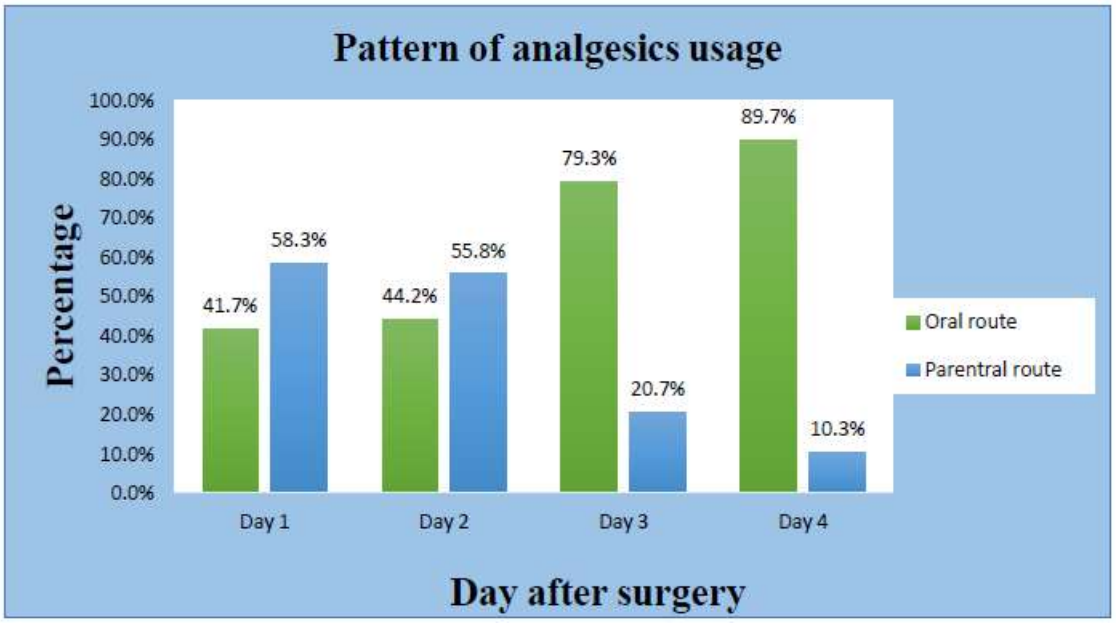
Drugs	**Route of administration**		**Total**	**Percentage**
	Oral	**Parenteral**		
PARACETAMOL		8	8.0	5.9
TRAMADOL		6	6.0	4.4
INFLAM SR	42		42.0	30.9
ULTRACET	22		22.0	16.2
FORTWIN		0	0.0	0.0
ALTRA DAY	3		3.0	2.2
HIFENAC P	3		3.0	2.2
ENZOMAC	4		4.0	2.9
FENTANYL		0	0.0	0.0
JUBIFLAM	27		27.0	19.9
LERN P	7		7.0	5.1
DISPIRIN	5		5.0	3.7
ETOSHINE	2		2.0	1.5
CHYMORAL FORTE	2		2.0	1.5
PETHIDINE		0	0.0	0.0
ASTAR P	1		1.0	0.7
BUTRUM		0	0.0	0.0
DOLO	3		3.0	2.2
ZERODOL P	1		1.0	0.7
ROPIN				0.0
Total	122	14	136	100.0

Inference: The most prescribed analgesic on Day 3 was Tab.Inflam SR (30.9%) followed by Tab.Jubiflam (19.9%).

Pattern of analgesics usage regarding route of administration

Day	Oral		Parenteral		Total
	f	%	F	%	
Day 1	105	41.7	147	58.3	252
Day 2	110	44.2	139	55.8	249
Day 3	146	79.3	38	20.7	184
Day 4	122	89.7	14	10.3	136

Analgesic pattern based on route of administration



Inference: The parenteral route was mostly prescribed on Day 0 (58.3%) and Day 1 (55.8%) than oral analgesics on Day 0 (41.7%) and Day 1 (44.2%). The oral route of analgesics was mostly prescribed on Day 2 (79.3%) and Day 3 (89.7%) as compared toparenteral analgesics on Day 2 (20.7%) and Day 3 (10.3%).

CONCLUSION

Postoperative care is the crucial part of the healing process. It helps in assisting patients in regaining the strength and health, and enabling them to return to their everyday life. And so pain management plays a vital role. In many cases, a combination of analgesics is required for effective pain relief. Unfortunately, no single agent is an ideal choice for all types of patients or no one agent is suitable for all types of pain. As each patient's pain experience is different, treatment suggestions and follow-ups should be adjusted according to individual clinical profile, needs and preferences. Our findings could inform healthcare professionals and healthcare organisations in the implementation of patient centered programmes aimed at optimising safe pain management after an orthopaedic trauma.

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