



## POST OPERATIVE UTILIZATION PATTERN OF ANALGESICS IN ORTHOPEDIC DEPARTMENT OF AN INDIAN TERTIARY CARE TEACHING HOSPITAL

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### ABSTRACT

A retrospective study was conducted in the Department of Pharmacology and Orthopedics of a tertiary care government teaching hospital in Bidar between January 2012 and March 2012. The aim of the study was to analyze the prescribing pattern of NSAIDs in patients admitted in Orthopedics ward and to correlate the use of conventional NSAIDs in practice. The results suggest frequent use of conventional non-selective NSAIDs. Use of selective COX 2 inhibitors was soldem. This study showed that postoperative pain control was able to be achieved by non-opioid drug Diclofenac alone itself and opioid analogues were added to patients for whom pain relief could not be achieved. There was increased use of Diclofenac for the acute management. Utilization of analgesics was found to be based on the surgeon preferences.

**Key words:** NSAIDs, Orthopedics, Retrospective, Prescribing pattern.

### INTRODUCTION

Prescription pattern is a part of medical audit. To improve the therapeutic advantage and decrease the untoward effects, time to time evaluation of drug utilization pattern enables to make suitable and rational modification in the current prescribing trend. So the auditing of prescription pattern involves monitoring of prescribers nature of drug prescription in order to make medical care rational and cost effective [1].

Several studies in developing nations have also shown that NSAID are one of the most commonly prescribed as well as abused drugs next to antibiotics [2,3]. NSAID mediated side effects are mainly related to gastrointestinal bleeding and most frequently occurs in elderly population, with women being more susceptible [4].

The world health organization (WHO) in 1977 has defined drug utilization as the marketing, distribution,

prescription and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences [5,6].

Pain is an unpleasant sensation which varies in degrees of severity as a consequence of injury, disease, or emotional disorder [7]. Poor pain control is unethical, inhuman, clinically unsound and economically wasteful [8].

Analgesics are defined as the drugs that relieve pain without blocking nerve impulse conduction or markedly altering sensory function [9]. A particular analgesic dose that produces successful pain relief in one patient may generate bearable adverse effects and insufficient pain control or it could not relief algesia in another person. As some many innumerable analgesics are available in the todays market which may often lead to irrational prescription behaviour [10]. Hence this study was

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designed to evaluate the drug utilization pattern of analgesics among postoperative patients of orthopedic in a tertiary care teaching hospital.

**Aims and Objectives**

- To know the most routinely prescribed analgesics for postoperative pain management.
- To evaluate the prescribing pattern of most preferred analgesic.

**MATERIALS AND METHODS**

This observational cross sectional study was conducted from January 2012 to March 2012 at Bidar Institute of Medical Sciences, Bidar, a tertiary care teaching hospital after obtaining the institutional ethics committee permission. The patients who underwent

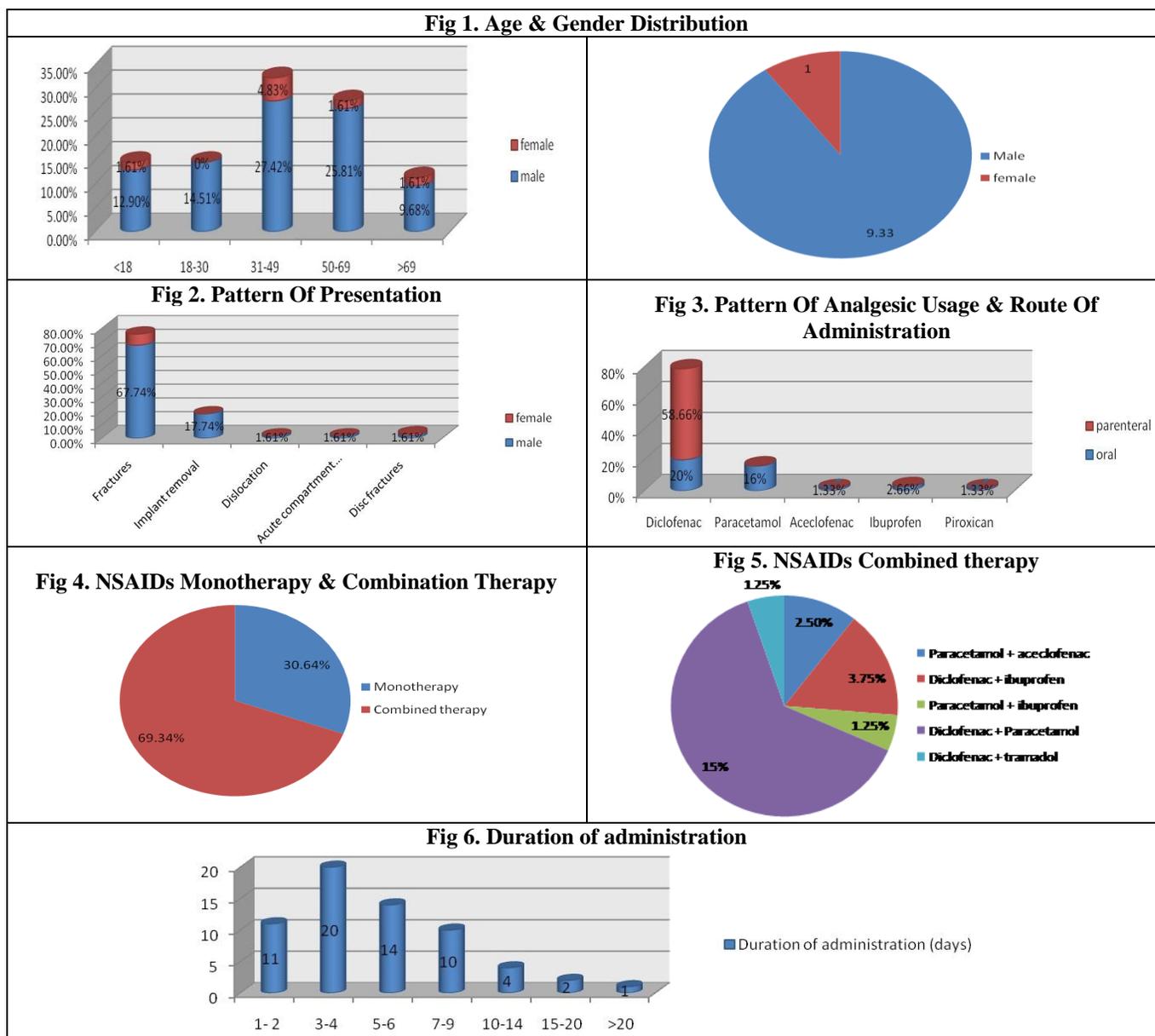
major/minor operative procedure in the age group of above 18 years were included in this study from orthopedics department.

Information on age and sex of the patients and analgesics used were recorded from the day of surgery up to discharge (postoperative) from the case sheets, by using standard data collection form after obtaining Informed consent.

**Statistical Analysis**

Data were analyzed using descriptive statistics and the results were presented by using frequency distribution table with Microsoft excel .

**RESULTS**



**Table 1. Age & Gender Distribution**

Age groups(years)	Male	Female	Total	Percentage (%)
< 18	08(12.90%)	01(1.61%)	09	14.52
18-30	09(14.51%)	-	09	14.52
31-49	17(27.42%)	03(4.83%)	20	32.26
50-69	16(25.81%)	01(1.61%)	17	27.42
>69	06(9.68%)	01(1.61%)	07	11.29
Total	56	06	62	
M:F	9.33:1			

**Table 2. Pattern of Presentation**

Indication	Male	Female	Total	Percentage (%)
Fractures	42(67.74%)	5(8.06%)	47	75.80
Implant removal	11(17.74%)	-	11	17.74
Dislocation	01(1.61%)	-	01	1.61
Acute compartment syndrome	01(1.61%)	-	01	1.61
Disc fractures	01(1.61%)	01(1.61%)	02	3.22
Total	56	06	62	

**Table 3. Pattern of Analgesic Usage & Route of Administration**

Incidence & route of administration	Post operative		Total	Percentage (%)
	Oral	Parenteral		
<b>NSAIDS</b>				
Diclofenac	15(20%)	44(58.66%)	59	73.75
Paracetamol	12(16%)	-	12	15
Aceclofenac	01(1.33%)	-	01	1.25
Ibuprofen	02(2.66%)	-	02	2.5
Piroxican	01(1.33%)	-	01	1.25
Total	31	44	75	
<b>Opiates</b>	Oral	Parenteral		
Tramadol	05	05	05	6.25

**Table 4. Monotherapy & Combination Therapy**

NSAIDS	Number	Percentage (%)
Monotherapy	43	69.34
Combined therapy	19	30.64
Total	62	

**Table 5. NSAIDs Combined therapy**

NSAIDs Combined therapy	Number	Percentage (%)
Paracetamol + aceclofenac	02	2.5
Diclofenac + ibuprofen	03	3.75
Paracetamol + ibuprofen	01	1.25
Diclofenac + Paracetamol	12	15
Diclofenac + tramadol	01	1.25
Total	19	23.75

**Table 6. Duration of administration**

Duration of administration (days)	Post operative	Percentage (%)
1- 2	11	17.74
3-4	20	32.25
5-6	14	22.58
7-9	10	16.13
10-14	04	6.45
15-20	02	3.22
>20	01	1.61

## DISCUSSION

The present study shows the use of conventional NSAID with high frequency of diclofenac (73.75%) followed by Paracetamol (15%) and tramadol (6.25%). Ibuprofen (2.5%) Even though gastrointestinal toxicity is the major limitation of non selective NSAID, there was no clinically significant toxicity recorded in this study. This suggest that non selective NSAIDs are relatively safe for short term use (<10days), though it does not exclude the long term toxicity.

Not only the quantity, but also the quality of NSAID prescribing is important for drug utilization studies. Previous epidemiological studies [7] determined the quality based on ranking of GI complications. High risk group include Ketoprofen, Piroxicam and low risk group include Ibuprofen, diclofenac. In our study piroxicam (1.25%) and aceclofenac (1.25%) were the least prescribed analgesics. This suggests that evidence based medicine is an important factor while prescribing these drugs [11]. Parenteral therapy was used for acute management of cases for pain relief. A novel trend noticed was the increased use of NSAIDs (73.75%) with less frequency of non NSAIDs like Tramadol (6.25%).

The incidence of postoperative complications reduces with appropriate pain control [12].

The present study shows that Diclofenac was the most frequently used non-opioid analgesic by intramuscular route followed by Paracetamol. Diclofenac was the most commonly chosen both as mono and in combination with other drugs. Being nonselective COX inhibitor it will be more effective in relieving inflammatory symptoms induced mild to severe pain [12]. The advantage of diclofenac usage for post-operative pain is that it can be administered parenteral in initial post-operative period which can be converted to enteral route later.

Paracetamol is said to have more antipyretic effect than analgesic effect by selective COX-3 inhibition.

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Several studies have shown that Nonopioid drugs produce lesser side effects than opioid drugs [13]. Usage of Non-opioids can decrease the requirement of opioid analgesic in the early post-operative period also [12]. Results in this study are comparable with other studies, suggesting that, non-opioid analgesics are the preferred drugs for the treatment of postoperative pain relief [12-16]. Limitation of the study: sample size was less and duration of study was limited only for three months period.

## CONCLUSION

Our study reveals that the most commonly prescribed NSAID is Diclofenac. A new trend noticed is the use of non NSAIDs like Tramadol. This study suggests that post operative orthopedic cases can be managed with conventional NSAIDs and non NSAIDs like Tramadol to little extent. These are relatively safe drugs for short course therapy (<10days), with minimal side effects.

WHO suggests that drug utilization studies are needed in every health care setting. Data are useful for preparing Essential Drug Lists and standard treatment protocol. For a developing country like India, a National Drug Policy is needed to rationalise the drug use. To achieve this, it is very important to determine drug use pattern and monitor drug use profile over the time. Further the practice of evidence based medicine will improve the patient compliance and post-operative pain management more efficiently while prescribing the drugs.

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## CONFLICT OF INTEREST:

The authors declare that they have no conflict of interest.

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