

PRESCRIPTION PATTERN OF ANALGESICS AMONG POSTOPERATIVE ORTHOPAEDIC PATIENTS IN NSCB MEDICAL COLLEGE, JABALPUR

¹Dr Kapil Soni, ²Dr Ajit Pratap Singh, ³Dr Ashish Sirsikar , ⁴Dr Akshata Kalyani ,
^{5*}Dr Vaibhav Singh Chauhan

1. Post Graduate Student 3rd Year, Department Of Pharmacology NSCB Medical College Jabalpur MP
2. Professor and Head, Department Of Pharmacology NSCB Medical College Jabalpu MP
3. Associate Professor , Department Of Orthopaedics NSCB Medical College Jabalpu MP
4. Assistant Professor LNCT Medical College, Indore MP
5. Assistant Professor NSCB Medical College, Jabalpur MP

Corresponding Author

Dr Vaibhav Singh Chauhan

email - vaibhavsingh.vc@gmail.com

ABSTRACT

Aim -The aim of this study is to evaluate the prescribing pattern and rational use of analgesic in postoperative orthopaedic patients in tertiary care teaching hospital, Jabalpur, MP.

Methods: A prospective study (n=196) was carried out in post-operative orthopedic patients those stayed at least one day to till discharge during study period and those fulfilling inclusion criteria were included in study. Collected data included age, gender, diagnosis, names of analgesics prescribed, the concomitant drugs prescribed, number of analgesics per prescription.

Results: In our present study, majority of the study participants were male 144 (73.5%), and rest 52 (26.5%) were females. Most common cause of injury or fracture was road traffic accidents n=143 (73%), while n=53 (27%) had history of fall. Most common complain among study participants n= 189(96.4%) was pain and swelling. The average number of analgesic per prescription was 1.46. Diclofenac was the most commonly prescribed analgesic for postoperative pain relief, both in monotherapy and combination therapy in the post operative orthopedic patients.

Conclusions: The present study helps to find out recent prescribing pattern of analgesics among postoperative orthopedic patients. Therefore, understanding of the existing prescribing patterns, trends of analgesic use, their beneficial effect that can help to overcome postoperative pain.

Keywords- Postoperative pain, Non opioid and Opioid analgesics, Fixed dose combination (FDC)

INTRODUCTION

Pain is an ill-defined, disabling accompaniment of many medical conditions ^[1]. There are two components in pathophysiology of pain- 1) Peripheral component which gets activated by noxious stimulus 2) Central component through which afferent inputs generates a pain sensation. Analgesics are drugs, which possess significant pain relieving properties by acting in the central

nervous system or on peripheral pain receptors without significantly affecting consciousness. Mainly classified in two groups- 1) Narcotic/Opioid analgesics and (2) Non-narcotic/non-steroidal anti-inflammatory drugs (NSAIDs) ^[2]

NSAIDs are the most commonly used therapeutic agents for the management of pain and inflammation with used as over the counter drugs. They work by interfering with cyclooxygenase (COX) pathway, which involves the conversion of arachidonic acid by the enzyme COX to prostaglandins. NSAIDs have analgesic, anti-inflammatory, antipyretic action except paracetamol which lacks anti-inflammatory action. ^[3]

Opioid analgesics are also widely used for pain control. They act by increasing pain threshold. Tramadol is an opioid analgesic that is frequently prescribed in orthopedics outpatient department (OPD). Tramadol is a synthetic codeine analog, which is a weak μ opioid receptor agonist produce a wide spectrum of unwanted effects like respiratory depression, nausea, vomiting, dizziness, mental clouding, dysphonia, pruritus, constipation, increased pressure in the biliary tract, urinary retention, and hypotension. ^[4] Postoperative pain is a form of acute pain due to the surgical trauma with inflammatory reaction. Effective pain management is important to improve the outcome of patient care after any surgical intervention. Ineffective management of postoperative pain causes stress in patient, decrease in mobility; it may cause deep vein thrombosis, atelectasis and changes in metabolic system. ^[5] Hence this study was conducted to observe and analyze the prescribing pattern of analgesics in post-operative orthopedic patient in orthopedic department of NSCB Medical College Jabalpur.

Method - This was a prospective observational study conducted over a period of 18 months (March 2021 – Aug 2022) on post-operative orthopedic patients admitted in orthopedic department of NSCB Medical College Jabalpur. All the participants included in the study were explained clearly about the purpose and nature of the study in the language they understood and were included in the study only after obtaining a written Informed Consent.

Inclusion criteria • Post-operative patients who received analgesics and stayed at least one day to till discharge during study period. • Patients irrespective of age, gender, diagnosis and treatment.

Exclusion criteria

- Patients admitted in Orthopedic ward but transferred to other department.
- Patients who are absconded or discharged against medical advice.
- Patients with hepatic and/or renal impairment.
- Patients with cognitive impairment, critically ill or intubated.

A total of 196 patients were enrolled in the study and the data was collected in a specially designed data collection form. The individual data collected from the prescriptions was analyzed on the following parameters: Demographic profile, type of analgesics used and type of therapy - monotherapy or fixed drug combination (FDC) therapy.

Results- In an 18 months' period from March 2021 – Aug 2022 a total of 196 post-operative patients admitted in the orthopedics department of NSCB Medical College, Jabalpur who met the inclusion criteria were included in the study and their prescriptions were analyzed. Majority of

the study participants were male (n=144 (73.5%)), and rest were females (n=52 (26.5%)). (FIG-1)

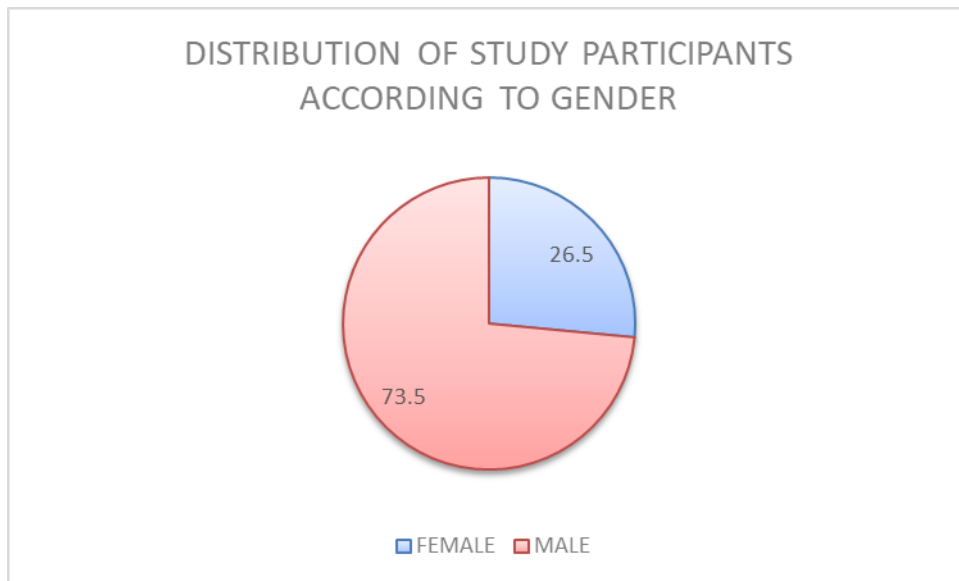


Figure1 DISTRIBUTION OF STUDY PARTICIPANTS ACCORDING TO GENDER

The most common complain among study participants n=189 (96.4%) was pain and swelling. Most of them n=143 (73%) had history of road traffic accidents, while 53 (27%) had history of fall. (FIG-2).

Majority of them n= 162 (82.6%) had fracture as final diagnosis.

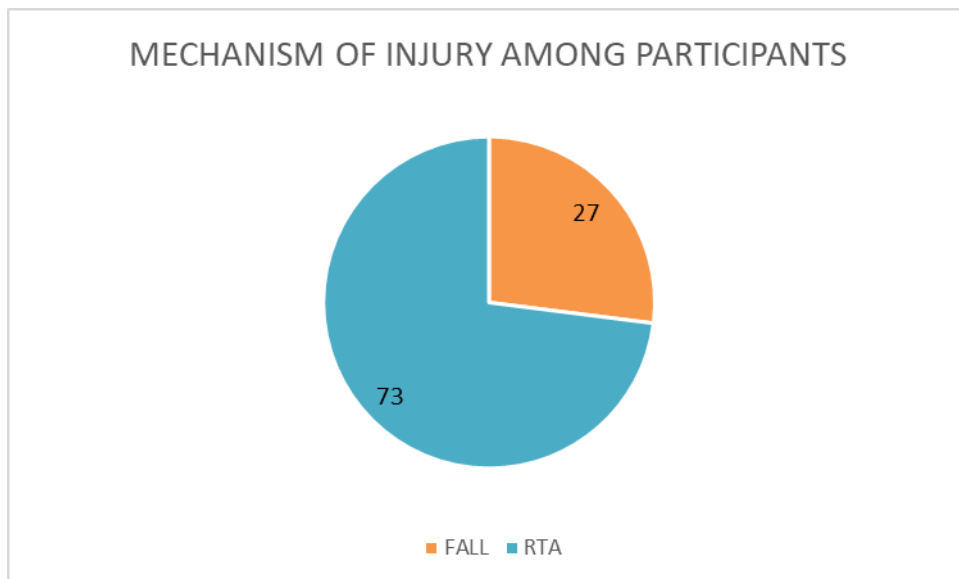


Figure 2 MECHANISM OF INJURY AMONG PARTICIPANTS

A total of 290 drugs were prescribed, out of which NSAIDs were 131 (36.2%), Opioids 65 (18%), Proton pump inhibitors 28 (7.7%), muscle relaxants 25 (6.9%), antibiotics 18 (5%). (FIG-3)

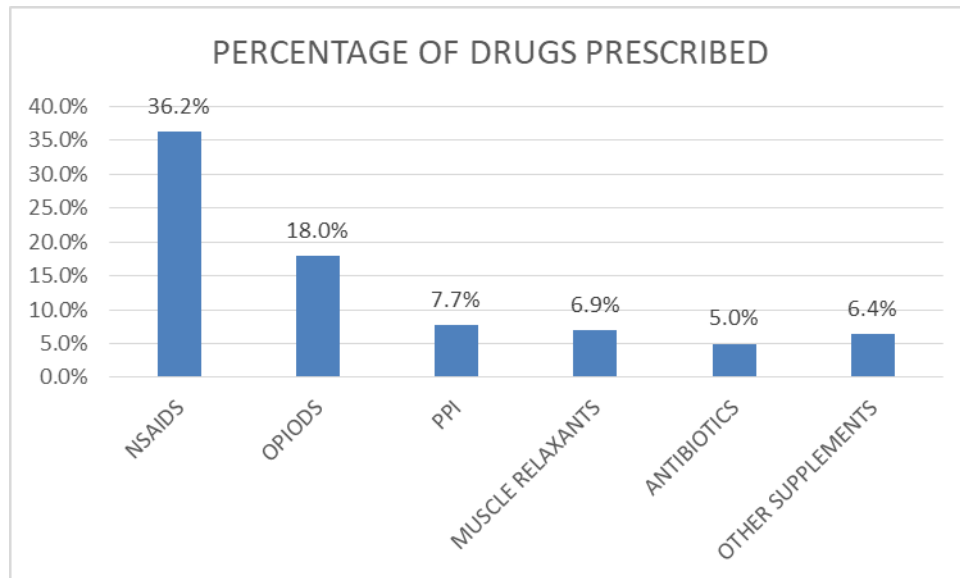


Figure 3 PERCENTAGE OF DRUGS PRESCRIBED

Among NSAIDs, diclofenac (27.59%) is most commonly prescribed followed by paracetamol and Aceclofenac. Among opioid analgesics tramadol was prescribed both as monotherapy and as FDC with NSAIDs. FDC of diclofenac with paracetamol (32.73%) was the most commonly prescribed followed by a combination of diclofenac with tramadol (29.09%). In 7.7% of prescriptions, gastro protective PPIs were used along with NSAIDs and pantoprazole was the most commonly prescribed. (FIG-4).

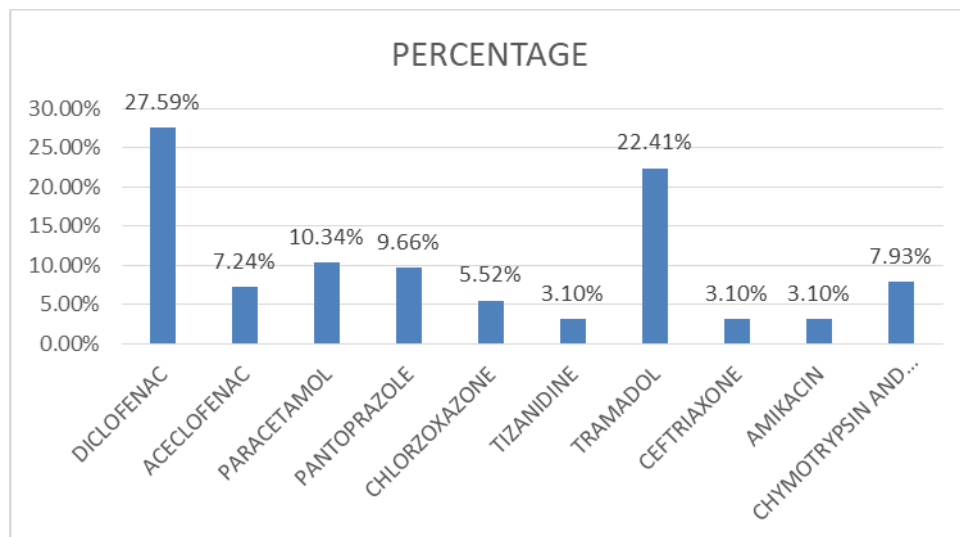


Figure 4 DIFFERENT CATEGORY OF DRUGS PERCENTAGE

55 (28.06%) prescriptions contain fixed dose combinations of drugs, among which diclofenac plus paracetamol combination was most commonly used (32.7%). (FIG-5)

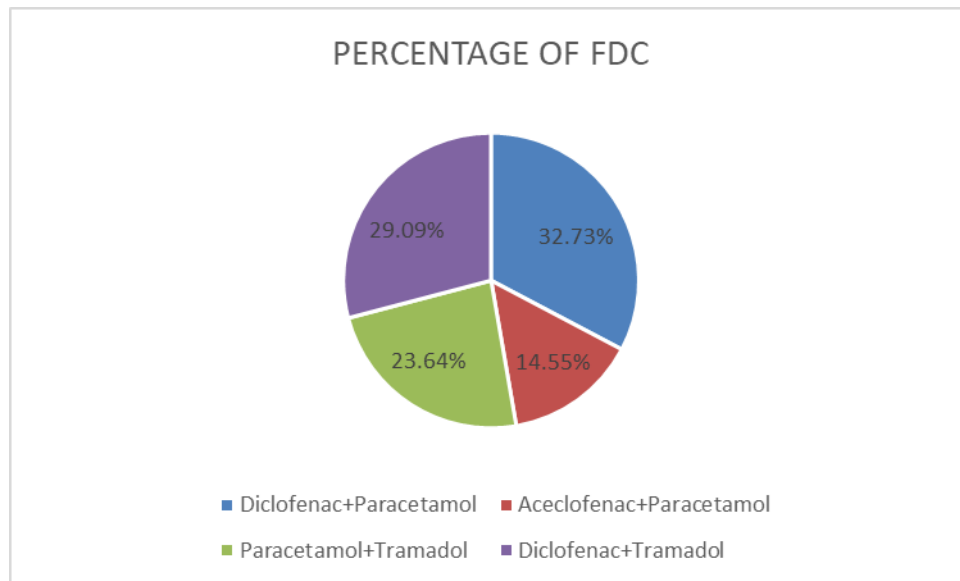


Figure 5 PERCENTAGE OF FDC

DISCUSSION-

The study highlighted that the most commonly prescribed group of drugs was analgesics as most of the patients in orthopedic ward experience pain and inflammation post operatively. NSAIDs mainly diclofenac is preferred choice of NSAIDs in post-operative Orthopaedic patient. Among opioid analgesics, tramadol is the most commonly prescribed drug either alone or in combination with NSAIDs. The result was similar with the earlier study by Nagla and Wadagbalkar.^[6] NSAIDs are widely prescribed, their major limitation is gastrointestinal toxicity. Hence, in the present study, gastroprotective agents like PPI were prescribed to reduce or prevent the gastrointestinal irritation caused by NSAIDs. We noted that 9.6% of the drugs were gastroprotective agents like proton-pump inhibitors and the same has been reported from an earlier study.^[7] Antibiotics along with chymotrypsin enzymes were prescribed as post-operative prophylaxis for rapid healing and to prevent infection. The most frequently prescribed antimicrobial agents belong to the group cephalosporin which is similar to study conducted by Ghosh et al. describing antibiotic usage in orthopedic department.^[8] Substantial use of FDC of analgesics were seen in this study. Combining two NSAIDs is irrational as the two drugs act on the same pathway and there is no synergism when two drugs acting on the same enzyme are combined. These irrational FDCs increase chances of adverse drug effects and drug interactions compared with both drugs given individually. Combination of opioid analgesics with NSAID is more rational, as the two drugs act on different pathways and will be beneficial for patient.

CONCLUSION-

The study provides an insight into the pattern of analgesic use in Post-operative orthopedic patient of NSCB Medical college Jabalpur. It is concluded that diclofenac was the most commonly prescribed analgesic for postoperative pain relief, both in monotherapy and combination therapy in the post-operative orthopaedic patients. Therefore, understanding of the

existing prescribing patterns, recent trends of analgesics in post operative patients targeting different mechanism can help to overcome pain, improve quality of life, and provide beneficial effect that can help to overcome postoperative pain.

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