



ORIGINAL RESEARCH PAPER

Orthopaedics

“PRESCRIPTION AUDIT OF ANALGESICS IN ORTHOPAEDICS OPDOF A TERTIARY CARE TEACHING HOSPITAL”

KEY WORDS: Analgesics, NSAIDs, Selective COX-2 inhibitors, Prescription pattern.

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ABSTRACT	Background: Analgesics are the most frequently prescribed drug in orthopaedics OPD. Aim of the present study was to evaluate the prescription pattern of analgesics in Orthopaedics OPD and to assess the rational use of analgesics.
	Material and Methods: Present study was carried out at OPD of Orthopaedics at Darbhanga Medical College and Hospital, Laheriasarai, Darbhanga, Bihar, India during June 2016 to may 2017.
	Results: In present study, we observed that most commonly prescribed analgesics were non-selective NSAIDs followed by selective COX-2 inhibitors.
	Conclusions: Most commonly prescribed analgesics in orthopaedics OPD were Non-selective NSAIDs.

Introduction:

Pain is an unpleasant sensory and emotional experience, which is associated with actual or potential tissue damage.^{1,2} To provide the feedback to the physician and to insure awareness about rational use of medicines is the main aim of prescribing pattern studies.³ For the treatment of pain and inflammation, NSAIDs are most commonly prescribed drug around the world. These drugs act by interfering the cyclooxygenase (COX) pathway. The COX enzyme exists in two isoforms; COX-1 and COX-2. The COX-1 is constitutive that regulates physiological functions such as mucus production the stomach as well as platelet formation whereas COX-2, is mainly involved in the synthesis of prostaglandins during the inflammatory response.⁴ Major limitations of classical NSAIDs are gastrointestinal toxicity which is due to inhibition of COX-1 in GIT. Selective COX-2 inhibitors are GI friendly drug.⁵ There are some recent evidences of adverse events in cardiovascular with the use of selective COX-2 inhibitors.⁶ Besides NSAIDs, Tramadol is commonly prescribed opioid analgesic in orthopaedics outpatient department (OPD). Tramadol is equally efficacious as morphine or meperidine in the treatment of mild to moderate pain.⁷

Material & Methods:

Present study was done at out-patient department of Orthopaedics at Darbhanga Medical College, Laheriasarai, Darbhanga, Bihar, India during June 2016 to may 2017. Both male and female patients, above the age of 18 years, those were agreed to participate in present study, were enrolled. Samples of 1243 prescriptions were selected randomly. Verbal informed consent was taken from the participants. 258 prescriptions were excluded because of some lifestyle modification and exercise. Based on inclusion and exclusion criteria, 985 participants were selected and results are based upon the data obtained from these prescriptions. Data were analysed and summarized as counts and percentages.

Results

In present study, a total no. of 791 drugs were prescribed, out of which 728 were oral while 63 were topical drugs. Most commonly prescribed analgesics were non-selective NSAIDs (60.4%) followed by selective COX-2 inhibitors (14.2%). (Table 1) Diclofenac (22.8%) was the most commonly prescribed non-selective COX inhibitor. Etodolac (10.4%) was commonly prescribed preferential COX-2 inhibitor. Among selective COX-2 inhibitors, etoricoxib (9.1%) was the only drug prescribed. In opioid analgesics, tramadol (6.1%) was most commonly prescribed analgesic. Gastroprotective agents were co-

administered with NSAIDs. Most commonly prescribed PPI was pantoprazole (7.3%). (Table 2) We observed in the present study that 278 patients received fixed dose combinations (FDCs). Most frequently prescribed FDCs combination was diclofenac with paracetamol (28.1%), followed by a combination of Ibuprofen and paracetamol (16.9%). (Table 3)

Discussion

Fractures are among the most common orthopaedic problems, and millions of people seek medical care attention for fracture in India. Most common indication for prescribing analgesics in our study was fractures. NSAIDs are most commonly prescribed analgesic for the management of pain and inflammation. Gastrointestinal toxicity is the major limitation of NSAIDs for their clinical use. NSAIDs are frequently co-prescribed with gastroprotective agents.⁸ In our study, we observed that diclofenac was most commonly prescribed NSAIDs. This was in line with the previous studies.⁹⁻¹⁰ Selective COX-2 inhibitors were also frequently prescribed analgesic but their use have declined over the years due to their cardiovascular toxicity.¹¹⁻¹² We observed in our present study that NSAIDs were frequently prescribed with PPIs. Main aim of their use was NSAIDs associated peptic ulcer and gastrointestinal bleeding.¹³ A previous study showed that PPIs are anti-ulcer agents of choice.¹⁴ We observed in our present study that in opioid analgesics, tramadol was the most frequently prescribed either alone or in combination with other NSAIDs. This was in line with the previous study.⁵ We also observed in present study that there was frequent use of FDC of analgesics. Previous studies showed that combination of two NSAIDs is irrational and does not improve the efficacy of treatment. Irrational FDCs increase the chances of adverse drug effects.¹⁵ Combining opioid analgesics with NSAID is more rational, as the two drugs act on different pathways.¹⁶ In present study, most of the analgesics were prescribed rationally. WHO has recommended the use of ATC classification/DDD system as a tool for presenting drug utilization research to improve the quality of drug use.¹⁷ Polypharmacy and irrational prescription may result in adverse effects. In present study, we observed that the average number of drug per prescription was 4.7. This was similar to the previous study.¹⁸ Reference value for average number of drugs in WHO guidelines on rational use of drugs per prescriptions is 1.6-1.8.¹⁹

Conclusion

Diclofenac was the most frequently prescribed analgesic in our orthopaedics OPD. There is need for adherence to the analgesic

treatment guidelines and continuing education for clinicians for the benefit of patients.

Table 1: Prescribed Drug Category (N=791)

Drug Category	No.	%
Non-selective NSAIDs	479	60.6
COX Selective NSAIDs	112	14.2
Opioid analgesics	56	7.1
Proton Pump Inhibitors	74	9.3
H ₂ antihistaminic blockers	27	3.4
Muscle relaxants	43	5.4

NSAIDs: Non-steroidal anti-inflammatory drugs, **PPIs:** Proton pump inhibitors

Table 2: Class of Drugs prescribed (N=791)

Name of the Drug	No.	%
Diclofenac	180	22.8
Etodolac	86	10.9
Etoricoxib	75	9.5
Piroxicam	72	9.1
Tramadol	54	6.8
Aceclofenac	69	8.7
Ibuprofen	63	8.0
Pantoprazole	58	7.3
Tizanidine	49	6.2
Ranitidine	27	3.4
Paracetamol	34	4.3
Chlorzoxazone	15	1.9
Rabeprazole	9	1.1

Table 3: Details of Fixed dose combinations (N=278)

Fixed dose combination	No.	%
Combination of NSAIDs with NSAIDs		
Diclofenac+Paracetamol	78	28.1
Ibuprofen+Paracetamol	47	16.9
Aceclofenac+Paracetamol	39	14.0
Etoricoxib+Diclofenac	14	5.0
Combination of NSAIDs +Muscle relaxants		
Diclofenac+Paracetamol+Chlorzoxazone	27	9.7
Diclofenac+Tizanidine	16	5.8
Diclofenac+Chlorzoxazone	19	6.8
Aceclofenac+Chlorzoxazone	7	2.5
Combination of NSAIDs+Opioids		
Paracetamol+Tramadol	31	11.2

FDC: Fixed drug combination, **NSAIDs:** Non-steroidal anti-inflammatory drugs

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