ABSTRACT

Background: Analgesics are one of the most commonly used group of drugs that are prescribed in the orthopedics outpatient department (OPD) for the relief of pain. The study was conducted with the aim of analysing the prescribing pattern of analgesics in orthopedics OPD and to correlate their use in clinical practice. Methods: A prospective, observational, non interventional, hospital based study was carried out for the period of three months between April 2013 and June 2013 in the out-patient department of Orthopedics at Silchar Medical College and Hospital. Adult patients (>18 years) of either sex who visited the outdoor for the first time and prescribed with analgesics drugs were included in the study. The parameters that were analyzed were: type of analgesics prescribed, use of monotherapy or combined therapy and the duration of therapy.

Results: A total of 300 prescriptions were analyzed. Of these, 81.3% were NSAIDs, 18.7% were opioid analgesics. 73.7% contained non selective NSAIDs, 7.6 % had selective NSAIDs. 55.3% of the NSAIDs were prescribed as monotherapy and 44.7 % were prescribed as fixed dose combination (FDC). 65.3% of the prescription contained Proton pump inhibitor (PPI). Conclusions: From our study we can conclude that in our institution, non selective NSAIDs are preferred over selective NSAIDs, monotherapy is preferred over two or three drug therapy and gastroprotective agents are routinely prescribed with analgesics.
KEYWORDS: Analgesics, Prescription pattern, Orthopedics, Non-steroidal anti-inflammatory drugs.

INTRODUCTION
Pain is the most common symptom for which patients require therapeutic consideration. Pain may be defined as an obnoxious sensory and emotional experience that is actually or potentially associated with tissue injury or depicted in terms of such damage.\(^1,2\)

Analgesics are drugs that relieve pain. NSAIDs are the most frequently used drugs for the treatment of pain and inflammation. They act by interacting with cyclooxygenase (COX) pathway, that involves the synthesis of prostaglandins from arachidonic acid by the enzyme cyclooxygenase (COX). The COX enzyme exists in two isoforms namely COX-1 and COX-2. The COX-1 form is constitutive and 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.\(^3\)

Gastrointestinal side effect is a major concern in the clinical use of NSAIDs. This is due to their ability to suppress COX-1 in the gastrointestinal tract (GIT). Subsequently, the selective COX-2 inhibitors appeared as possibly safer NSAIDs and it was perceived that adequate therapeutic advantages are attained by selective COX-2 inhibition.\(^4\)

Opioid analgesics are another class of drugs that were previously used very frequently to suppress pain. However, they produce a broad spectrum of undesirable effects like respiratory depression, nausea, vomiting, dizziness, constipation, increased pressure in the biliary tract, urinary retention and hypotension. This has considerably restricted their use in selective cases only.

Tramadol is an opioid analgesic that is commonly prescribed in orthopedics outpatient department (OPD) besides NSAIDs. Tramadol is a weak \(\mu\) opioid receptor agonist. However a portion of its analgesic effect also occurs due to suppression of uptake of norepinephrine and serotonin. In the treatment of mild to moderate pain, tramadol is as efficient as morphine or meperidine.\(^5\)

Prescribing pattern studies are undertaken to scrutinize, assess and if required, advocate amendments in the prescribing behavior of health care professionals to ensure that medical care is rational as well as economical.\(^6\)
METHODOLOGY
A prospective, observational, non interventional, hospital based study was carried out for the period of three months between April 2013 and June 2013 in the out-patient department of Orthopedics at Silchar Medical College and Hospital. Due permission was obtained from the Institutional Ethics Committee. Adult patients (> 18 years) of either sex who visited the outdoor for the first time and prescribed with analgesic drugs for various conditions were included in the study. Data was collected from the health cards in a predesigned proforma. The parameters that were analyzed were: type of analgesics prescribed, use of monotherapy or combined therapy and the duration of therapy.

RESULTS
A total of 300 prescriptions were analyzed. Out of 300 patients, 167 (56%) were males and 133 (44%) were females (Fig.1). 44 (14.7%) patients out of 300 patients belonged to the age group 18-30 years, 98 (32.7%) belonged to 31-50 years age group, 126 (42%) belonged to 51-65 years and 32 (10.6%) patients were above 65 years of age (Fig.2). Out of 300 prescriptions that were analyzed, 221 (73.7%) contained non selective non steroidal anti inflammatory drugs (NSAIDs), 23 (7.6%) had selective NSAIDs, 56 (18.7%) had Opioids, 104 (34.6%) prescriptions contained H2 receptor blockers whereas 196 (65.3%) prescriptions contained Proton pump inhibitors (PPIs), 47 (15.7%) contained muscle relaxants and 31 (10.3%) prescriptions had serratiopeptidases which are tissue healing drugs (Fig.3). 166 (55.3%) patients received monotherapy, 103 (34.3%) patients received two drug therapy and 31 (10.3%) patients received three drug therapy (Fig.4). In 134 (44.7%) out of 300 prescriptions, Fixed Dose Combinations (FDC) were used. 45 (33.6%) of those had FDC of two NSAIDs, 36 (26.9%) had FDC of NSAID and Muscle Relaxant (MR), 22 (16.4%) had FDC of NSAID and Opioid and 31 (23.13%) had FDC of NSAID, MR and Serratiopeptidase (SP) (Fig.5). Amongst the individual drugs, Diclofenac was the most commonly prescribed NSAID in 133 (44.3%) out of 300 patients followed by Aceclofenac 52 (17.3%), Tramadol 56 (18.7%), Paracetamol 31 (10.3%), Etoricoxib 23 (7.7%) and Indomethacin 5 (1.7%). Amongst the gastroprotective drugs, 93 (31%) were Pantoprazole, 57 (19%) Omeprazole, 46 (15.3%) Rabeprazole, 79 (26.3%) Ranitidine and 25 (8.3%) were Famotidine (Fig.6). In 241 (80.3%) out of 300 prescriptions analgesics were prescribed for a period of upto 5 days, in 53 (17.7%) prescriptions analgesics were prescribed for a period of upto 7 days and in 6 (2%) prescriptions analgesics were used for a period of upto 10 days.
Fig.1: Pie diagram showing the distribution of gender

Fig.2: Bar diagram showing the age group distribution

Fig.3: Bar diagram showing the different classes of drug used
Fig. 4: Pie diagram showing the type of analgesic therapy

Fig. 5: Bar diagram showing the type of fixed dose combination used

Fig. 6: Bar diagram showing the different individual drugs
DISCUSSION

The study was conducted with the aim of analysing the prescribing pattern of analgesics in orthopedics OPD and to correlate their use in clinical practice. In our study, we found out that majority of the patients attending the orthopaedics OPD in Silchar Medical college and Hospital were males (56%) as compared to females (44%). Maximum number of analgesics were prescribed in adults aged 31 to 65 years i.e 224 out of 300 (74.6 %) prescriptions belonged to this category. Sharma T et al (2006) in their study also described similar findings where most of the prescriptions (about 60%) belonged to the age group 31 to 69 years.[7]

From our study it is evident, that non selective NSAIDs are more preferred over selective NSAIDs. In our study 221 out of 300 prescriptions (73.6%) were of non selective NSAIDs compared to 23 out of 300 prescriptions (7.6%) which were of selective NSAIDs. Sharma et al in their study also described that non selective NSAIDs were preferred over selective NSAIDs.[7] The popularity of selective NSAIDs have declined over the years owing to their cardiovascular toxicity.[8,9]

In our study we see that NSAIDs are invariably co prescribed along with anti ulcer drugs. This is because use of NSAID is associated with gastrointestinal toxicity in the form of peptic ulcer and gastrointestinal bleeding.[10] Proton Pump Inhibitors (196 out of 300) are commonly used followed by H2 receptor blockers (104 out of 300). Rahman et al (2007) in their study described the use of proton pump inhibitors as the anti ulcer agents of choice.[11] From our study we found out that Diclofenac (44.3%) was the most commonly used analgesic in our set up followed by Aceclofenac (17.3%) and Tramadol (18.6%). Vlahovic palcevski V et al (2002) in their study found Diclofenac to be the most commonly prescribed analgesic in their set up as well.[12]

In our study we found that majority of the patients (56%) received monotherapy with analgesic. 34% patients received two drug therapy and 10% patients received three drug therapy. Prescribing combination of analgesics may have adverse health outcomes and also may not lead to improvement in efficacy.[13] There are several studies which describe that the danger of rigorous drug reactions causing damage to the liver and kidney are higher in reported cases of simultaneous use of two NSAIDs.[14,15] It is evident from our study that mostly fixed dose combinations (FDC) of drugs are employed during two or three drug therapy. The most preferred FDC was a combination of two NSAIDs. There are studies which demonstrate that prescribing two NSAIDs in a fixed dose combination does not
necessarily lead to improvement in efficacy as they act via the same pathway, rather combination of a NSAID with an opioid analgesic is more fruitful.\textsuperscript{[16]}

CONCLUSION
From our study we can conclude that in our institution, non selective NSAIDs are preferred over selective NSAIDs, monotherapy is preferred over two or three drug therapy and gastroprotective agents are routinely prescribed with analgesics. However, it should be realized that prescribing irrational FDCs add more to the economic burden and increase their chances of having an adverse outcome. Though the prescribing pattern in our institute seems to be rational certain changes are still left to be made which would lead to even better prescribing pattern in the future.

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DECLARATIONS
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REFERENCES


