

**ORIGINAL RESEARCH****Assessment of prescription pattern of anti-inflammatory drugs in a tertiary care centre****<sup>1</sup>Dr. Aman Sharma, <sup>2</sup>Dr. Surbhi Mahajan**<sup>1</sup>Assistant Professor, <sup>2</sup>Demonstrator, Department of Pharmacology, Govt. Medical College, Rajouri, Jammu and Kashmir, India**Corresponding Author**

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**Abstract****Background:** The treatment of both pain and inflammation is primarily through the use of Non-steroidal Anti-inflammatory Drugs. The present study was conducted to assess prescription pattern of anti-inflammatory drugs.**Materials & Methods:** Parameters such as type of NSAIDs, all dispensed doses and the number of NSAIDs ordered per prescription, and the route of administration for each patient were recorded.**Results:** Commonly prescribed NSAIDs were Piroxicam in 10%, Acetyl salicylic acid in 12%, Mefenamic acid in 8%, Diclofenac in 40%, Ibuprofen in 25%, Indomethacin in 2% and Tolmetin in 3%. The difference was significant ( $P < 0.05$ ). NSAIDs were prescribed by Paediatrics in 12%, Dentistry in 8% cases, General surgery in 22%, General Medicine in 20%, Orthopaedics in 20% cases and Gynaecology in 15%. The difference was significant ( $P < 0.05$ ).**Conclusion:** Diclofenac was the most commonly prescribed nonsteroidal anti-inflammatory drugs from the national list of essential medicine. General surgery, General Medicine and Orthopaedics departments were prescribing the most.**Key words:** Diclofenac, Orthopaedics, Pain**Introduction**

Pain affects a person's quality of life and general functioning and it is the commonest reason for physician consultation.<sup>1</sup> The treatment of both pain and inflammation is primarily through the use of Non-steroidal Anti-inflammatory Drugs.<sup>2</sup> Non-steroidal Anti-inflammatory Drugs commonly called NSAIDs are among the most widely used and misused of all drugs. Most NSAIDs act as non-selective inhibitors of both the cyclooxygenase-1 (COX-1) and cyclooxygenase-2 (COX-2) isoenzymes. NSAIDs provide symptomatic relief from pain and swelling in chronic joint diseases such as rheumatoid arthritis and in more acute inflammatory conditions such as sports injuries, fractures, sprains, acute arthritic pains and other soft tissue injuries. They also provide relief from post-operative, dental and menstrual pain, and from the pain of headaches and migraine.<sup>3</sup>

Irrational prescribing has exacerbated the adverse effects of NSAIDs. Hence, rational use and safe prescription of NSAIDs, in combination with other drugs, are crucial in preventing or minimizing the adverse effects. It is important to identify and quantify the problem to promote rational use of NSAIDs. This can be done by focusing drug utilization studies

concerning the use of particular medicines in question.<sup>4</sup> WHO prescribing indicators are one of the most widely accepted tools which can be used to identify general prescribing practices in health-care facilities.<sup>5</sup>The present study was conducted to assess prescription pattern of anti-inflammatory drugs in a tertiary care centre.

### Materials & Methods

The present study was conducted in out patient department of Government Medical College, Rajouri.

Parameters such as type of NSAIDs, all dispensed doses and the number of NSAIDs ordered per prescription, and the route of administration for each patient were recorded. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

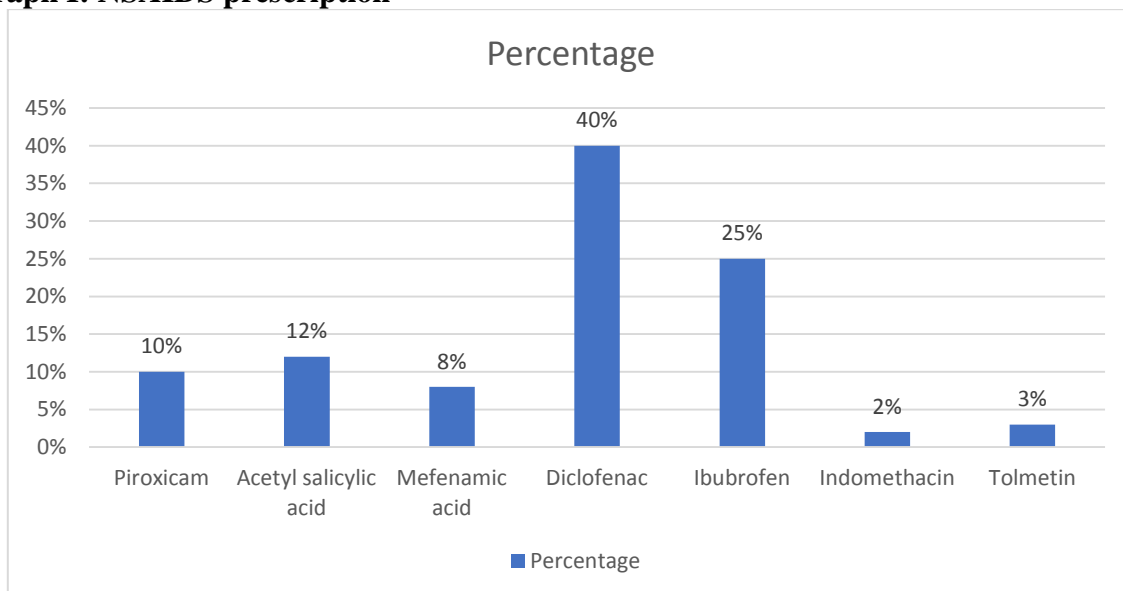
### Results

**Table I: NSAIDS prescription**

NSAIDS	Percentage	P value
Piroxicam	10%	0.04
Acetyl salicylic acid	12%	
Mefenamic acid	8%	
Diclofenac	40%	
Ibuprofen	25%	
Indomethacin	2%	
Tolmetin	3%	

Table I, graph I shows the commonly prescribed NSAIDS. Piroxicam was prescribed in 10%, Acetyl salicylic acid in 12%, Mefenamic acid in 8%, diclofenac in 40%, Ibuprofen in 25%, Indomethacin in 2% and Tolmetin in 3%. The difference was significant (P< 0.05).

**Graph I: NSAIDS prescription**



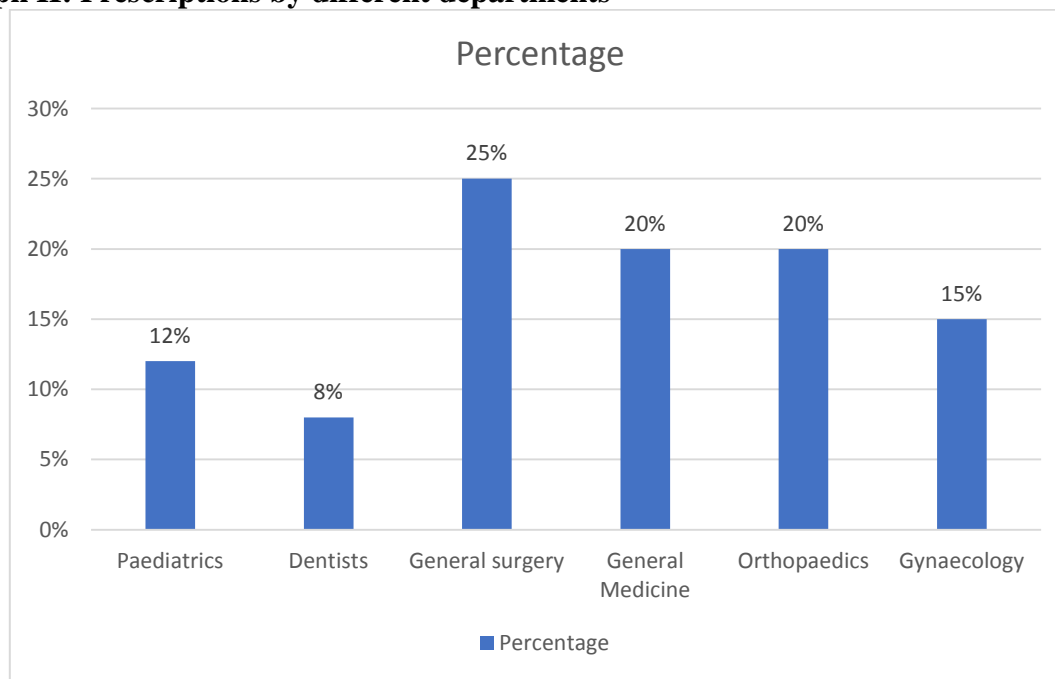
**Table II: Prescriptions by different departments**

Specialities	Percentage	P value
Paediatrics	12%	0.05
Dentistry	8%	
General surgery	25%	
General Medicine	20%	

Orthopaedics	20%	
Gynaecology	15%	

Table II, graph II shows that NSAIDs were prescribed by Paediatrics in 12%, Dentistry in 8% cases, General surgery in 22%, General Medicine in 20%, Orthopaedics in 20% cases and Gynaecology in 15%. The difference was significant ( $P < 0.05$ ).

**Graph II: Prescriptions by different departments**



## Discussion

Nonsteroidal anti-inflammatory drugs (NSAIDs) are the most widely prescribed drugs for pain, fever, and inflammation. Worldwide, over 73 million prescriptions of NSAIDs are written yearly, and approximately 30 million people take NSAIDs daily.<sup>6,7</sup> Physicians should take precautions based on the patient's risk, once they prescribe NSAIDs.<sup>8</sup> NSAIDs have a wide range of adverse effects, such as upper and lower gastrointestinal disturbances, blood pressure elevation, and increased risk of cardiovascular disorders.<sup>9,10</sup> The present study was conducted to assess prescription pattern of anti-inflammatory drugs.

We found that commonly prescribed NSAIDs were Piroxicam in 10%, Acetyl salicylic acid in 12%, Mefenamic acid in 8%, Diclofenac in 40%, Ibuprofen in 25%, Indomethacin in 2% and Tolmetin in 3%. Awodele et al<sup>11</sup> investigated the prescription pattern of NSAID in the Out-patient Pharmacy Department of Lagos University Teaching Hospital (LUTH), Nigeria. A total of 3800 prescriptions containing NSAIDs were analyzed for information on drug name, the number of NSAIDs per prescription, the presence of ACE inhibitors and diuretics alongside NSAIDs and NSAIDs prescribed in generic or brand names. The results showed that Aspirin was the most frequently prescribed NSAID (62.2%) and 68.4% of the NSAIDs prescriptions studied were written in generic names. The total number of drugs per prescription was in most cases 3 or greater (84.6%). There were statistically significant ( $p \leq 0.05$ ) associations between the individual NSAID prescribed and whether they were prescribed in generics or brand names; individual NSAID prescribed and the frequency of co-prescription with an ACE inhibitor and a diuretic; types of NSAID prescribed and the cost in Naira.

We found that NSAIDs were prescribed by Paediatrics in 12%, Dentists in 8% cases, General surgery in 22%, General Medicine in 20%, Orthopaedics in 20% cases and Gynaecology in

15%. Geetha et al<sup>12</sup> found that out of 500 prescriptions included in the study, the total number of drugs prescribed was 1098, of which were nonsteroidal anti-inflammatory drugs. Based on the World Health Organization's drug use indicators, the average number of drugs per encounter was 2.19 % and the average number of nonsteroidal anti-inflammatory drugs per encounter was 1.38 %. Out of all the nonsteroidal anti-inflammatory drugs prescribed, 428 (62.20 %) were from National List of Essential Medicine India 2015 and 678 (98.5 %) nonsteroidal anti-inflammatory drugs were prescribed by generic name. Among the study population, only 40 % of patients were prescribed Proton Pump Inhibitors along with nonsteroidal anti-inflammatory drugs. Proton Pump Inhibitors are effective in ulcer prophylaxis in their standard dose. The present study concluded that among cyclooxygenase-1 inhibitors, Diclofenac was the most commonly prescribed nonsteroidal anti-inflammatory drugs from the national list of essential medicine. The percentage of analgesic prescribed by generic name was excellent. However, the average number of drugs per prescription deviated from the World Health Organization's rational drug use indicator. The use of gastro protective agents needs to be rationalised with nonsteroidal anti-inflammatory drugs.

Vaishnavi et al<sup>13</sup> in their study a total of 600 prescriptions were analyzed. Of them, NSAIDs were prescribed in 30.83% encounters. In general, nonselective COX inhibitors were most commonly prescribed. The most commonly prescribed form of NSAID was paracetamol (39.45%). The percentage of NSAIDs prescribed with generic names were almost identical (91.15%), whereas the percentage of NSAIDs prescribed from the National List of Essential Medicine (India) – 2015 (49.72%) was not identical with the WHO standard (100%) which serves as an ideal. In 13.51% encounters, a fixed-dose combination (FDC) of NSAIDs was prescribed. Co-administration of gastroprotective agent with NSAIDs was observed in 24.32% encounters. Carson & Willet<sup>14</sup> showed NSAIDs to be some of the widely prescribed and used drugs. As a matter of fact, NSAIDs are drugs that are generally misused and owned by most Nigerians without doctors' prescriptions.

The limitation the study is small sample size.

### Conclusion

We found that diclofenac was the most commonly prescribed nonsteroidal anti-inflammatory drugs from the national list of essential medicine. General surgery, General Medicine and Orthopaedics departments were prescribing the most.

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