

A STUDY OF PRESCRIBING PATTERN OF NON STEROIDAL ANTI INFLAMMATORY DRUGS IN ORTHOPEDIC OUT PATIENT DEPARTMENT AT A TERTIARY CARE HOSPITALR. Asha Latha¹, K. Srinivasu², M. Ananda Babu Naik³, Jaya Chandra Reddy⁴**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: AIM: To determine the pattern of NON STEROIDAL ANTI INFLAMMATORY DRUGS prescribing for arthritic and non-arthritic conditions in orthopedic outpatient department. **METHODOLOGY:** 100 prescription duplicate collected and analyzed prospectively for the pattern of NSAID prescription for arthritic and non-arthritic conditions; the drug formulation, route, frequency, duration of admission and concomitant medications results. NSAID were prescribed for non-traumatic musculo skeletal 35% pain, 25% post traumatic pain, 20% osteoarthritis, 10% post-operative pain, 3% ankylosing spondylitis, 6% degenerative disease of spine, 1% neuralgia. The NSAIDs commonly prescribed were Aceclofenac 45%, Etodolac 20%, Diclofenac 24%, and Ibuprofen 11%. Fixed dose combination of NSAIDs with adjuvante was prescribed in. The adjuvants, included are paracetamol 55.6%, serratopeptidase 32.8%, chlorzoxazone 9.1%, Thiocolchichoside 2.5%. oral formulations of NSAIDs were prescribed in all patients, supplemented by Topical formulations as gel/cream in 15% of subjects. The dosing frequency was BID (65%), OD (25%), TID (2%), SOS (8%). Duration of administration ranged from 5-15 days. other classes of drugs used concomitantly were proton pump inhibitors, calcium supplements, Multivitamins, Anti microbials, Immuno suppressants, and Glucosamine. **CONCLUSION:** NSAIDs were prescribed empirically for various arthritic and Non-arthritic conditions, frequently as fixed dose combinations [FDC]s with various adjuvants as per the standard guide lines. However patient information was inadequate in most of the prescriptions. Proper patient Assessment deemed necessary for individualizing NSAIDs. **KEYWORDS:** NSAIDs, orthopedic outpatient department, arthritic and non-arthritic conditions, prescribing pattern.

INTRODUCTION: The treatment of pain and inflammation is an important area of therapeutics and arthritic and Non-arthritic disorders are commonly encountered in orthopedic practice. The use of NSAIDs is empirical. They provide only symptomatic relief without addressing underlying disease process. NSAIDs also happen to be most widely prescribed often misused by self-medication.^[1]

Numerous studies both from developed and developing countries have described the pattern of poly pharmacy involving use of NSAIDs. That are unnecessary expensive irrational, inadequate amount or by self-medications. Periodic Evaluations of drug utilization pattern enable suitable modifications in NSAID prescribing to increase the therapeutic benefit and to minimize the adverse effects. Such studies Monitor, evaluate and if necessary, suggest modifications in prescribing behaviors of medical practioners to make the medical care rational and cost effective.^[2]

In this regard the present study was taken to generate useful data by analyzing pooled information regarding prescribing pattern of NSAIDs. The objectives of the study were;

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To describe demographic characteristics. 2. To determine the pattern of NSAID prescribing as, diagnosis, NSAID formulations, dose route, frequency, duration of administration, concomitant medications, fixed dose combinations and average number drugs per prescription. 3. To calculate percentage of drugs prescribed by generic name/brand name.

MATERIALS AND METHODS: A prospective, non-interventional cross sectional (observational) study was carried out in orthopedic outpatient department of Govt. General Hospital, Anantapuram from September 2014 to December 2014 (4 months), institutional ethics committee clearance was taken for the conduct of study. Data collection was done by taking 100 prescriptions. Duplicates involving NSAIDs prescribed for Arthritic and Non-arthritic conditions by orthopedicians were collected by purposive sampling for Analysis. For the purpose of data collection the method of Duplicate prescription was used in which original prescription was given to the patient and the carbon copy of the original prescription was collected by investigator. The prescriptions were analyzed prospectively for demographic characteristics of the patients' diagnosis / provisional diagnosis.

NSAIDs formulations, dose, route, frequency, duration of administration, concomitant Medications, FDCs whether the drugs were included in NLEM 2011 and also for patient information and instructions.^[3,4] As it was a descriptive study, the results were described in the form of tables, percentages and graphs by using MS-excel 2008.

RESULTS: One hundred prescriptions were selected from patients.

The indications for Out Patient Department prescribing included Non-Traumatic Musculo Skeletal pain 35%, post traumatic pain 25%, osteo arthritis 10%, post-operative pain 30%, Ankylosing Spondylitis 5%, degenerative diseases of spine. Rheumatoid arthritis 1% neuralgia.

NSAIDs prescribed were Aceclofenac 45%, Etodolac 20%, Diclofenac 24%, and Ibuprofen 11%.^[5]

Fixed dose combination of NSAIDs with Adjuvants were prescribed in 72% subjects, the adjuvate included are, Paracetamol 55.6%, Serratopeptidase 32.8%, Chlorzaxazone 9.1%, Thiocolchiside 2.5%. Oral formulations of NSAIDs were prescribed in all patients supplemented by Topical formulations as gels/creams in 15% of subjects. The overall dosing frequency was BID-(65%), OD-(25%), TID-(2%), SOS-(8%) and the mean duration of admn is 7.5 days only 13% of prescribed drugs were included in NLEM 2011. All the drugs were prescribed by their brand names and average number of drugs per prescription are 3.2, other class of drugs used concomitanly were proton pump inhibitors [PPIs], calcium supplements; Multivitamins, Anti microbials, immuno suppressants and glucosamine which were used as combinations.^[6]

Total Sample Size	100 (n)
Male	58
Female	42
Age	
20-40yrs	49
40-60yrs	32
> 60yrs	19

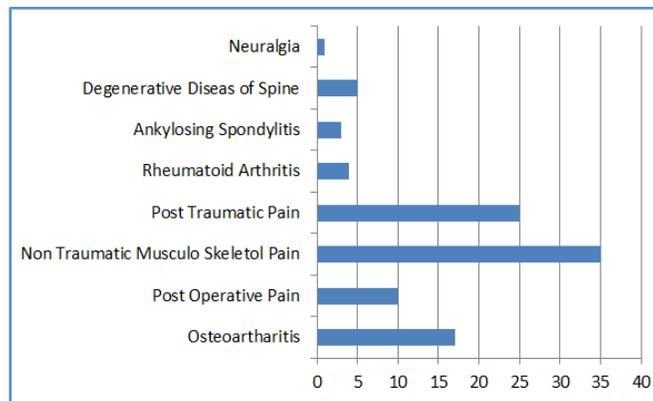
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Prescription Indices	
Total number of drugs prescribed	325
Average number of drugs per prescription.	3.2

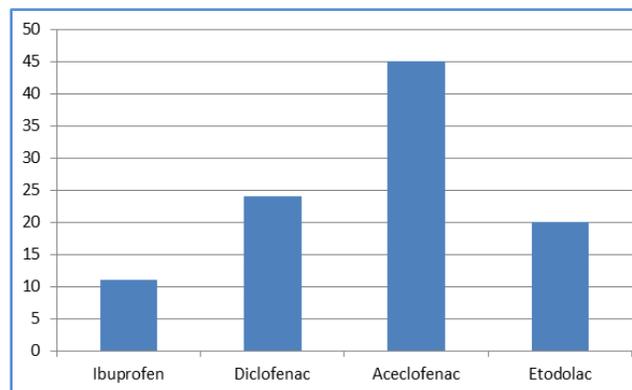
Table 1: Demographic Profile^[7]

Indications for NSAID Prescribing:

Osteoarthritis	17%
Post-Operative Pain	10%
Non Traumatic Musculo Skeletal Pain	35%
Post Traumatic Pain	25%
Rheumatoid Arthritis	4%
Ankylosing Spondylitis	3%
Degenerative Diseases of Spine	5%
Neuralgia	1%



Graph 1:^[8] Details of NSAID prescribed percentages



Graph 2: FDCs of NSAIDs with Adjuvants

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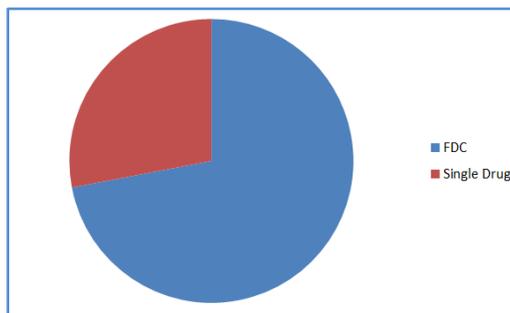


Figure 1

DISCUSSION: The present study regarding pattern of NSAID prescribing in outpatient orthopedic practice revealed that Non arthritic indications were more common than arthritic indications.

Non Traumatic musculo skeletal pain 35% and post traumatic conditions 25% were the most common indications for NSAID prescribing which was consistent with others similar studies.

The NSAIDs commonly prescribed were Aceclofenac 45%, Diclofenac 24%, Etodolac 20%, and Ibuprofen 11% however in other studies Diclofenac most commonly was prescribed.

Aceclofenac is chemical congener of diclofenac with a better gastric tolerability with longer duration of action. Etodolac is preferential cox2- inhibitor. Cox-2 selective inhibitors are not prescribed in our study due to their side effects.^[9]

High frequency of Non-selective NSAIDs prescribed in the study points towards changing trends observed in prescribers preference for NSAID prescription after the withdrawal of selective cox-2 inhibitors.

Fixed dose combinations of NSAIDs with various adjuvants were prescribed in 64% subjects.

The adjuvants included are Paracetamol 55.6%, Serratopeptidase 32.8%, Chlorzoxzone 9.1%, Thiocolchicoside 2.5%. However such combinations are considered irrational. paracetamol also can be considered as Analgesic in mild to moderate joint pain as per American college of rheumatology guidelines.

In present study NSAIDs are supplemented by Topical NSAIDs as gels/creams in 15% of subjects.

The dosing frequency was BID in 65% subjects (Aceclofenac, Diclofenac, Ibuprofen, etodolac) OD in 25% (Etodolac, Diclofenac, ibuprofen, and Aceclofenac), TID in 1% (Aceclofenac) and SOS in 6% (Aceclofenac, Ibuprofen, Etodolac) however frequency of administration did not correlate with pharmacokinetic profile of NSAIDs used in some patients. Advising Ibuprofen twice daily and once daily was considered appropriate. The duration of administration ranged from 5-15 days (mean 7.2 days) which confirmed to the standard practice and were similar in other studies. In 4 subjects Diclofenac was administered once daily but formulation was not specified whether sustained release or extended release.

All the NSAIDs were prescribed by their brand name. Other studies have reported NSAID prescribing by generic names which ranged from 3 to 20%. Generic prescribing is desirable to promote rational use of drugs and to minimize cost of therapy and dispensing errors. Timing of administration, or whether to take the medication before/after food and regarding possible side effects were adequate. Prescribing the drugs from National List of Essential Medicines (NLEM) - 2011 ensures the use of well-established and cost effective drugs.^[10,11]

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Average numbers of drugs per prescription were 3.2 which were comparable to previously reported studies. Other classes of drugs used concomitantly were proton pump inhibitors (PPIs), calcium supplements, and multi vitamins, anti microbials, immunosuppressant and glucosamine which were used as separate combinations. The PPI used are Lansaprazole, pantoprazole, Rabeprazole, esmoprazole. Concomitant administration of NSAIDs with PPIs is rational and justified as they are effective in counteracting NSAID related ulcerogenicity.^[12]

CONCLUSION: In this study NSAIDs were prescribed for arthritic and non-arthritic conditions frequently as FDCs with various adjuvants like paracetamol, Serratiopeptidase and skeletal muscle relaxants most of the FDCs were found irrational various other medications were prescribed concomitantly with specific purpose like PPIs, skeletal muscle relaxants, nutritional supplements etc.,^[13]

Patient information was inadequate in most prescriptions. Duration of study was short. Hence effect of seasonal variation on NSAID prescription could not be determined.

Calcium supplements and multi vitamins were used as nutritional supplements. Methotrexate was used as Disease modifying anti-rheumatoid drug (DMARD) in 4 rheumatoid arthritis patients. Glucosamine with diacerein was used in 15 patients in Osteoarthritis the former drug claimed to prevent cartilage erosion and the latter supposed to be cytokine modulator with potential anti-inflammatory action.^[14] In most of the prescriptions the patients' information, instructions regarding the timing of administration or whether to take medication before or after food and regarding the possible side effects were inadequate. Further large scale research is required for detailed evaluation of NSAID prescription pattern. Continuing medical education regarding appropriate use of NSAIDs, knowledge of potential adverse effects and standard prescription guide lines will play pivotal role in rational prescription of NSAIDs.^[15]

It is also essential to encourage and promote generic prescribing to reduce the cost of therapy.

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REFERENCES:

1. Bennet PN. Brown MJ. Pain and Analgesics. In: clinical pharmacology. New Yorks, Churchill Livingstone, 9 edn, 2004, PP 319-43.
2. Hogerzeil HV. Promoting Rational Prescribing: an International perspective. In: International Experience in rational use of drugs. Chowdhury RR. Bangkok, Coll Public Health, 1988, pp 1-2.
3. Mohammed A. Al-Homrany et al. Pharmacoepidemiological study of prescription pattern of analgesics, antipyretics and nonsteroidal anti-inflammatory drugs at a tertiary health care center. Saudi Med J2007; 28 (3): 394-374.
4. Shrishyla MV. Krishnamurthy M, Naga Rani MA, Clare M, Andrade C. Venkataraman BV. Prescription audit in an Indian hospital setting using the DDD (defined daily dose) concept. Indian J Pharmacol 1994; 26: 23-28.
5. Uppal R, Nayak P, Sharma PL. Prescribing trends in internal medicine. Int J Clin Pharm Ther Toxicol 1984; 22: 373-376.

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6. Mohamed Ahmed et al study of prescribing patterns in the management of arthritis in the dept. of orthopedics Der Pharmacia Lettere, 2012; 4 (1): 5-27.
7. Chowdhury Sanchita Sharmin et al. Study on the use pattern of NSAIDs in some general and specialized hospitals of Bangladesh. IRJP 2012; 3 (2): 152-155.
8. Shankar PR, Pai.R, Dubey AK, and Upadhyay DK. Prescribing patterns in the orthopedics outpatient dept. in a teaching hospital in Pokhara, western Nepal Kathmandu University medical journal. 2007; 5 (17): 16-21.
9. Tilo Grosser, Emer Smyth, and Garrat A. Anti-Inflammatory, Antipyretic and Analgesic agents; Goodman and Gilman's The., Pharmacological Basis of Therapeutics. 12 Ed. Mc Graw Hill; 2011. P. 959-994.
10. American College of Rheumatology Sub Committee on osteoarthritis guidelines. Recommendations for the medical management of osteoarthritis of the hip and knee; 2000 update. Arthritis Rheum 2000; 43; 1905-15.
11. Shankar PR Partha P. Nagesh S. Prescribing patterns in medical outpatients. Int J Clin Pract 2002; 56: 549-551.
12. Kutty KVG, Narmada, Sambashivam, Nagarajan M. A Study on drug prescribing pattern in Madurai City. Indian J Pharmacol 2002; 34: 361-362.
13. Sharif SI, Al-Shaqra M, Hajjar H, Shamout A, Wess L, Patterns of drug prescribing in a Hospital in Dubai. United Arab Emirates. Libyan J Med AOP 2005; 070928: 10-12.
14. Gupta M, Malhotra S, Jain S, Aggarwal A, Pandhi P. Pattern of prescription of Non-Steroidal Anti Inflammatory Drugs in orthopedic outpatient Clinic of a North Indian Territory Care Hospital. Indian | Pharmacol Dec 2005; 37 (6); 404-405.
15. Vogt MT, Henderson BF, Duggal A, Ansani NT, Gillespie J, Starz T. NSAID usage; Impact of Safety data product withdrawals on prescribing trends. P&T Journal May 2007; 32 (5); 284-287.

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