

Study on prescription pattern for osteoarthritis in a tertiary care teaching hospital: A retrospective study

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ABSTRACT

Introduction and Aim: Osteoarthritis is universally known as the most common musculoskeletal disorder. The main issue experienced by the patients is the occurrence of pain, which causes functional disability that ranges from mild to moderate. The aim was to study the prescribing pattern of the drugs used in the management of osteoarthritis.

Methodology: A retrospective observational study was carried out for a period of eight months from August 2018 to April 2019; the drug utilization pattern among osteoarthritis patients admitted to the hospital from January 2015-December 2017 was analyzed by collecting their drug therapy details. The data were analyzed using descriptive statistics.

Results: As per our study results, females n=129 (51.4%) diagnosed with osteoarthritis were found to be more than male patients n=121 (48.6%). The knee joint n=167 (66.8%) was the most commonly affected joint among the patients. NSAIDs 306 (35.01%) were the most commonly prescribed agent. Oral therapy 805 (92.2%) was preferred over topical agents n=69 (7.8%).

Conclusion: By analyzing the pattern of drug use among osteoarthritis patients, this study is expected to improve awareness of rational prescription among doctors. The study also concludes on the essentiality of National Drug Policy in promoting rational drug use.

Keywords: Drug utilization; NSAIDs; osteoarthritis; national drug policy; awareness.

INTRODUCTION

Arthritis is the “inflammation of joints”. It affects the joints and influences the muscles and tissues, resulting in the inability (1, 2). Osteoarthritis (OA) is a progressive degenerative disorder described by the demolition of the articular ligament and subchondral sclerosis related to synovial changes. The management of OA is mostly palliative, concentrating on symptomatic relief, utmost commonly targeting the pain. Therefore, pain relief plays a crucial role in the treatment of OA (3-6). The management of OA may begin with the primary methodologies, including weight reduction (in obese patients), lifestyle alterations, and strict exercise schedules. Treatment also comprises of non-pharmacological measures including physical therapy and patient education (7, 8). In pharmacological management, NSAIDs remain as the most broadly prescribed drug. NSAIDs are also being used topically to reduce the associated gastrointestinal adverse reactions, which also minimize the systemic toxicity. Drug utilization evaluation studies provide healthcare professionals with a broad idea of the importance of selecting the proper therapy for the patients in a clinical setting (9-11). This study aims to assess the drug utilization pattern among osteoarthritis patients.

MATERIALS AND METHODS

A retrospective observational study was carried out in the department of orthopedics of Justice K. S. Hegde Charitable Hospital for eight months (August 2018–April 2019), after obtaining the institutional ethical permission (REF: NGSMIPS/IEC/04/2017-18). The calculated sample size was not less than 250 patients for the current study. The sample size calculation was done based on the average number of osteoarthritis patients hospitalized during the study period. The retrospective data were retrieved from the medical records department after obtaining permission from the concerned. Patients of either sex, aged above 18 years, admitted to the orthopedics ward from January 2015-December 2017 were considered for the study. Patients with incomplete information were excluded. An appropriate data collection form was developed for recording all the relevant details, including the socio-demographics, obtained from the patient treatment chart and laboratory datasheets. Data, including the name of the drug, dosage form, frequency, and route of administration, were also collected in the data collection form. The collected information was summarized in an excel sheet and analyzed by using

descriptive statistics such as frequency and percentage.

RESULTS

Distribution of patients based on their gender

250 patients diagnosed with osteoarthritis were included in the study. Treatment charts of all the patients were analyzed, out of which n=129 (51.4%) were females, and n=121 (48.6%) were males. The gender-wise distribution of the patients is shown in Table 1.

Table 1: Gender-wise distribution of patients

Gender	Number of Patients	Percentage (%)
Female	129	51.4
Male	121	48.6
Total	250	100.0

Distribution of the patients based on their age

The present study results revealed that OA was more prevalent in the age group of 45-60 years, n=157 (62.8%) and followed by 60-75. The mean age of the study population was found to be 54.07 ± 12.80 . The details are shown in table 2.

Table 2: Age-wise distribution of the patients

Age Group	Number of Patients	Percentage (%)
30-45	31	12.4
45-60	157	62.8
60-75	62	24.8
Total	250	100.0

Distribution of patients based on the joints involved in osteoarthritis

Out of the total 250 patients, n=167 (66.8%) had OA of the knee, followed by n=49(19.6%) patients with OA of the hip. The details are summarized in table 3.

Table 3: Distribution of patients based on the joints involved in osteoarthritis

Affected site	Frequency (n)	Percentage (%)
Knee	167	66.8
Hip	49	19.6
Shoulder	34	13.6
Total	250	100.0

Details of the class of drugs prescribed among OA patients: The results revealed NSAIDs as the drug class of choice as it was prescribed n=306(35.01%) times among 250 prescriptions, followed by antacids n=211(24.14 %) and calcium supplements n=182 (20.82 %). Details of the class of drugs prescribed are shown in table 4 and details of the most common type of NSAIDs prescribed are shown in fig. 1.

Table 4: Details of the class of drugs prescribed among OA patients

Class of drug	Frequency (n)	Percentage (%)
NSAIDs	306	35.01
Gastro protective agents	211	24.14

Calcium supplements	182	20.82
Opioids	97	11.09
SYSADOA	36	4.11
Vitamin supplements	29	3.31
Muscle relaxants	13	1.48

*SYSADOA: Symptomatic Slow Acting Drugs for Osteoarthritis

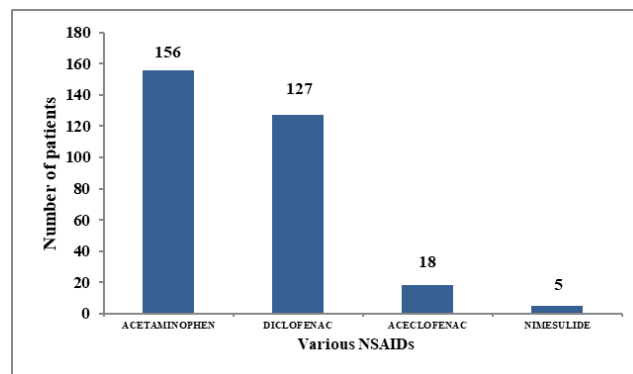


Fig. 1: Distribution of the most commonly prescribed NSAIDs

Fig. 1 shows the distribution of the most commonly prescribed NSAIDs. Subgroup analysis of the gastroprotective agents the pantoprazole (n=124) as the most commonly prescribed agent followed by antacids (n=35), ranitidine (n=22), omeprazole (n=18), other (n=12). The Calcium was prescribed in a combination of Vitamin D3 (n=139) followed by Calcium alone, which was prescribed (n=43) times. Tramadol (n=97) was the only opioid used in the study population. There were only two agents prescribed in the class of SYSADOA. All the vitamin supplements were given in the combination as the multivitamin complex. Among the muscle relaxant, baclofen (n=11) was most commonly prescribed followed by metaxalone (n=2).

Distribution of prescribed drugs based on their mode of administration

Out of the total 874 drugs prescribed, 805 (92.2%) were oral agents followed by 69 (7.8%) topical drugs. There was no parental drug administered in the study population.

DISCUSSION

In our study, demographic details showed that OA was more prevalent in females (51.4%) than male (48.6%) patients. The above findings were similar to the study conducted by Ullal *et al.*, and Jadhav *et al.*, (2, 12), in which 58.14% and 69.56% of affected patients were females. In the present study, a total of 176 (58.67%) patients belonging to the age group of 46-60 years were found to be the most commonly affected group of patients. Another study conducted by Shipra *et al.*, (4) also found that the majority of patients belonged to the same age group. Among various sites involved in osteoarthritis, knee joint (87.33%) was the most commonly affected site and is found similar to the results of other studies conducted by Ullal *et al.*, and Jadhav *et al.*, (2, 12).

The European League against Rheumatism (EULAR) and Osteoarthritis Research Society International (OARSI) recommendations have favored the use of SYSADOA (glucosamine sulphate, diacerein), especially in early OA. In the study conducted by Olivier *et al.*, chondroitin sulfate, diacerein, glucosamine sulfate has demonstrated pain reduction and improvement in physical function with minimal toxicity (15). In our study, diacerein + glucosamine sulphate constituted 4.11% of the total prescribed drugs, despite their wide safety and efficacy in OA. The under-prescription of diacerein + glucosamine sulphate might be due to its slow action characteristics and high cost of therapy compared to NSAIDs.

EULAR recommends paracetamol (up to 4g/day) as the first-choice oral analgesic agent for the long-term management of knee, hand, and hip OA owing to its GI safety (15). Analgesic efficacy of paracetamol is comparable to that of ibuprofen and naproxen with lesser incidence of ADRs and better tolerability. NSAIDs are to be started only if the patient is unresponsive to paracetamol. However, in our study, out of 306 patients prescribed with NSAIDs, 156 (50.98%) patients received paracetamol, and the remaining 150 (49.02%) received other agents including diclofenac, Aceclofenac, and nimesulide. On the other hand, various studies, including the study conducted by Richard *et al.*, (17), evidences the lower efficacy of paracetamol over other NSAIDs in the management of OA.

Despite the disturbing statistics of the adverse effects of oral NSAIDs (excluding paracetamol) and their limited disease-modifying efficacy, these drugs were the most preferred. Diclofenac was the most common NSAID used (36%), followed by Aceclofenac (6%). Topical NSAIDs were used in 8%. There is growing evidence that topical and oral NSAIDs have equivalent efficacy; moreover, topical NSAIDs display better gastrointestinal safety than their systemic counterparts.

Non-drug therapies have an important qualitative role in the treatment of OA. In our study, physiotherapy-ultrasonic massage, lifestyle management like exercise, weight reduction in obese individuals were found to have significant improvement in the physical symptoms. Hence, proper counseling by a clinical pharmacist on the non-pharmacological measures may help in the improvement of symptoms among the OA patients. This study was limited by its retrospective design and limited sample size of 250.

CONCLUSION

The present study showed that osteoarthritis affects females more often than males, and the knee joint as the most commonly affected joint. SYSADOA was found under prescribed, whereas NSAIDs were used extensively in the study. The majority of the patients

who received NSAIDs were co-prescribed with gastroprotective, owing to their property of gastric irritation. There were very few prescriptions of non-drug therapy, such as exercise and physiotherapy. Thus, instead of having multiple drug therapy, one should also guide the patient regarding the non-pharmacological treatment approaches and its benefits.

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CONFLICT OF INTEREST

Authors declare no conflict of interest.

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