

Original Research Article

Study of prescription pattern of drugs used in the treatment of osteoarthritis in a tertiary care teaching hospital: an observational study

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ABSTRACT

Background: Osteoarthritis(OA) is a major cause of chronic pain and lower extremity disability among the elderly due to its predilection for lower extremity joints such as the knee and hip. Although Paracetamol is the initial drug of choice, NSAIDS are also frequently used in the symptomatic relief of osteoarthritis. But still, there is a need for safe and effective alternative treatments which would provide both symptomatic improvement and disease modifying effects in OA. The primary objective was to study the prescribing pattern of drugs used in the treatment of osteoarthritis.

Methods: A cross-sectional, prospective, observational study was conducted on newly diagnosed as well as old treated patients with osteoarthritis from orthopaedic outpatient department in a tertiary care teaching hospital. A total of one hundred and eighty-eight patients were enrolled after screened for the inclusion and exclusion criteria. Data was recorded in a specially designed proforma which include information regarding the demographic profile of the patients and about the pattern of drugs prescribed.

Results: Out of one hundred eighty-eight patients who were affected with Osteoarthritis, females (57.9%) were more commonly affected than males (42%). OA knee (77%) either unilateral or bilateral was most commonly affected, followed by hip joint, spine and other joints. NSAIDS were more frequently prescribed in 76.6% patients than paracetamol which was prescribed in only 34 % of patients and that only in combination with NSAIDS and opioids. Various other drugs were also used as adjunct therapies that included gastroprotective agents in 49% of patients, Calcium in 54% of patients, Vitamin D3 supplements in 51% of patients and symptomatic slow acting drugs for OA (SYSADOA) which included diacerin and glucosamine sulfate as combination in 11% of patients.

Conclusions: Our study showed Osteoarthritis knee being most common among female patients. Paracetamol and SYSADOA being under prescribed and NSAIDS are the most frequently used drugs in OA. National drug policy is needed to rationalize the drug use and bring awareness among the prescribing doctors.

Keywords: NSAIDS, Osteoarthritis, Paracetamol, SYSADOA

INTRODUCTION

Osteoarthritis is a progressive degenerative disorder of multi-factorial etiology characterized by destruction of articular cartilage, subchondral sclerosis associated with

synovial changes.¹ Osteoarthritis (OA) is becoming increasingly recognised in both developed and developing countries as a major cause of chronic pain and lower extremity disability among the elderly due to its predilection for lower extremity joints such as the knee

and hip.^{2,3} Although age is the strongest predictor of the development of Osteoarthritis; obesity, trauma and physically demanding occupations and activities also increase the risk for OA.⁴ The management of Osteoarthritis is largely palliative focusing on symptomatic relief most commonly targeting pain. Therefore, pain relief portrays a key role in the treatment of Osteoarthritis.⁵

The main objectives in the management of Osteoarthritis are to reduce symptoms and functionality or even halt the progression of structural changes and thereby to delay or even avoid the need for prostheses.⁶ Management of OA starts with the simple approaches like weight loss (in obesity), exercise, lifestyle alterations, use of analgesics and topical agents.⁷ Therapeutic measures consist of nonpharmacological (e.g. patient education and physical therapy), pharmacological (e.g. the use of analgesics, nonsteroidal anti-inflammatory drugs (NSAIDs), and symptomatic slow-acting drugs in osteoarthritis (SYSADOA) and ultimately surgical treatments (orthopaedic surgery including joint replacement).⁸

Among the pharmacological treatments, NSAIDs remain the most widely prescribed drugs for OA, despite the fact that they provide only symptomatic relief and don't prevent progression of the disease.⁹ However their long-term use leads to gastrointestinal ulceration, vascular adverse events and other complications.¹⁰ NSAIDs have also been applied topically to reduce gastrointestinal adverse reactions by minimizing systemic toxicity.¹¹

Due to the serious adverse effects seen on long-term use of NSAIDs, paracetamol due to its better gastrointestinal safety profile has been recommended as the initial drug of choice for symptomatic relief in OA.^{12,13} NSAIDs should be considered only in patients unresponsive to paracetamol.¹⁴ Also the COX-II inhibitors after their introduction became an alternative to traditional NSAIDs in patients exhibiting risk for upper gastrointestinal bleeding and peptic ulcer.¹⁵

But still, in this context, there is a need for safe and effective alternative treatments which would provide both symptomatic improvement and disease modifying effects in OA. Therefore, the second-line drugs such as symptomatic slow acting drugs for OA (SYSADOA) which includes glucosamine sulfate, glucosamine hydrochloride, chondroitin sulfate, hyaluronic acid and diacerein are frequently used as many clinical trials have proven their safety and efficacy for symptom relief and possible structure-modifying effects.¹⁶⁻¹⁹ These drugs may improve patient symptoms as well as reduce cartilage degradation and also having decreased occurrence of gastrointestinal adverse events when compared to NSAIDs.^{6,17} Although, OARSI (Osteoarthritis Research Society International) recommendations have laid down the importance of the use of these disease modifying drugs in OA of hip and knee yet there is a lot of confusion regarding the

effectiveness of these drugs in OA.^{13,14} A drug utilization study is considered to be one of the most effective methods to assess and evaluate the prescribing attitude of physicians.²⁰ There are a very few studies which describe drug utilization in osteoarthritis despite the considerable high socio-economic impact of OA in our country. Thus, this prospective study was carried out to analyze the prescribing pattern and frequency of the use of drugs in the treatment of OA and to provide constructive feedback to prescribing clinicians as prescription-based survey is considered to be one of the most effective methods to assess and evaluate the prescribing attitude of clinicians.^{20,21}

METHODS

It was a cross-sectional, prospective, observational study conducted on newly diagnosed as well as old treated patients with osteoarthritis from orthopaedic outpatient department at Acharaya Shri Chander College of Medical Sciences and Hospital (ASCOMS and H), Sidhra, Jammu, J & K, India for a period of six months from February 2016 to July 2016. The study was initiated after taking approval from Institutional Ethics Committee (IEC). Patients were enrolled after screened for the inclusion and exclusion criteria. All the patients of either sex with age ≥ 18 years treated conservatively for osteoarthritis and willing to participate in the study were included in the study. Patients with surgical indications for the management of osteoarthritis with past history of gastrointestinal, renal and liver disease or any psychiatric illness were excluded from the study. Patients were explained in detail about the study, procedure and about their data confidentiality and a written informed consent was taken from the patients prior to the commencement of the study. Data was recorded in a specially designed proforma which include information regarding the demographic profile of the patients and about the pattern of drugs prescribed. The data collected was analyzed statistically using descriptive statistics in the form of percentages.

RESULTS

One hundred and eighty-eight patients with the diagnosis of Osteoarthritis visited the orthopaedic outpatient department during the six months in which the data was collected. Prescriptions of all 188 patients were analyzed, out of which 109 (58%) were females and 79 (42%) were males. Forty-three patients were newly diagnosed cases of OA, 145 were old cases.

The demographic characteristics of the patients are shown in Table 1. One hundred and forty-five patients were affected with Osteoarthritis (OA) knee (77%), either unilateral or bilateral followed by OA Hip in 26 patients (14%), OA Spine in 12 patients (6%) and OA of other joints in 6 patients (3%) as shown in Table 2. Pain and joint stiffness were the common clinical presentations. All the drugs were prescribed with their brand names and

44 prescriptions (23%) contained more than one drug. Table 3 and 4 shows the details of the drugs used in OA.

Table 1: Demographic characteristics of patients with osteoarthritis.

Characteristics	n = 188
Male:female	79:109
Mean age (\pm SD)	61.7 (\pm 6.9)
Newly diagnosed (%)	43 (23%)
Old cases (%)	145 (77%)

Table 2: Joints involved.

Site	Number of cases	%
Knee	144	77
Hip	26	14
Spine	12	6
Others	6	3

Non-steroidal anti-inflammatory drugs (NSAIDs) being Aceclofenac (36%), Diclofenac (25.5%), Nimesulide (5%), Ibuprofen (8%), Piroxicam (2%) and Tramadol (6%) were the commonly prescribed drugs for pain relief followed by Paracetamol which was prescribed in combination with NSAIDs and Opioids in 64 patients (34%). COX-II inhibitors being Etoricoxib and Valdecoxib were also prescribed for pain relief in 33 patients (18%). Topical analgesic creams were used as adjunct therapy in 103 patients (54.8%). Gastroprotective agents were used in 93 patients (49%) along with oral NSAIDs, out of which Pantoprazole was most preferred in 43 patients (46.2%) as shown in Figure 1. Other adjunct therapies included Calcium in 54% of patients and Vitamin D3 supplements in 51% of patients and SYSADOA which included diacerin and glucosamine sulfate as combination in 11% of patients as shown in Table 3 and 4.

Table 3: Drugs used in osteoarthritis.

Drugs	Monotherapy No. of patients	Combination no. of patients	Total no. of patients	percentage
Acetaminophen	-	63	64	34.04
Diclofenac	18	31	48	25.53
Aceclofenac	47	21	68	36.17
Nimesulide	9	-	9	4.78
Ibuprofen	8	7	15	7.98
Piroxicam	4	-	4	2.13
Rofecoxib/etor/ valdecoxib	33	-	33	17.55
Tramadol	7	4	11	5.85

Table 4: Adjunct/concomitant therapy.

Drugs	Monotherapy No. of patients	Combination no. of patients	Total no. of patients	%
Sysadoa	-	21	21	11.7
Antilulcer	93	-	93	49.47
Calcium	4	98	102	54.26
Vit-D ₃	5	91	96	51.06
Muscle-relaxants	-	23	23	12.23

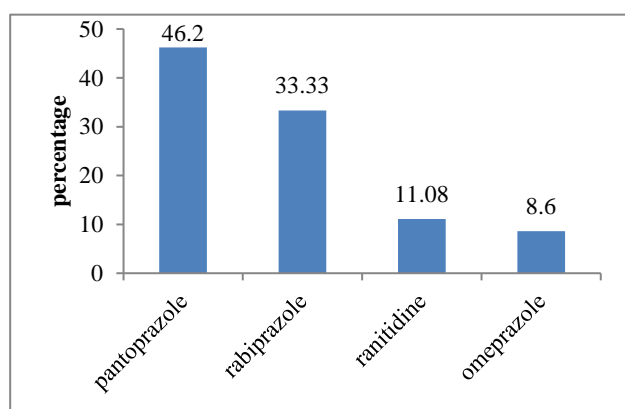


Figure 1: Gastroprotective agents used with NSAIDs.

DISCUSSION

In our study, demographic profile showed the osteoarthritis was more common in females (65%) than males (42%). This is in accordance with studies done by Ullal et al and Bishnoi et al.^{22,23} The difference may be because, females in their menopausal period (mean age being 56.2 years) have low estrogen, which is not so protective to the cartilage. With regards to the age distribution, the mean age of osteoarthritis affected population in our study was 61.7 \pm 6.9 years. The same age group is also commonly affected by osteoarthritis according to a study done by Bishnoi et al.²³ Among various sites involved in osteoarthritis, knee joint (77%)

was most commonly affected site in our study which is in accordance with other such studies including Purushottam Jhanwar et al and Ullal et al.^{24,22} This is probably due to excessive use of squatting and cross-leg sitting positions in Indian customs.

The EULAR and OARSI recommendations have favored the use SYSADOA-glucosamine sulphate, diacerin especially in early OA.^{12,13} In Olivier Bruyere et al study chondroitin sulfate, diacerine, glucosamine sulfate (SYSADOA), have demonstrated pain reduction and physical function improvement with very low toxicity.²⁵ In our study only 11% patients received diacerin + glucosamine sulphate as an adjunct treatment, despite these drugs being very safe and having both symptom modifying effects in OA. Their under-prescription probably reflects the lack of faith in the clinical effectiveness and cost effectiveness of these drugs, as they are costly compared to NSAIDS.

European evidence-based recommendations for the management of knee, hip and hand OA devised by the European League against Rheumatism (EULAR) state that “because of its efficacy and safety, paracetamol (up to 4g/day) is the oral analgesic of first choice and, if successful, is the preferred long term oral analgesic” owing to its gastrointestinal safety. Analgesic efficacy of paracetamol has been found to be comparable to that of ibuprofen and naproxen. NSAIDS are to be started only if, the patient is unresponsive to paracetamol. However, in our study NSAIDS were prescribed in 144 (76.6%) of patients as first line and paracetamol were under-prescribed, with only 34% patients receiving it in combination, which is similar to Ullal et al, Purushottam Jhanwar et al studies.^{22,24} This could be because the analgesic efficacy of paracetamol is lower than other NSAIDS in osteoarthritis, as shown by Richard et al and also that the symptom-modifying efficacy of paracetamol in OA is suspect, as found in some studies.²⁶

As against the use of SYSADOA and paracetamol, NSAIDS were prescribed in 76.6% of patients, with 23% patients receiving two or more NSAIDS at the same time. Simultaneous use of two or more NSAIDS, which essentially act by the same mechanism, defies logic. In spite of the disturbing statistics of the adverse effects of oral NSAIDS and their limited disease modifying efficacy, these drugs have been found to be the most preferred. Aceclofenac was the most common NSAID used (36%) followed by Diclofenac (25.5%). Topical NSAIDS were used in 54.8% patients either alone or in combination with systemic NSAIDS. There is growing evidence that topical and oral NSAIDS have equivalent efficacy; moreover, topical NSAIDS display better gastrointestinal safety than their systemic counterparts. Selective COX-2 inhibitors were prescribed in 18% of patients only due to the associated cardiovascular risks. Gastroprotective agents were used in 49% along with Non-selective NSAIDS to prevent gastrointestinal adverse effects, out of which Pantoprazole 46.2% was

most preferred, which is consistent with the study done by Ullal et al.²² Non-drug therapy has important qualitative role in treatment of OA. In our study physiotherapy-ultrasonic massage, life-style management like exercise, weight reduction in obese individuals, which is in contrast to Purushottam Jhanwar et al, Bishnoi et al studies where non-drug therapy was not advised to patients.^{24,23}

CONCLUSION

Our study showed that osteoarthritis affects females more often than males and the knee joint is the most commonly affected joint. Paracetamol and SYSADOA were under prescribed and NSAIDS especially oral diclofenac is the most preferred drug and NSAIDS were prescribed with gastroprotective agents of which Pantoprazole was most preferred. In a developing country like India, a National Drug Policy is needed to rationalize the drug use. To achieve this, it is very important to determine drug use pattern and monitor drug use profile over the time and bring for awareness among the Prescribing doctors.

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