IJBCP International Journal of Basic & Clinical Pharmacology

Original Research Article

A prospective observational study of prescription pattern of drugs used in the treatment of osteoarthritis in a tertiary care hospital

Lokesh V. Patil*, Manisha Nara

Department of Pharmacology, Bidar Institute of Medical, Sciences, Bidar, Karnataka, India

Received: 19 November 2016
Accepted: 09 December 2016

*Correspondence to:
Dr. Lokesh V. Patil,
Email:
drlokeshpatil@gmail.com

ABSTRACT

Background: Treatment of Osteoarthritis aims at reducing pain and improving mobility. NSAIDS are commonly prescribed for symptomatic relief despite well documented adverse effects. Paracetamol with its better safety profile is recommended as the initial analgesic of choice. Osteoarthritis has significant socio-economic impact on the patients and not many studies are available to reflect upon the prescription pattern of drugs in Osteoarthritis. Hence, this study was chosen to generate important feedback to the clinician. The objectives of the study were to study the prescribing pattern of drugs used in the treatment of Osteoarthritis in Tertiary care hospital.
Methods: Prescription for 300 osteoarthritis patients collected cross-sectional for 6 months from orthopedic out-patient department were analyzed.
Results: 60% of females were affected. Average age of study was 56.46+/- 7.4 years. Knee joint (87.33%) was most commonly affected joint. Average number of drugs prescribed was 2.62 +/- 0.76. Out of 786 drugs prescribed 45.8% were NSAIDs. Paracetamol was underutilized.
Conclusions: Paracetamol was underutilized while other NSAIDs were over prescribed.

Keywords: Acetaminophen, Osteoarthritis, Prescription pattern

INTRODUCTION

Osteoarthritis is a primary localized degenerative disorder of multi-factorial etiology characterized by loss of articular cartilage, hypertrophy of bone at the margins, subchondral sclerosis and a range of biochemical and morphological alternatives of the synovial membrane and joint capsule. Late stage osteoarthritis shows softening ulceration and focal disintegration of the articular cartilage.[1]

Osteoarthritis is the most common form of arthritis which affects approximately 15% of the population.[2] Due to its predilection for lower extremity joints such as the knee and hip, osteoarthritis is estimated to be the leading cause of lower extremity disability amongst older adults with a

postulated lifetime risk for osteoarthritis of knee being approximately 40% in men and about 47% in women. The risks are higher in obese individuals.[3] Osteoarthritis is one of the most commonly diagnosed diseases in general practice, with its prevalence projected to double by the year 2020 due to a large number of ageing population and an ever increasing prevalence of obesity.[3] it has been estimated that osteoarthritis could be fourth leading cause of disability by the year 2020 and as such its consequences will significantly impact the society.[4,5]

Osteoarthritis is a chronic, progressive and painful disorder. The management of osteoarthritis is largely palliative focusing on symptomatic relief most commonly targeting pain. Overuse of medications leads to intoxication and occurrences of adverse drug reactions,

increased cost and duration of hospital stay. As per current guidelines, acetaminophen should be the first analgesic of choice and drugs from class SYSDOA have questionable efficacy. There are few studies which describe drug utilization in osteoarthrirtis. So, we decided to conduct this study to provide feedback about drug utilization in the management of oasteoarthritis as compared to guidelines and their relevant cost of pharmacotherapy to the clinicians.

Objectives

To study the prescribing pattern of drugs used in the treatment of Osteoarthritis in Tertiary care hospital

METHODS

Study design and site

Our study was an observational, cross-sectional study conducted in collaboration with department of orthopedics of Bidar Institute of Medical Sciences and hospitals, Bidar where all prescriptions from out-patient department were noted. The study was conducted after obtaining permission from the Institutional ethics committee.

Study duration

The study was carried out over a period of 6 months from May 2016 to October 2016

Sample size

In 6 months of study duration 300 patients were selected as per following criteria:

Inclusion criteria

1. Patients aged >18 year of age, both genders, taking treatment for osteoarthritis.
2. Patients who were willing to participate in the study and give a written informed consent.

Exclusion criteria

Patients who were not willing to participate in the study.

Study procedure

Patients diagnosed with osteoarthritis were enrolled in the study as per inclusion criteria. Patients were explained in detail about the study i.e. purpose of the study, procedure and about their data confidentiality. Collected data was analyzed and results were represented in the form of tables as described.

RESULTS

Demographic details

Table 1 show that 60% of participants were females.

Table 1: Number of male and female participants.

	Number of participants	Percentage
Males	120	40%
Females	180	60%
Total	300	100%

Table 2 Depicts that most commonly affected age group in our study was 46-60 years (n=176, 58.67%) with average age being 56.46+/- 7.4 years.

Table 2: Age groups affected.

Age	Number of participants	Percentage
30-45 years	22	7.33%
46-60 years	176	58.67%
61-75 years	102	34%

Disease details

Table 3 shows osteoarthritis affected sites in study population.

Table 3: Joints involved.

Site	Number of cases	Percentage
Knee	262	87.33%
Back	20	6.67%
Hip	18	6%

Prescription details

Total number of drugs prescribed in 300 prescriptions was 786. Average number of drugs prescribed per prescription was 2.62+/- 0.46.

Table 4 shows that majority n=176, 58.67% of patients were treated with combination of drugs.

Table 4: Type of therapy.

Drug use	Number	Percentage
Monotherapy	124	41.33%
Combination therapy	176	58.67%

Table 5 shows prescription pattern in the study participants.

90% of drugs were given orally and remaining in the topical form.

Table 5: Class of drugs used.

Drug class	Number	Percentage
NSAIDs	360	45.8%
Opiods	30	3.81
SYSADOA	32	4.07
Calcium supplement	131	16.67
Anti-ulcers	150	19.08
Top-capsaicin	33	4.20
Muscle relaxant	05	4.20
Vitamins	45	5.725

Table 6: Mode of drug administered.

Oral	708	90%
Topical	78	10%

Table 6 shows the prescription pattern of NSAIDs. Acetaminophen was most commonly prescribed (n=124, 34.44%), followed by Diclofenac sodium (n=98, 22.22%).

Table 7: Different NSAIDs used.

Name of drugs	Number	Percentage
Acetaminophen	124	34.44
Diclofenac	98	27.22
Nimesulide	60	16.67
Ibuprofen	48	13.33
Rofecoxib/ valdecoxib	30	8.33

618 drugs (78.63%) were prescribed by their generic names. 80% of drugs prescribed were from the hospital schedule

DISCUSSION

In our study, demographic profile showed that osteoarthritis was more common in females (60%) than males (40%). This is in accordance with a study done by Ullal et al and Jadhav et al, in which 57.14% and 70.56% of affected patients were females respectively.[6,7] The importance of estrogen in prevention of osteoarthritis is explained in the study by Rowen et al with regards to the age distribution, a total of 176 patients (58.67%) belonged to the age group of 46-60years.[8] The mean age of osteoarthritis affected population in our study was 56.46+/- 7.4 years. The same age group is also commonly affected by osteoarthritis according to a study done by Kulkerni et al.[9] Among various sites involved in osteoarthritis, knee joint (87.33%) was most commonly affected site which is in accordance with other such studies including Jadhav et al[7] and Ullal et al.[6]

Average number of drugs per prescription is an integral determinant prescription audit.[10] In our study, the average number of drugs prescribed per prescription was 2.62+/- 0.46. This is comparable with study done by Gupta et al.[11] Increase in the number of drugs per prescription may

increase the risk of drug-drug interactions, may lead to unwanted side effects and also increase the prescribing errors. Among the total of 786 drugs, 45.80% were contributed by NSAIDs while opioids were prescribed in 3.81% of patients.[12] The remaining 50.39% of total drugs were comprised of SYSDOA (7.07%), calcium supplement (16.67%), multivitamins (5.21%) and various anti-ulcer agents (19.08%). About 80% of drugs were prescribed from hospital schedule. Oral route of drug administration was preferred route in 90% cases.

Acetaminophen was prescribed in n=124 (34.4%) of prescriptions. As per American college of rheumatology guidelines, acetaminophen (4000 mg/day) should be started as initial analgesic in osteoarthritis patients having mild to moderate pain.[13] In our study, acetaminophen was under-prescribed because the analgesic efficacy of paracetamol is lower than other NSAIDs in osteoarthritis, as shown by Richard et al. Combination therapy (58.67%) was commonly presented then monthly 4% of prescriptions contained glucosamine sulfate which has a questionable efficacy according to OARSI 2014 guidelines.[14]

Limitations

Quality of patients taking treatment was not assessed in our study which could have given a better idea about treatment effectiveness.

CONCLUSION

Our study showed that osteoarthritis affects females more often than males and the knee joint is the most commonly affected joint. Paracetamol was under prescribed. Combination therapy was preferred over monotherapy. In order to promote rational drug use, a National Drug Policy is needed. To achieve that, it is essential to determine drug use pattern & monitor by use profile over time and encourage awareness among the prescribing doctors.

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Cite this article as: Patil LV, Nara M. A prospective observational study of prescription pattern of drugs used in the treatment of osteoarthritis in a tertiary care Hospital. Int J Basic Clin Pharmacol 2017;6:85-8.