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Original Research Article

Prescription pattern of non-steroidal anti-inflammatory drugs and their effects on symptoms and disease progression in patients with osteoarthritis in tertiary care centre

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ABSTRACT

Objective: Purpose of this study is to evaluate prescribing pattern of NSAIDS in osteoarthritis patients and their effect on symptoms and disease progression

Materials and Methods: The Prospective observational study was performed on 200 study participants of both sexes from orthopaedic Out Patient Department (OPD) from a tertiary care hospital, Prakash Institute of medical science in Kolhapur between span of Aug 2019 to Aug 2020 who were diagnosed with Osteoarthritis and prescribed with NSAIDS for a minimum period of 3 months. After the period of treatment improvement in symptom was assessed by Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) scale to evaluate specific symptoms in subsequent visit at interval of 1 month for 3 follow ups.

Results: Most common NSAIDs prescribed in orthopaedic OPD patients were diclofenac (51%), Paracetamol (50.5%), Aceclofenac (43%), Tramadol (15%), Ibuprofen (7%), etoricoxib (6%), Naproxen (5%). Paracetamol was most frequently prescribed as combination therapy along with diclofenac, Tramadol and aceclofenac, and diclofenac was commonly used as monotherapy. Tramadol combined with paracetamol has been used in only 22 patients (13%) in the present study. Changes in pain, stiffness and physical function subscale after 3 months follow up were significant compare to initial visit in WOMAC score.

Conclusion: Non-steroidal anti-inflammatory drugs are most commonly used drug for the management of pain and inflammation. From our study it was observed that conventional type of NSAIDS are used most common. NSAIDs are vital for clinical management of OA and to improve quality of life. Aceclofenac with paracetamol combination therapy and Diclofenac monotherapy were most frequently prescribed among the NSAIDs. Safety is the proven concern in treating chronic conditions in OA, hence Aceclofenac and Paracetamol is recommended as combination therapy.

1. Introduction

Pain is 'an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage'. Furthermore 'Pain is

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always subjective.[1] A wide range of disease conditions involve pain and fever as symptoms. From the very beginning of human civilization, man has been trying to find the way of controlling these symptoms and maintaining good health. As a result, non-steroidal anti-inflammatory drugs (NSAIDs) prescribing as an adjunct to therapy is widely practiced. The lowering of pain thus is an important part of the perception of cure and the overall well-being of the patient.[1] Non-steroidal anti-inflammatory drugs (NSAIDs) are most commonly used drugs for years for management of pain and inflammation with good efficacy and represent most widely prescribed class of medications in the world and are used as over the counter drugs. They work by interfering with cyclooxygenase (COX) pathway, which involves the conversion of arachidonic acid by the enzyme COX to prostaglandins. COX is available in two isoforms i.e., COX-1 and COX-2.[2]

Management of OA traditionally has focused on treating pain and disability. Clinical guidelines recommend both pharmacologic and nonpharmacologic therapies to relieve symptoms, since no effective remedies to cure OA exist.[3] Nonsteroidal anti-inflammatory drugs (NSAIDs) help with symptoms and pain relief[4–6] but the evidence of long-term effects from oral NSAIDs is still lacking.[7,8] Moreover, their effect on structural changes in the joint has not been well established. In vitro and animal studies suggest that conventional NSAIDs may have deleterious effects on articular cartilage,[9,10] whereas cyclooxygenase (COX)–selective NSAIDs might have beneficial or neutral effects.[11–13] In observational studies of people with knee and hip OA over the age of 55 years, the long-term use of diclofenac appeared to accelerate disease progression.[14]

Given the widespread use of NSAIDs and the mounting evidence of their adverse effects,[15] understanding the effectiveness of long-term prescription NSAID use in persons with OA is warranted. In the present study, we sought to estimate the extent to which prescription NSAIDs taken over the long term may not only relieve symptoms, but also delay disease progression

2. Materials and Methods

The Prospective observational study was performed on 200 study participants of both sexes from orthopaedic Out Patient Department (OPD) from a tertiary care hospital, Prakash Institute of medical science in Kolhapur between span of Aug 2019 to Aug 2020 who were diagnosed with Osteoarthritis and prescribed with NSAIDS for a minimum period of 3 months. The data was collected with prior permission from the concern department and the authority. After the period of treatment improvement in symptom was assessed by Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) scale to evaluate specific symptoms in subsequent visit at interval of 1 month for 3 follow-ups.[16] Higher WOMAC scores are suggestive of worse symptoms; the range of scores was 0–20 for the pain subscale, 0–8 for the stiffness subscale, and 0–68 for the physical function subscale.

Data were entered and analysed using SPSS software version 16.0 version and expressed in descriptive statistics. WOMAC scores (pain, stiffness and physical function) were expressed as mean±standard deviation (SD). WOMAC scores at the first visit and follow-up visit were analysed using student paired t-test. The p-value <0.05 was considered as statistically significant.

2.1. Inclusion criteria

Patients with age between 30-70 years, of either gender, with radiologically confirmed finding of osteoarthritis and those who were fulfilling the clinical or radiological American College of Rheumatology Diagnostic Guidelines for Osteoarthritis Knee (ACR) suffering from joint pain for at least three-month duration with Minimum WOMAC Index score of 40 at the time of screening were included in study.[17]

2.2. Exclusion criteria

Patients having other inflammatory joint diseases (rheumatoid arthritis, ankylosing spondylitis, psoriasis, gout, neuropathic, congenital or metabolic conditions affecting joints).

Patients having history of congestive cardiac failure, chronic kidney disease, active peptic ulcer and oesophageal varices.

Pregnant and lactating mothers and patients taking over the counter NSAIDS for pain management were excluded from the study.

3. Results

Among the study population, females were predominant accounting for 63.5% (127) and males were 36.5% (73). Majority of the patients 72% (144) belonged to the age group of 40 to 60 years. More than half of the patients had bilateral OA knee (70.5%) and 72% of patients had pain over the knee joint between 1-3 years of duration.

In our study participants most, common drug prescribed for relieving symptoms and progression of disease in OA patient were NSAIDS. Most common NSAIDs prescribed in orthopaedic OPD patients were diclofenac (51%), Paracetamol (50.5%), Aceclofenac (43%), Tramadol (15%), Ibuprofen (7%), etoricoxib (6%), Naproxen (5%). Paracetamol was most frequently prescribed as combination therapy along with diclofenac, Tramadol and aceclofenac, and diclofenac was commonly used as monotherapy. Tramadol combined with paracetamol has been used in only 22 patients (13%) in the present study. Changes in pain, stiffness and physical function subscale after 3 months follow up were significant compare to initial visit

in WOMAC score.

Table 1: Demographic and clinical features of study participants

Demographic data	Number of patient (n=200)
Age	
<40 Y	14
40-60	144
60-70	42
Gender	
Male	73
Female	127
Duration of disease	
<1 year	22
1-3 year	146
>3 year	32
Site of Osteoarthritis	
Knee involvement	141
Other joints	59

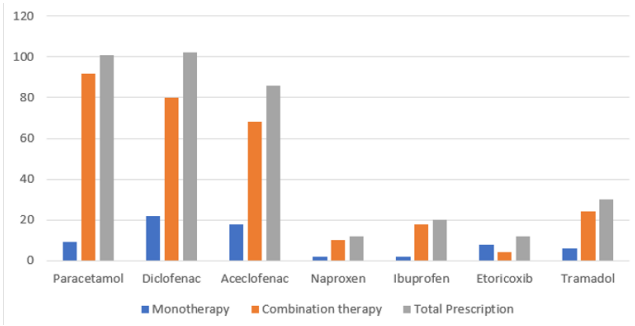

Figure 1: Bar diagram showing prescribing pattern of NSAIDS

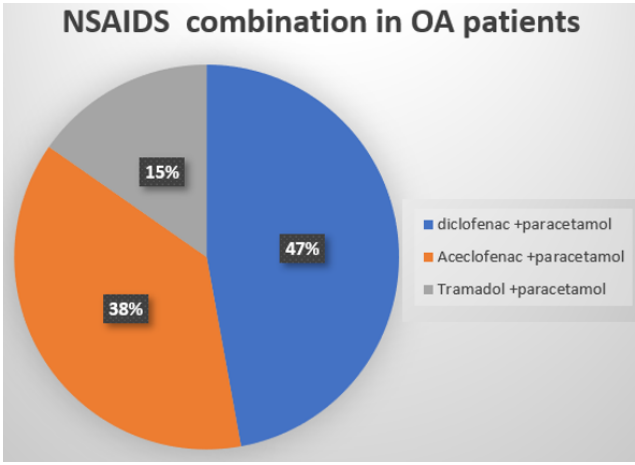

Figure 2: Pie diagram showing combination of NSAIDs in prescriptions

Table 2: Prescription pattern in OA patients

Name of drug	Number of prescriptions		Total	Percentage (%)
	Monotherapy	Combination therapy		
Paracetamol	09	92	101	50.5
Diclofenac	22	80	102	51
Aceclofenac	18	68	86	43
Naproxen	02	8	10	5
Ibuprofen	02	12	14	7
Etoricoxib	08	04	12	6
Tramadol	6	24	30	15

Table 3: Common NSAIDS combination

Drugs	Total
Diclofenac + Paracetamol	74
Aceclofenac + Paracetamol	58
Tramadol + Paracetamol	22

Table 4: WOMAC score for pain, stiffness, physical function during first and follow-up visits.

WOMAC subscale score Mean ±SD	1^{st} Visit	2^{nd} Follow up visit	3^{rd} Follow up visit	P value
Pain	3.4±3.7	4.8+3.7	4.9+4	<0.05
Stiffness	1.9+1.7	2.4+1.8	2.4+1.8	<0.05
Physical function	10.4+11.6	14.6+13.1	15.5+12.8	<0.05

4. Discussion

Among the study population, females were predominant, as supported by Gupta R et al., and Poornima B et al.[18,19] This female patient was the major risk factor for OA due to their lack of physical activity, mobility. Majority of the study participants suffering from OA were in the middle age group between 40-60 which is similar to the study conducted by Gurung S et al.[20]The present study results were comparable with the study conducted by Poornima B et al., and Venkatachalam J et al., where knee joint was commonly involved in OA.[19,21]

Pharmacological treatment is aimed to relieve the signs and symptoms and indeed, to reduce disease progression with improvement in QoL. Based on this, most frequently prescribed drug class was NSAIDs similar to study done by Sahayam JSA et al., where NSAIDs were commonly prescribed.[22]

Poornima B et al. study showed Etoricoxib and aceclofenac were the frequently prescribed drug as monotherapy and among the combination therapy, Paracetamol was most prescribed with Aceclofenac, Diclofenac and Tramadol as compared with present study observation.[18]

The improvement in quality of life using WOMAC score were comparable with similar studies like lapane et al.[23]

5. Conclusion

Non-steroidal anti-inflammatory drugs are most commonly used drug for the management of pain and inflammation. From our study it was observed that conventional type of NSAIDS are used in our institute. NSAIDs are vital for clinical management of OA and to improve quality of life. Aceclofenac with paracetamol combination therapy and Diclofenac monotherapy were most frequently prescribed among the NSAIDs. Safety is the proven concern in treating chronic conditions in OA, hence Aceclofenac and Paracetamol is recommended as combination therapy. This study indicates that oral NSAIDs when promptly used could provide promising relief of pain, improve physical function and Quality of Life (QoL). In conclusion, long-term use of NSAIDs was associated with improvement in patients' reports of stiffness and function as well as quality of life of patients.

6. Conflict of Interest

None.

7. Source of Funding

None.

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