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PATTERN OF DRUGS PRESCRIBING IN OSTEOARTHRITIC PATIENTS IN OUT PATIENT DEPARTMENT OF CRIMSON HOSPITAL, RUPANDEHI

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ABSTRACT

Osteoarthritis is universally known as one of most common musculoskeletal disorder. It normally implicates as pain involving several joints, mainly occurring in the elderly with a radiographic prevalence of nearly 70% in persons over age 65. Drug utilization research was defined by WHO in 1977 as the marketing, distribution, prescription and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences. The main objective of the study is to know about the prescription pattern of drugs in osteoarthritis based on the WHO drug prescribing indicators. The study design was prospective observational study. Total 100 patients were included who were clinically diagnosed with osteoarthritis. The result of this study shows that most of the patients were from age group 50-60. Female patients were more (71%) than male (29%). Most of the patients were from urban region (91%). Out of hundred patients, 82 patients had Knee OA and 18 patients had hip OA. Our study showed that preferred route of drug administration as oral route 91% followed by topical route 9%. The average number of drugs prescribed for the patients of OA was 4.48%. Our study concludes that NSAIDS were prescribed most commonly. However the drug paracetamol was lesser prescribed than other drugs Diclofenac (2.003%), aceclofenac (11.38%). Various other drugs were also used as adjunct therapy that included gastro protective agents in 23.42% of patients, Vitamin and minerals 51% and symptomatic slow acting drug for OA which included diacerin and glucosamine in 23% of patients.

KEYWORDS: NSAIDS, Osteoarthritis, Prescribing pattern, Pain.

BACKGROUND

Osteoarthritis (OA) is a major cause of chronic pain and lower extremity disability among the elderly due to its prediction for lower extremity joints such as the knee and hip. The treatment of pain and inflammation is an important area of therapeutics. Over the past two decades, non steroidal anti-inflammatory drugs (NSAIDs) have played a central role in these indications.[1] Drug utilization research was defined by WHO in 1977 as the marketing, distribution, prescription and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences.[2] The main goal of drug utilization research is to facilitate the rational use of drugs in patients.[3] Osteoarthritis is primarily a localized degenerative disorder of multifactorial etiology consisting of progressive loss of articular cartilage, bone remodeling at margins and derangement of morphological and biochemical abnormalities of the joint capsules and synovial membrane and later subchondral necrosis. The later stage of OA projects ulcerations and softening and focal disintegration of articular cartilages. It causes pain and stiffness, especially in the hip, knee and thump joints. Between the age of 20 and 30, it is asymptomatic and at the middle age, it appears with pain and inflammation. Both male and female are equally affected by this disease till the age of 55 but later after this age, women are more seen to be the victim of Osteoarthritis. Many health practioners have recognized that the obesity may be the main reason behind this diseases.[4] When a person is affected by Osteoarthritis, it results in the breakdown of joints cartilage. When this breakdown and wears away the bones will then start rubbing together and this leads to the severe pain as well as limitation in movement and in some cases, person cannot move at all. The management of Osteoarthritis is directed on symptomatic relief most commonly targeting pain. Therefore, pain relief is the first attempt in the treatment of OA.[5] Without knowledge of how drugs are being prescribed and used, it is difficult to initiate a discussion in rational drug use or to suggest measure to improve prescribing habit. Unless the knowledge of how drugs are used and how they are prescribed, it becomes difficult to initiate discussion on rational use of drug or to suggest measures to improve prescribing habits.[2] Based on these patterns of misuse of revealed by this study and others clinicians must modification in prescription of drugs to increase the therapeutics benefit

and decrease the adverse effects. The study of prescribing pattern seeks to monitor, evaluate and if necessary suggest modification in the prescribing behavior of medical practioners to make medical care rational and cost effective. Unfortunately, there are many incidence on the overuse of drugs because of pain.[6] The improper use of these drugs leads to toxicity, occurrence of adverse drug reaction, hospitalization and additional treatment and from there to increase in treatment cost.[7]

MATERIALS AND METHOD

Study Design

A prospective study was conducted. The ethical consideration of study was approved by the official unit of Crimson hospital.

Study site

The study was conducted in Crimson Hospital of Rupandehi district, Western Nepal.

Study Duration

6 months

Study Population

It covers the prescription of patients attending the orthopedic OPD.

Sample size

100 patients were selected as per following documented criteria.

Inclusion Criteria

1. Patients above 18 years of age of either sex
2. Patients diagnosed with Osteoarthritis with or without co- morbidities.

Exclusion Criteria

1. Patients below 18 years of age
2. Patients who were not willing to participate in the study

Study Material

The prescription of patients were analysed by the following parameter in a data collection form

1. Demographic data of patient
2. Category of the drug in the treatment
3. Past medical history along with medication used.

Study procedure

Patients who were diagnosed with OA were included in the study as per inclusion and exclusion criteria. The aim and nature of the study procedure and information about the written informed consent were well explained to them and breifing of their data confedentially was also explained to patients. Obtained data were analyzed and results were reproduced in form of table and pie charts.

RESULTS

1. Age distribution of patient

All together 100 patient were included this study. The age distribution of patients is given in the

Table 1: Age distribution of Patient (N=100).

S. N.	Age wise distribution	No of patients (%)
1.	30-39	6
2.	40-49	22
3.	50-59	24
4.	60-69	32
5.	70-79	16

At present study, most of the OA patients (32%) more from age group of (60-70) years followed by age group of (50-60) were 24% and least patients were of age group of 30-40. Average distribution of age is 57 and standard deviation is ±6.3.

2. Gender wise distribution of patients

The Gender wise distribution of patient is given below:

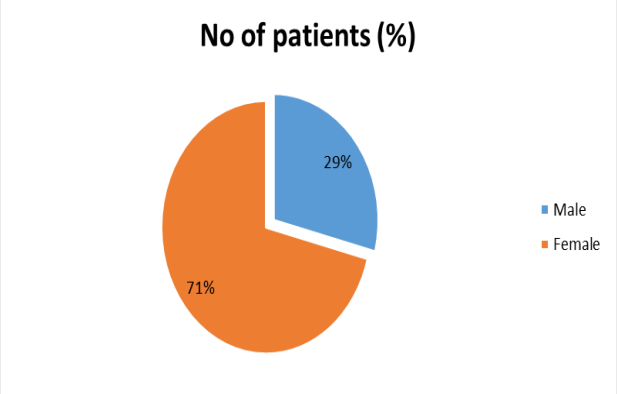

Figure 1: Gender wise distribution of patients.

In our study, more number of patients was female (71%) than male (29%).

3. Habitat wise distribution of the patients

The residency wise distribution of the patients is given below:

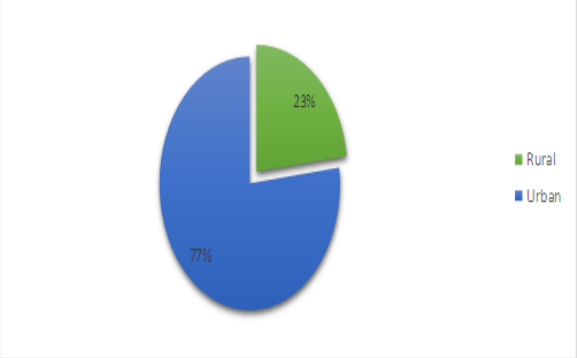

Figure 2: Habitat wise distribution of the patients

4. Ethnicity wise distribution of patients

The ethnicity wise distribution of patient is shown in the figure below:

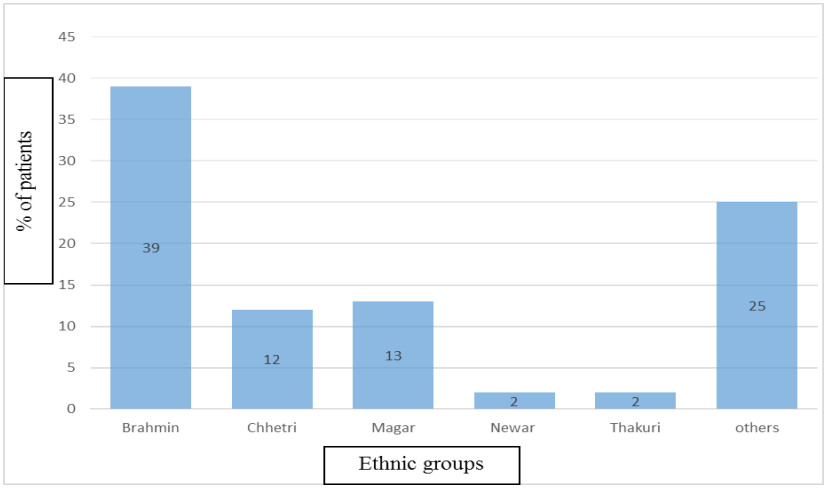

Figure 3: Ethnicity wise distribution

Among the ethnic groups, Brahmins were found to be the highest number which is 39% of the total number which is followed by Other casts(25%) which include Madhesi, BK, Sunar, Pariyar, etc .Other ethnic groups (13%) Magar, Chhetri(12%).

5. Distribution of drugs by route of administration

All together448 drugs were prescribed. The distribution of drugs by route of administration is shown in the figure below.

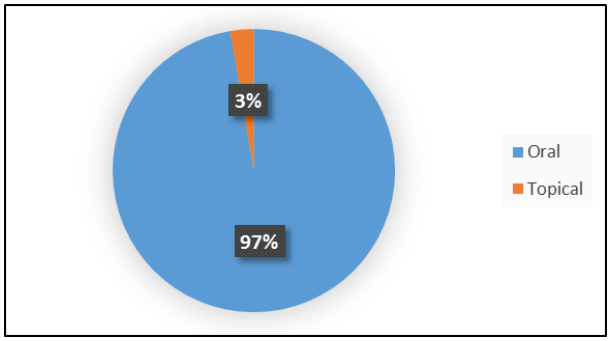

Figure 4: Distribution of drugs by route of administration.

In our study, mostly prescribed route was oral 97% and that of topical was 3%.

6. Site wise distribution of OA

The site wise distribution of OA is given below in table:

Table 2: Site wise distribution of OA.

S.N	site of OA	Number of cases
1.	Knee	82
2.	Hip	18

Out of hundred patients who were affected with Osteoarthritis 82 patients had Knee OA and 18 patients had Hip OA.

7. Occupation wise distribution

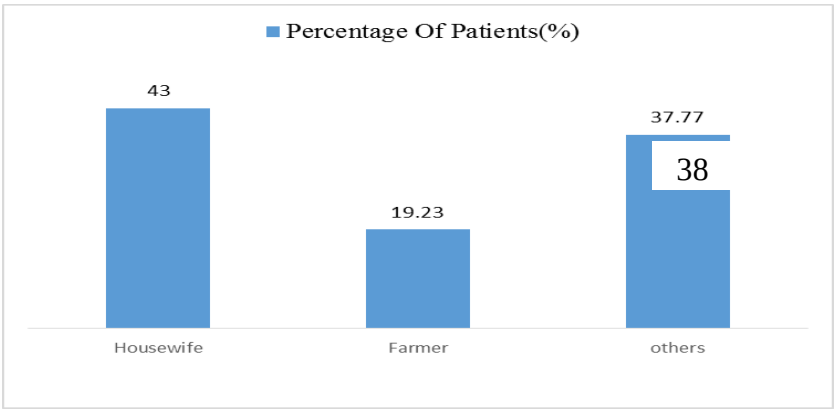

Figure 5: Occupation wise distribution.

In our study, we found that highest number of patients were housewife 43% followed by farmer 19% and others include 38% Among them, others includes; Teacher, labour, job holder, army retirement and none.

8. Details of sign and symptoms of OA

Table 3: Details of sign and Symptoms of OA.

S. N.	Sign and Symptoms	Percentage (%)
1.	Pain	53
2.	Morning Stiffness	17
3.	Swelling	9
4.	Fever	6
5.	Difficulty to move	15

It shows that sign and symptoms like Pain (53%) was found to be more followed by morning Stiffness (17%).

9. Details of commorbidities in OA

Table 4: Details of Commorbidities in OA

S.N.	Comorbidities	No of patients (n=30)	Percentage (%)
1.	HTN	9	30%
2.	DM	5	16.67%
3.	R.A	3	10%
4.	Osteoporosis	3	10%
5.	Gastritis	10	33.33%
6.	Allergy	1	3.33%

In our study, 30% of patients are accounted with the others diseases like hypertension, diabetes mellitus, rheumatoid arthritis, osteoporosis, etc and remaining 70% of patients were found with only OA. Under this study, patients with gastritis were found to occupying the highest percentage (33.33%) followed by hypertension (30%).

10. Classification of drugs prescribed in Osteoarthritis

The details about the classification of prescribed medications are given in table below:

Table 5: Classification of Drugs prescribed in Osteoarthritis.

S.N	Classification of drugs	Name of drugs	No of drugs	Percentage of prescribed drugs (%)
1	NSAIDS	Declofenac	9	2.0089
		Naproxen	19	4.24
		Aceclofenac	51	11.38
		Ibuprofen	7	1.56
		Paracetamol + Chlorozoxane	10	2.32
		Indomethacin	4	0.89
		Etoricoxib	6	1.33
		Tramadol Hcl	2	0.44
		Piroxicam	3	0.66
2	Antiulcer drugs	Rabeprazole	89	19.86
		AlOH+MgOH	12	2.67
		Omeprazole	4	0.89
3	Corticosteroid	Methylprednisolone	79	17.63
		Deflazacort	3	0.66
4	Antibiotic	Cefpodoxime	24	5.35
		Levofloxacin	3	0.66
5	Vitamin and minerals	Methylcobalamine	3	0.66
		Vit C+VitD	2	0.44
		Calcium+VitD	11	2.45
		Folic acid	3	0.66
		Calcium+VitD+Vit K	5	1.11
		Vit D	3	0.66

6	Antirheumatic Drugs	Glucosamine	22	4.91
		Diacerein	15	3.34
		Methotrexate	5	1.11
7	Antiemetic	Domperidone	7	1.56
8	Anti -Gout	Febuxostat	8	1.75
9	Antidepressant	Duloxetine	7	1.56
		Amitryptyllin	2	0.44
10	Muscle relaxant	Tizanidine	6	1.33
11	Ayurvedic preparation	Ayurtitis	4	0.89
12	Others	other Drugs	21	4.68

In the present study, we found that NSAIDS were more prescribed 24.83% followed by antiulcer drugs 23.42% and corticosteroids 18.29%. Among NSAIDS aceclofenac was prescribed more which is 11.38% and piroxicam was prescribed least which is 0.66%.

11. Details of classes of NSAIDS in OA

Table 6: Details of classes NSAIDS in OA.

S. N.	NSAIDS	% of prescription
1.	Non selective COX-2 Inhibitor	58
2.	Salicyclic Acid Derivative	26
3.	Enolic Acid derivative	9
4.	Propionic Acid derivative	3
5.	Acetic acid derivative	4

It shows that Non selective COX-2 inhibitor (Aceclofenac) (58%) was found to be more prescribed than other classes of NSAIDS in OA.

12. Details of corticosteroids in OA

Table 7: Details of corticosteroids in OA.

S.N.	Corticosteroids	No of prescription (n=82)	% of prescription
1.	Methylprednisolone	73	89.02
2.	Deflazacort	9	10.97

It shows that methyl prednisolone (89.02%) was mostly prescribed systemic corticosteroids followed by Deflazacort.

13. Number of drugs per prescription

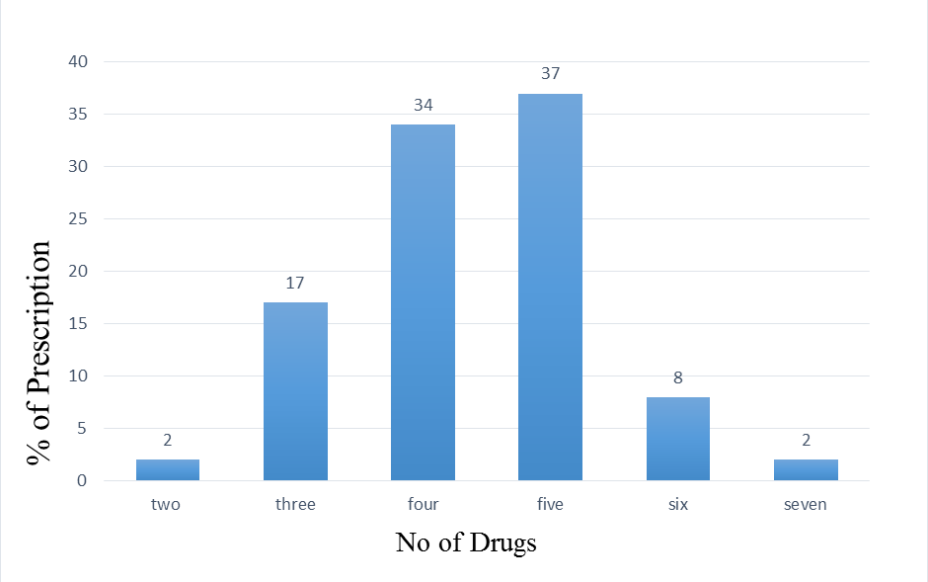

Figure 6: Number of drugs per prescription

In our study, we found that higher no of drugs i.e five drugs were prescribed in 37% of prescription followed by four 34% and three 17%.

14. WHO recommended prescribing indicators

The details of WHO recommended prescribing indicators are given below in table 5.7

Table 8: WHO recommended prescribing indicators.

S.N.	WHO recommended prescribing indicators	Result
1.	Total number of drugs prescribed	448
2.	Average number of drugs per prescription	4.48
3.	Percentage of drugs prescribed by generic name	0%
4.	Percentage of drugs prescribed from Essential Drugs list of Nepal	7.36%

DISCUSSION

The result of this study is based on the prescription pattern of drugs that are dispensed in osteoarthritis patients at outpatient department of Crimson Hospital. Recently, several efforts have been made to ensure the rational use of the drugs. Different types of arthritis are prevalent that create clinical problem among the adults with social, psychological and economic burden. Also, there are many reports of extra medication because of pain. The misuse of the medication leads to other complications related to intoxication and different adverse effects, hospitalization and additional treatment and from there to increase in treatment cost. Regarding all this complications, treatment options have been primarily focused on alleviating the pain associated with the condition. Altogether, data of 100 patients were taken for the study and those patients were examined for obtaining different demographic information and other drugs related information. The gender distribution of the patients showed that females are the more victim of the disease. Greater number of females was encountered at the hospital which was 71% of the total population taken in the study; the difference may be because females in their menopausal period have low estrogen which is not so protective to the cartilage. Only 29% were males that received the OA medication. The similar study was done in Chennai, India in which OA was more common in male patients. Out of 92 patients, 53 (57.6%) patients were males and 39 (42.4%) patients were females.[3] The criteria of age distribution revealed that the mostly affected age group is 60-70 years of age which is (32%) of the total population followed by the age group of 50 to 60 years of age which is (24%) of the population. The population between 70 to 80 years of age affected were (16%) and the below 40 years of age and above 30 were (6%) due to the growing age of population. In other similar study done in North India OA was more prevalent in the age group of 51-65 years (44.8%).[8] In our study out of 100 patients 82 patients were affected with OA (knee) and 18 patients were affected OA with hip. The similar type of study which was done in Gulbarga, among which out of 75, 66 patient had OA of knee and 9 patients had OA of Hip.[9] In our study, we found that highest number of patients were housewife 43% followed by farmer 19% and others include 38%. Among them, others includes: Teacher, labour, job holder, army retirement and none. Among the ethnic groups, Brahmins were found to be the highest number which is (39%) of the total number which is followed by other ethnic groups (25%). In case of route of administration, mostly prescribed route was oral which 97% and that of topical was 3%.The similar study done in Kerala, India which shows that 163(57.19%) drugs were prescribed by an oral route followed by topical route 107(37.54%) and injectable 15(5.26%).[10] In our study most of the patients were from urban region (91%) and rural (9%). NSAIDS were prescribed more which is (24%) of the total prescribed drugs cause the management of osteoarthritis is largely palliative focusing on symptomatic relief most commonly targeting pain. Therefore, pain relief portrays a key role in treatment of OA (76%) of patients received two or more NSAIDS at the same time. Aceclofenac was the most common NSAIDS used (11.38%) followed by Naproxen (4.48%). In a similar study done in Jammu, India, aceclofenac was most common NSAID used (36%) followed by Diclofenac (25.5%).[11] Along with NSAIDS anti-ulcer drugs were also prescribed to minimize the side effect of NSAIDS among which rabeprazole was frequently prescribed 19.86%. Corticosteroids were prescribed 18.29% among which methylprednisolone was 17.63% and other vitamins and minerals were prescribed 5.98%. The similar study was done in Chennai, India vitamins and minerals prescribed were 8.2%.[3] The result shows that Preferential COX-2 inhibitor (Aceclofenac) (58%) was found to be more prescribed than other classes of NSAIDS in OA. The study done in India, Kerala shows that Aryl acetic acid derivative 115(74.19%) was found to be more prescribed than other classes of NSAIDs in OA.[12] The result shows that methyl prednisolone (89.02%) was mostly prescribed systemic corticosteroids followed by Deflazacort. According to study done in India, Kerala it shows that prednisolone was the only systemic corticosteroid prescribed in OA.[12] In our study, we found that higher no of drugs i.e five drugs were prescribed in 37% of prescription followed by four 34% and three 17%. In our study, 30% of patients are accounted with the others diseases like hypertension, diabetes mellitus, Rheumatoid arthritis, Osteoporosis, etc and remaining 70% of patients were found with only OA. Under this study, patients with Gastritis were found to occupying the highest pencentages (33.33%) followed by hypertension (30%). The similar study done in Kerala showed that Spondylosis 13(38.23%) was the most found comorbidity in OA.[12]

CONCLUSION

The present study is concluded that OA affects females more as compared to males. NSAIDS were frequently prescribed however acetaminophen, SYSADOA and topical NSAIDS were under prescribed. NSAIDS were prescribed with antacids. Oral route is mostly preferred route of drug administration, especially diclofenac is the

mostly used drug. To promote the rational use of drug, the combination therapy was more preferred over monotherapy. Calcium supplements along with multivitamins were supplied as nutritional supplements. Patient information instructions regarding the timing of administration or whether to take medication before or after food regarding the possible side effects were inadequate to carry the research more accurately was found in most prescriptions. With this study, it is concluded that further large scale research is required for detailed evaluation of data. It is found that proper counseling and continuing medical education regarding the proper use of NSAIDs, knowledge of potential side effects of drugs and standard guidelines are required to promote the rational use of drugs. It is also essential to encourage and promote generic prescribing to reduce the cost therapy. NSAIDS were prescribed more which is (24%) of the total prescribed drugs, cause the management of Osteoarthritis is largely palliative focusing on symptomatic relief most commonly targeting pain. Therefore, pain relief portrays a key role in treatment of OA. (76%) of patients received two or more NSAIDS at the same time. Aceclofenac was the most common NSAIDS used (11.38%) followed by Naproxen (4.48%). Along with NSAIDS, anti-ulcer drugs were also prescribed to minimize the side effects of NSAIDS among which rabeprazole was frequently prescribed (19.86%). Corticosteroids were prescribed (18.29%) among which methyl prednisolone was (17.63%) and other vitamins and minerals were prescribed (5.98%).

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