



## A STUDY ON PRESCRIBING PATTERN IN THE MANAGEMENT OF OSTEOARTHRITIS AND RHEUMATOID ARTHRITIS IN THE DEPARTMENT OF ORTHOPAEDICS

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Article Received on  
30 Jan 2016,

Revised on 20 Feb 2016,  
Accepted on 12 March 2016

DOI: 10.20959/wjpps20164-6406

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### ABSTRACT

**OBJECTIVE:** To study the recent trend of prescribing patterns of the drugs that are used in the management and treatment of arthritis at the study site and to obtain the information on demographic characteristics of the patients selected for analysis. **METHODOLOGY:** The prospective observational study was carried out for a period of 6 months among inpatients and outpatients in the Orthopedics department. A total of 150 cases were collected in which patients of both the sex and of above 18 years with or without co morbidities were included. Patients who are below 18 years, pregnant and lactating women were excluded from the study. The gender, age, class of the drugs, ROA, different classes of: NSAIDS, DMARDS, corticosteroids, Analgesics; comorbidities, signs and symptoms drug therapy, risk

factors and disease distribution pattern were reported. **RESULTS:** Out of 150 arthritis cases, 82(54.6%) were Males and 68 (45.33%) were Females. Whereas, the gender distribution in the OA patients shows that out of 114 patients 75(65.78%) patients were males and 39(34.21%) patients were females. Whereas the gender distribution of RA patients shows that out of 36 patients, 29(80.5%) were females and 7(19.4%) patients were male. The results revealed that a total of 318 drugs were prescribed. Out of which, Diclofenac was most prescribed [70(32.25%)] followed by Tramadol [50(23.04%)] in OA, the results also revealed that Hydroxychloroquine [25 (24.75%)] was most prescribed followed by Diclofenac [13(12.87%)] in RA. **CONCLUSION:** The present study shows that DMARDS are still the preferred treatment of RA. Diclofenac was the most preferred drug in case of OA. In most of

our prescriptions we found out the irrational use of NSAIDs that result in gastric irritation. Therefore one should take proper interventions to change such irrational prescribing trends. The ACR guidelines suggest the use of simple analgesic like paracetamol in the relief of mild-to moderate joint pain, but our study reveals that there was a limited use of PCT in the management of OA, instead of that diclofenac was the first preferred drug by the orthopaedicians.

**KEYWORDS:** Prescribing pattern, Osteoarthritis, Rheumatoid arthritis, DMARDS.

## INTRODUCTION

Prescription writing can be depicted as an art. Since, it reflects the directions given by the prescriber to the patient or their representatives.<sup>[1]</sup> Therefore, a prescription written by a physician is a reflection of his perspective towards the particular disease and the role of drug in its treatment. It also provides an apprehension into the essence of the health care delivery system.<sup>[2]</sup>

Examining and monitoring of prescriptions and drug utilization studies can actually analyze the recent trend of prescription pattern which will further help to identify the problems and provide feedback to prescribers. Hence, awareness can be created about irrational use of drugs. The factors that affects the prescribing patterns of the doctor is an inevitable need to investigate thoroughly so as to improve the prescription quality and rational prescription pattern promotion of the nation. Several studies have shown that there is a connection between prescription patterns and gender, age, work experience, educational status, economic situation and physician's specialty. Defining drug prescription and utilization pattern provides advantageous feedback to prescribers in order to improve their prescribing behavior.<sup>[3]</sup> The policymakers are benefited by the prescription analyzing studies as they help them to set the priorities to promote the rational use of medicines extensively.<sup>[4]</sup>

It's a known fact that drugs are not the only therapeutic interventions that provides a desirable health to an individual. Rational use of drugs plays a key role in obtaining the efficacy and adequacy of the particular therapeutic interventions. Rational drug utilization therefore can be understood as each individual receives the right medicine, in an adequate dose for an adequate duration, with appropriate information and follow-up treatment, and at a reasonable cost.<sup>[3]</sup> Pain relief and increasing joint mobility is regarded as the prime concern

of the treatment. The last treatment option is the joint surgery incase when underlying treatment measures fails.<sup>[20]</sup>

The term arthritis can also be known as “joint inflammation,” but it is generally used to refer to a family of more than 100 different conditions. Arthritis actually affects the joints and also affects muscles and other underlying tissues. So, the main cause of disability is arthritis. Day to day activities such as dressing, climbing stairs, getting in and out of bed, or walking can be terminated or limited due to arthritis.<sup>[3]</sup>

One of the most common type of chronic inflammatory arthritis with high prevalence is Rheumatoid Arthritis (RA). It irreversibly affects patient’s quality of life, performance and life expectancy.<sup>[6]</sup> RA, if uncontrolled may result in the degradation of the joints causing disability.<sup>[12]</sup> Firstly, it affects joints, causing joint pain, swelling, and stiffness, but can also affect other organs in the body. Patients complaints of increase disability and decreasing quality of life as the disease progresses and joint damage occurs. Improvement of the therapeutic outcome can be achieved due to early therapeutic intervention. Furthermore, the detection of antibodies and imaging technologies are also claimed at these stages.<sup>[7]</sup> There is only a conservative therapy for the treatment of RA.<sup>[10]</sup>

Osteoarthritis (OA) is universally known as the most frequent musculoskeletal disorder. It normally implicates as pain involving 1 or several joints, mainly occurring in the elderly with a radiographic prevalence of nearly 70% in persons over age 65. The burden of the disease is mainly related to pain occurrence leading to functional disability that varies from mild to moderate difficulties in movement of normal daily living activities. Therefore, pain relief portrays a key role in the treatment of OA.<sup>[3]</sup> The treatment of the OA is greatly dependent based on the specific site.<sup>[11]</sup>

The principal goal of treatment is to relieve pain, thereby improving function and quality of life of the patient. Current recommendation for management of OA includes a combination of non pharmacological (exercise, weight reduction, physiotherapy, education program and changes in life style) and pharmacological treatment (SYSADOA, NSAIDS, topical analgesics and intra-articular injection etc).<sup>[8]</sup> In elderly patients NSAIDs are the most preferred choice of drug.<sup>[5]</sup> However, it is seen that the analgesic effects of the various NSAIDs are found to be more or less similar.<sup>[17]</sup> But there were no prescriptions of non

pharmacological therapies like physiotherapy and exercise.<sup>[14]</sup> But still non pharmacological treatment is currently the first line of treatment and often is successful.<sup>[23]</sup>

### **Epidemiology**

Approximately 1% of the adult population is affected by RA worldwide. Its incidence is 2 to 3 times greater in women, and this disproportion is most evident in patients younger than 50 years. Until about the 7<sup>th</sup> decade of life, the incidence of RA continues to increase with age. Approximately, about 0.75% of adult Indian population is negatively affected by the disease which hampers the patients quality of life.<sup>[8]</sup>

Between 20 and 30 years of age Osteoarthritis may first appear without any kind of symptoms. The symptoms, such as pain and inflammation, may occur in the middle age of life. Both the sexes are equally affected till the age of 55. But eventually after 55, women are more likely to have this disease. Elders with a radiographic prevalence of nearly 70% in persons over age 65 are mainly prone to this disease. The occurrence of osteoarthritis in India is relatively very high.<sup>[3]</sup>

### **Role of Pharmacist**

- Evaluate the status of the patients health problems and to check whether the medications prescribed are reaching the patients need and goals of care.
- To estimate the appropriateness and the therapeutic outcome of the patient.
- To sort out the various comorbidities that could be improved or resolve with appropriate medication therapy.
- Follow up of the patients and to determine the therapeutic effects of the patients medications on their health.
- To provide the alternative therapy if the patient shows incompliance to the current therapy.
- Consult with the patient's physician and other health care providers in selecting the medication therapy that best meets the patients need and contribute effectively to the overall therapy goals.
- Educate the patient and their representative on how to administer his or her medication.
- To help and support the other health care professionals in order to educate the patients regarding their health, such as exercise and preventive steps like immunization.

- Refer the patient to his or her physician or other health professionals to address specific health, wellness or social services concerns as they arise.<sup>[7]</sup>

## **MATERIALS AND METHOD**

The study was carried out in The Oxford Medical College, Attibele, Bengaluru. The prospective observational study was carried out for a period of 6 months. Cases admitted during the period of 2014 to 2015 were followed prospectively. Medical records of the inpatient admitted to the hospital and diagnosed with OA and RA during the period of 2014-2015 were collected.

### **Inclusion criteria**

- Arthritis patient at orthopedics department.
- Volunteers
- Currently diagnosed patient with or without more co-morbidities.
- Patient above 18 years or either sex.

### **Exclusion criteria**

- Patient who are not willing to participate
- Patient below 18 years of age.

### **Study procedure**

Study was conducted in the orthopedic department of The Oxford Medical College. Patient diagnosed with arthritis with or without co-morbidities was enrolled in the study considering the inclusion exclusion criteria. Informed consent was taken from the patient at the time of enrollment into the study. The prescriptions of the patients were analyzed by the following parameters in the specially designed data collection form.

- ✓ Demographic data of the patient
- ✓ Category of the drugs used in the treatment.
- ✓ Type of therapy- Monotherapy/Combination therapy.

### **Plan of work**

- Collection and review of literature pertaining to the project.
- Preparing of study protocol including study design and design of proforma.
- Enrolment of patients according to the inclusion and exclusion criteria.
- Collection of patient details.

- Interpretation of data.
- Analyzing the data.
- Submission of report.

### Materials used

Case Record Form (CRF).

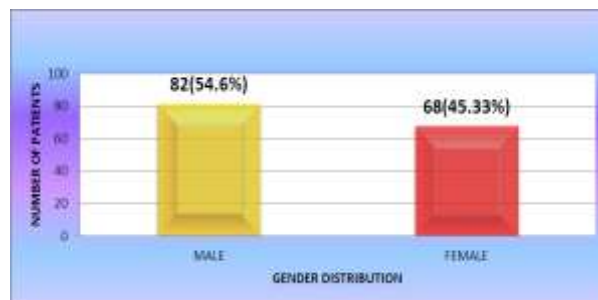
### Statistical Analysis

The standard deviation and the mean of the age of the study population were calculated by using the GrapadInstat software.

## RESULTS

One hundred and fifty patients with the diagnosis of OA and RA visited the Orthopaedic department during the period of six months in which data was collected. Prescriptions of all 150 patients were analyzed and the following demographic details were obtained.

### Gender distribution of patients



**Figure 1: Details of Gender distribution of patients.**

Fig. 1 shows that the overall gender distribution of the patient is found to be Male 82(54.6%) and Female 68(45.33%).

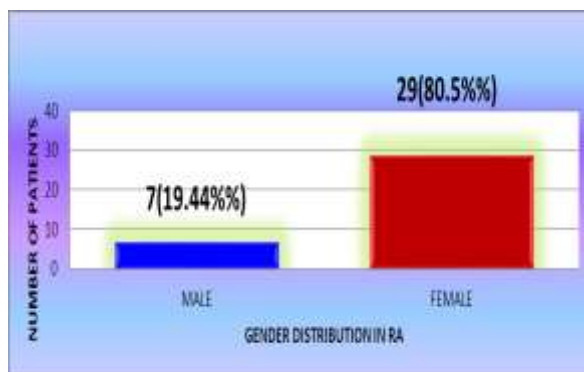
### Gender distribution of OA



**Figure 2: Details of gender distribution in OA patients.**

Fig. 2 shows that the gender distribution in OA patient is found to be Male 75(65.7%) and female 39(34.21%).

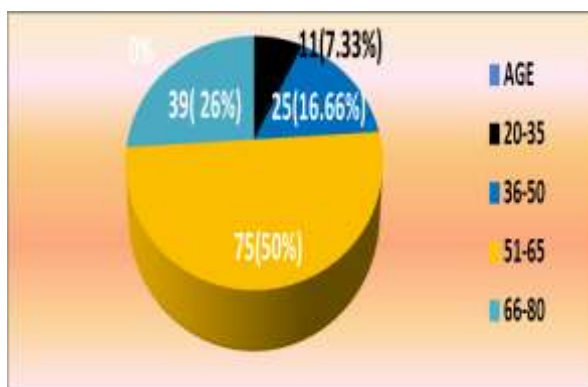
### Gender distribution of RA



**Figure 3: Details of gender distribution in RA patients.**

Fig. 3 shows that RA is commonly seen in female patients 29(80.5%).

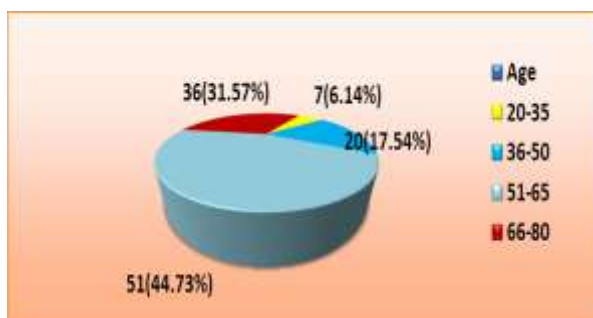
### Age distribution in patients



**Figure 4: Details of age distribution of patients.**

Fig. 4 shows that both OA and RA was more prevalent in the age group of 51-65 years [75(50%)].

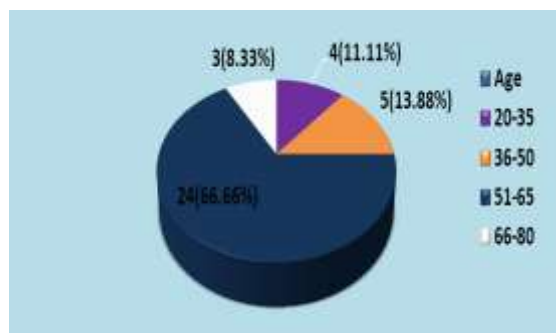
### Age distribution in OA patients



**Figure 5: Details of age distribution in OA patients.**

Fig. 5 shows that age distribution in OA was found to be more prevalent in the age group between 51-65 (44.73%).

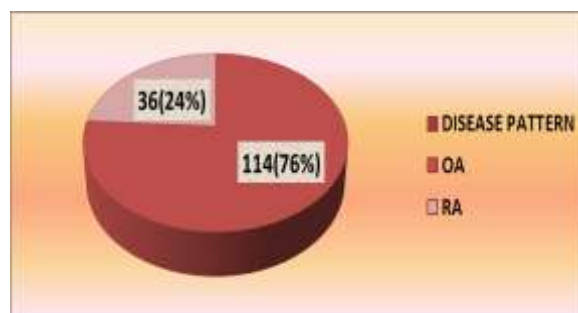
### Age distribution in RA patients



**Figure 6: Details of age distribution in RA patients.**

Fig. 6 shows that age distribution in RA was found to more prevalent in the age group between 51-56 (66.66%) years.

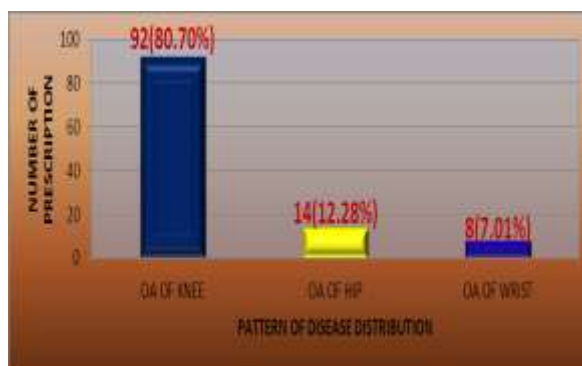
### Disease pattern in patients



**Figure 7: Details of pattern of disease.**

Fig. 7 shows that the disease pattern revealed that OA 114(76%) was more in comparison to the RA 36(24%).

### Pattern of disease distribution in OA patients

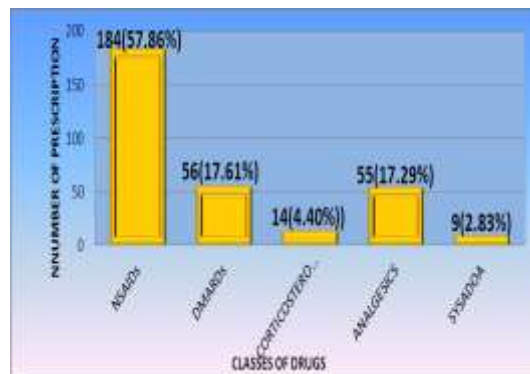


**Figure 8: Details of pattern of disease distribution in OA.**

Fig. 8 shows that maximum number of patients had Osteoarthritis of which 92(80.70%) patients had OA of Knee, 14(12.28%) patients had OA of Hip and 8(7.01%) patients had OA of Wrist.



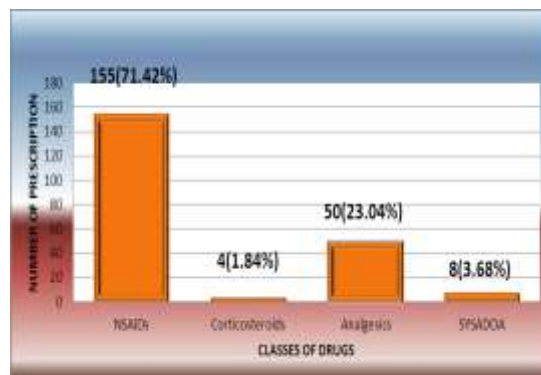
### Classes of drugs prescribed



**Figure 9: Details of class of drugs prescribed.**

Fig. 9 shows that NSAIDs were the choice of drugs prescribed in 184(57.86%) patients followed by DMARDs in 56(17.61%) patients and Analgesic in 55(17.29%) patients with both OA and RA.

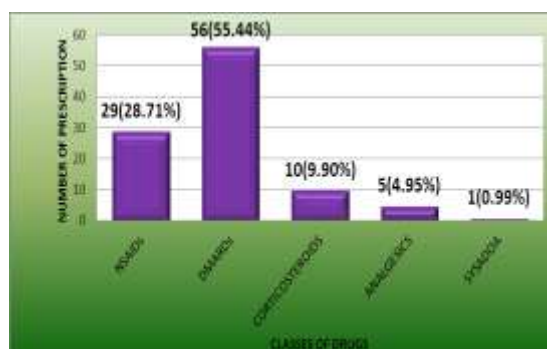
### Classes of drug prescribed in OA patients



**Figure 10: Details of class of drugs prescribed in OA.**

Fig. 10 shows that in OA, NSAIDs were the choice of drugs prescribed in 155(71.42%) patients followed by Analgesics in 50(23.04%).

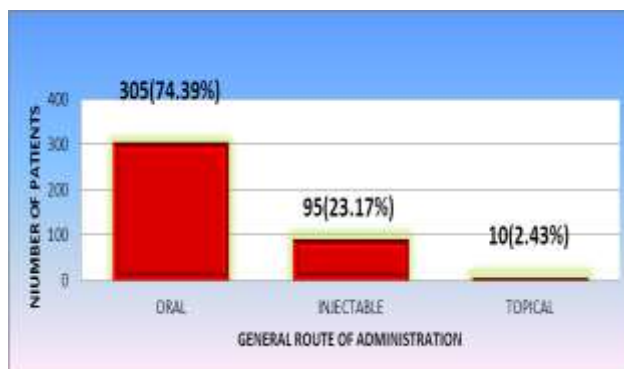
### Classes of drug prescribed in RA drugs



**Figure 11: Details of class of drugs prescribed in RA.**

Fig. 11 shows that in RA, DMARDs were the choice of drugs prescribed in 56(55.44%) patients followed by NSAIDs in 29(28.71%) patients.

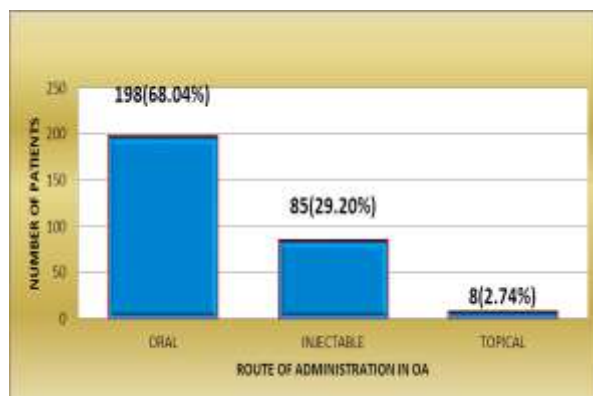
### General route of administration



**Figure 12: Details of route of administration.**

Fig. 12 shows that 305(74.39%) drugs were prescribed by oral route, followed by 95(23.17%) drugs as injectables and 10(2.43%) drugs as topical.

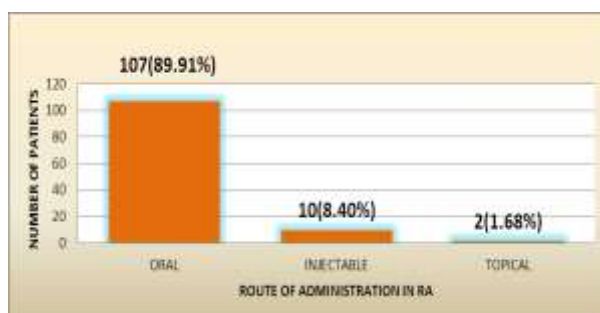
### Route of administration in OA patients



**Figure 13: Details of route of administration in OA patients.**

Fig. 13 shows that 198(68.04%) drugs were prescribed by oral route followed by injectables 82(29.20%) and topical 8(2.74%).

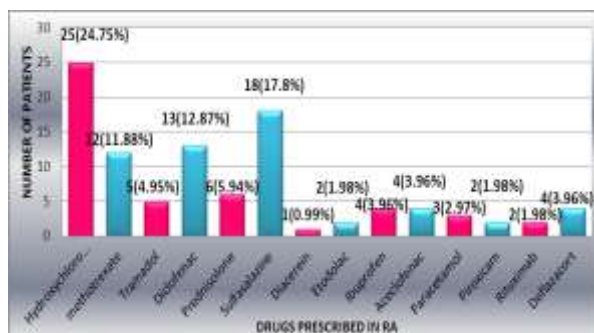
### Route of administration in RA patients



**Figure 14: Details of route of administration in RA patients.**

Fig.14 shows that 107(89.91%) drugs were prescribed by oral route followed by injectables 10(8.40%) and topical 2(1.68%).

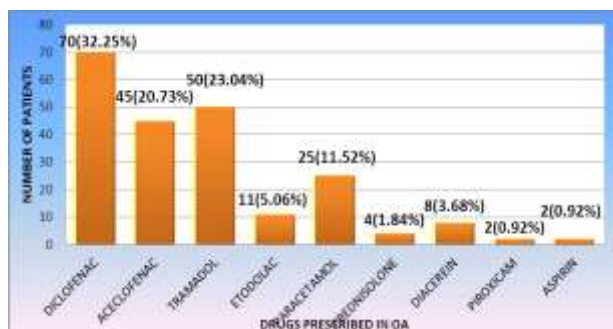
### Drugs prescribed in RA patients



**Figure 15: Details of the drugs prescribed in RA.**

Fig. 15 shows that Hydroxychloroquin 25(24.75%) was the choice of drugs prescribed in RA followed by Sulfasalazine 18(17.8%).

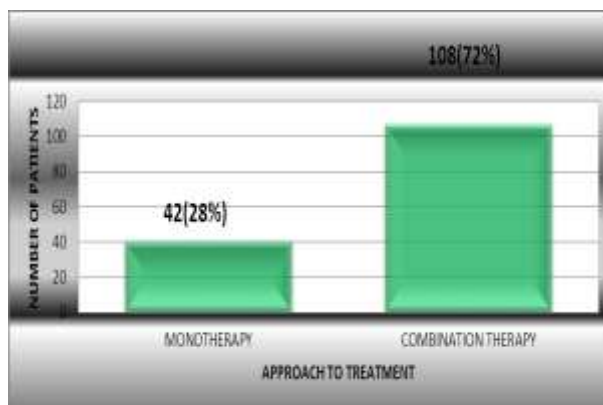
### Drugs prescribed in OA patients



**Figure 16: Details of drugs prescribed in OA.**

Fig. 16 shows that Diclofenac 70(32.25%) was the choice of drugs prescribed in OA, which was found to be in accordance with Purushottam Jhanwar (2012) and Taruna Sharma (2006).

### Approach to treatment



**Figure 17: Details of approach to treatment.**

Fig. 17 shows that more number of patients were treated with combination therapy 108(72%) followed by Monotherapy 42(28%).

### Demographic characteristics of patients

**Table 1:** Shows the mean and standard deviation of the male and female patient.

Characteristics	n=150
Male: Female	82:68
Mean age of male ( $\pm$ SD)	59.5 $\pm$ 11.730
Mean age of female ( $\pm$ SD)	56.9 $\pm$ 12.909

### Frequency of antiulcer agents prescribed in OA and RA

**Table 2:** Shows that a total of 106 anti ulcerative agents were prescribed in 150 patients. Ranitidine being the most preferred one.

Antiulcer agents	Osteoarthritis (OA)		Rheumatoid arthritis (RA)	
	NO (n=89)	Percentage (%)	NO (n=17)	Percentage (%)
Pantoprazole	5	5.61%	7	41.17%
Rabeprazole	6	6.74%	1	5.88%
Omeprazole	16	17.79%	2	11.76%
Ranitidine	62	69.66%	3	17.64%
Esomeprazole	0	0	3	17.64%
Sucralfate	0	0	1	5.88%
<b>Total</b>	<b>89</b>	<b>100</b>	<b>17</b>	<b>100</b>

### Risk factors for OA

**Table 3:** shows that out of 114 OA cases majority of the Risk factor was found to be Old age 67(58.77%) as shown in table 20.

Factors	No. of patients (n=114)	Percentage (%)
Old age	67	58.77%
Obesity	15	13.15%
Family history	9	7.89%
Fractures	1	0.87%
Others	22	19.29%

### Risk factors for RA

**Table 4:** shows that out of 36 RA cases majority of the risk factor was found to be Gender (female) 29(80.55%).

Factors	No. of Patients (n=36)	Percentage (%)
Old Age	27	75%
Family history	7	19.44%
Gender (Female)	29	80.55%

**Details of classes of NSAIDs in OA**

**Table 5:** shows that Aryl acetic acid derivative 115(74.19%) was found to be more prescribed than other classes of NSAIDs in OA. (Diclofenac).

NSAIDs	No. of Prescriptions (n=155)	% of Prescription
Pyrrlopyrrole derivative	11	7.09%
Aryl acetic acid derivative	115	74.19%
Oxicam derivatives	2	1.29%
Para amino phenol derivatives	25	16.12%
Salicyclates	2	1.29%

**Details of class of NSAIDs in RA**

**Table 6:** shows that Aryl acetic acid derivative 18(62.90%) was found to be more prescribed than other classes of NSAIDs in RA (Diclofenac).

NSAIDs	No. of Prescriptions (n=29)	% of Prescriptions
Pyrrlopyrrole derivative	2	6.89%
Propionic acid derivative	4	13.79%
Aryl acetic acid derivatives	18	62.06%
Oxicam derivatives	2	6.89%
Paraaminophenol derivative	3	10.34%

**Details of class of DMARDS in RA**

**Table 7:** shows that Hydroxychloroquine 25(44.64%) was found to be more prescribed than other classes of DMARDS in RA.

DMARDS	No. of Prescriptions (n=56)	% of Prescription
Methotrexate	12	21.42%
Hydroxychloroquine	25	44.64%
Sulfasalazine	19	33.92%

**Details of corticosteroids in OA**

**Table 8:** shows that prednisolone 4(100%) was the only systemic corticosteroid prescribed in OA.

Systemic corticosteroid	No. of Prescription	% of Prescription
Prednisolone	4	100%

**Details of class of corticosteroid in RA**

**Table 9:** shows that Prednisolone 6(60%) and Difloxacort 4(40%) was the systemic corticosteroids prescribed in RA.

Systemic Corticosteroid	No. of Prescription (n=10)	% of Prescription
Prednisolone	6	60%
Difloxacort	4	40%

**Details of comorbidities in OA**

**Table 10:** shows that comorbidities like Spondylosis 13(38.23%) was found to be high in OA.

Comorbidities	No. of Patients (n=34)	Percentage (%)
Hypertension	5	14.70%
Diabetes mellitus	9	26.47%
Spondylosis	13	38.23%
Left lobe Pneumonia	1	2.94%
Periphera neuropathy	3	8.82%
Osteoporosis	3	8.82%

**Details of comorbidities in RA**

**Table 11:** shows that comorbidities like Diabetes Mellitus 10(33.33%) and Hypertension 7(23.33%) was found to be in high in RA.

Comorbidities	No. of Patients (n=30)	Percentage (%)
Hypertension	7	23.33%
Diabetes Mellitus	10	33.33%
Spondylosis	3	10%
Fever	1	3.33%
Dyslipidemia	4	13.33%
Acute Pancreatitis	2	2.85%
Asthma	2	2.85%
Hypothyroidism	1	3.33%

**Details of signs and symptoms in OA**

**Table 12:** shows that sign and symptoms like Pain 113(70.18%) was found to be more in OA.

Signs and symptoms	No. of Patients (n=161)	Percentage (%)
Pain	113	70.18%
Stiffness	2	1.24%
Swelling	31	19.25%
Fever	7	4.34%
Difficulty to move	8	4.96%

**Details of sign and symptoms in RA**

**Table 13:** shows that sign and symptoms like pain 36(62.08%) was found high followed by Swelling 10(17.24%) and Morning Stiffness 9(15.51%).

Sings and symptoms	No. of Patients (n=58)	Percentage (%)
Pain	36	62.08%
Morning stiffness	9	15.51%
Swelling	10	17.24%
Fever	3	5.17%

**Details of different classes and drugs in 2 drugs therapy in RA**

**Table 14:** shows that DMARD+DMARD 6(37.5%) was found to be most prescribed 2 drug therapy in RA.

2 Drug therapy	No. of Patients (n=16)	Percentage (%)
<b>DMARD+STEROIDS</b> Sulfasalazine+Deflazacort	4	25%
<b>DMARD+DMARD</b> Hydroxychloroquine+Methotrexate	6	37.5%
<b>NSAIDs+DMARD</b> Diclofenac+ Hydroxychloroquine	4	25%
<b>NSAIDs+NSAIDs</b> Aceclofenac+Diclofenac	2	12.5%

**Details of different classes and drugs used in 3 drug therapy in RA**

**Table 15:** shows that DMARD+DMARD+NSAIDs 5(71.42%) was found to be the most prescribed 3 drug therapy in RA.

	No. of patients (n=7)	Percentage (%)
<b>DMARD+DMARD+NSAIDs</b> Methotrexate+Hydroxychloroquin+Diclofenac Hydroxychloroquin+Sulfasalazine+Ibuprofen Hydroxychloroquin+Sulfasalazine+Aceclofenac Hydroxychloroquin+Sulfasalazine+Ibuprofen	5	71.42%
<b>DMARD+DMARD+SYSADOA</b> Methotrexate+Sulfasalazine+Diacerein	1	14.28%
<b>DMARD+CORTICOSTEROID+DMARD</b> Hydroxychloroquin+Prednisolone+Methotrexate	1	14.28%

**Details of different classes and drugs used in 2 drug therapy in OA**

**Table 16:** shows that NSAIDs+NSAIDs 28(45.16%) was found to be the most prescribed 2 drug therapy in OA.

2 Drugs	No. of patients (n=62)	Percentage (%)
<b>NSIADs+ANALGESICS</b> Diclofenac+Aceclofenac Diclofenac+Paracetamol	27	43.54%
<b>ANALGESICS+ANALGESICS</b> Paracetamol+Tramadol	1	1.61%
<b>NSAIDs+NSAIDs</b> Aceclofenac+Diclofenac Diclofenac+Etodolac	28	45.16%
<b>STERIODS+OPIOIDANLGESICS</b> Prednisolone+Tramadol	2	3.22%
<b>SYSADOA+NSAIDs</b> Diacerein+Aceclofenac	3	4.83%
<b>ANALGESIC+SYSADOA</b>	1	1.61%

**Details of different classes and drugs used in 3 drug therapy in OA**

**Table 17:** shows that NSAIDs+NSAIDs+OPIOID ANALGESICS 4(44.44%) was found to be the most prescribed 3 drug therapy in OA.

3 Drugs	No. of patients (n=9)	Percentage (%)
<b>NSAIDs+NSAIDs+OPIOID ANALGESICS</b> Tramadol+Aceclofenac+Diclofenac	4	44.44%%
<b>ANALGESICS+NSAIDs+SYSADOA</b>	1	11.11%
<b>CORTICOSTEROIDS+NSAIDs+NSAIDs</b>	1	11.11%
<b>NSAIDs+NSAIDs+SYSADOA</b>	3	33.33%

**Details of drugs used in monotherapy in OA**

**Table 18:** shows that Diclofenac 21(53.84%) was found to be the drug of choice in Monotherapy in case of OA.

Drugs	No. of Patients (n=39)	Percentage (%)
Diclofenac	21	53.84%
Hifenac	1	2.56%
Aceclofenac	6	15.38%
Tramadol	10	25.64%
Paracetamol	1	2.56%



### Details of drugs used in monotherapy in RA

**Table 19:** show that Hydroxychloroquin 3(100%) was found to be the drug of choice in Monotherapy in case of RA.

Drugs	No. of Patients	Percentage (%)
Hydroxychloroquin	3	100%

## DISCUSSION

### Gender

OA was more common in male patients 75(65.7%) whereas, RA was commonly seen in female patients 29(80.5%). Hence, our study revealed that the gender distribution in OA was found to be more in of Males whereas in RA, it was found to be more in Females which was in accordance with the study conducted by Mohamed Ahmed et al (2012) and B. Premkumar (2013). But, our study was found to be in contrast with the study conducted by Purushottam Jhanwar (2012).

### Age

Age distribution in RA was found to be more prevalent in the age group between 51-56 (66.66%) years as shown in fig. 06. This study reveals that, both OA and RA were more prevalent in the age group of 51-65 years 75(50%) which was found to be in accordance with the study conducted by Mohamed Ahmed (2012) and Purushottam Jhanwar (2013).

### Pattern of Disease distribution

Maximum number of patients had Osteoarthritis of which 92(80.70%) patients had OA of Knee, 14(12.28%) patients had OA of Hip and 8(7.01%) patients had OA of Wrist. Our study was found to be in accordance with the study conducted by Karen M, Purushottam Jhanwar, Mohamed Ahmed and in contrast with the study conducted by M. Bishnoi (2006).

### Classes of Drugs prescribed

The results revealed that NSAIDs were the choice of drugs prescribed in 184(57.86%) patients followed by DMARDs in 56(17.61%) patients and Analgesic in 55(17.29%) patients with both OA and RA as shown in figure 09 which was in accordance with the study conducted by Mohamed Ahmed (2012).

### Route of Administration

It was observed in the study that 305(74.39%) drugs were prescribed by oral route, followed by 95(23.17%) drugs as injectables and 10(2.43%) drugs as topical. As shown in figure 12.

This was found to be in accordance by the study conducted by M. Bishnoi (2006) and Mohamed Ahmed (2013).

### **Drugs Prescribed**

Hydroxychloroquin 25(24.75%) was the choice of drugs prescribed in RA followed by Sulfasalazine 18(17.8%) which was found to be in accordance with study conducted by S. R Gawde (2013) and Mohammed Ahmed (2013) but was found to be in contrast to the study conducted by C. G. Grijalva (2008) and B. Premkumar (2013). Diclofenac 70(32.25%) was the choice of drugs prescribed in OA, which was found to be in accordance with Purushottam Jhanwar (2012) and Taruna Sharma (2006).

### **Approach to Treatment**

More number of patients were treated with combination therapy 108(72%) followed by Monotherapy 42(28%) which was found to be in accordance with the study conducted by Mohammed Ahmed (2013).

### **Frequency of Anti ulcer agents prescribed**

A total of 106 anti ulcerative agents were prescribed in 150 patients. Ranitidine being the most preferred one which was in accordance with the study conducted by Taruna Sharma (2006) and in contrast with the study conducted by Ullal S. D. (2010) and Singh V (2014).

### **Risk factors**

Out of 114 OA cases majority of the Risk factor was found to be Old age 67(58.77%). Out of 36 RA cases majority of the risk factor was found to be Gender (female) 29(80.55%).

### **Classes of NSAIDs**

Aryl acetic acid derivative 115(74.19%) was found to be more prescribed than other classes of NSAIDs in OA (Diclofenac).

### **Classes of DMARDs**

Hydroxychloroquine 25(44.64%) was found to be more prescribed than other classes of DMARDs in RA.

### **Comorbidities**

Spondylosis 13(38.23%) was the most found comorbidity in OA. Diabetes Mellitus 10 (33.33%) followed by Hypertension 7(23.33%) was the most found comorbidity in RA which was in accordance with the study conducted by B. Premkumar (2013).

### **Signs and Symptoms**

The most found sign and symptoms in OA was found to be Pain 113(70.18%) which was in accordance with the study conducted by Bishnoi (2006) and similarly pain 36(62.08%) in RA followed by Swelling 10(17.24%) and Morning Stiffness 9(15.51%).

### **Different Classes and drugs in 2 Drug therapy in RA and OA**

DMARD+DMARD 6(37.5%) was found to be the most prescribed 2 drug therapy in RA which was in contrast with the study conducted by Mohammed Ahmed (2012) whereas, NSAIDs+NSAIDs 28(45.16%) was found to be the most prescribed 2 drug therapy in OA which was found to be in contrast with the study conducted by Mohammed Ahmed (2012).

### **Different Classes and Drugs in 3 Drug therapy in RA and OA**

DMARD+DMARD+NSAIDs 5(71.42%) was found to be the most prescribed 3 drug therapy in RA which was found to be in contrast with the study conducted by Mohammed Ahmed (2012) whereas, NSAIDs+NSAIDs+OPIOID ANALGESICS 4(44.44%) was found to be the most prescribed 3 drug therapy in OA which was found to be accordance with the study conducted by Mohamed Ahmed (2012).

### **Drugs used in Monotherapy in OA and RA**

Diclofenac 21(53.84%) was found to be the drug of choice in Monotherapy in case of OA, whereas, Hydroxychloroquin 3(100%) was found to be the drug of choice in Monotherapy in case of RA.

### **CONCLUSION**

The present study shows that DMARDS are still the preferred treatment of RA. The higher use of DMARDS and their combinations reveal intensive therapy whereas NSAIDs and Steroids for symptomatic relief. Diclofenac was the most preferred drug in case of OA. In most of our prescriptions we found out the irrational use of NSAIDs that result in gastric irritation. Therefore one should take proper interventions to change such irrational prescribing trends. Furthermore, we also found that Paracetamol and Systemic slow acting

drugs of osteoarthritis (SYSADOA) were found to be under prescribed in case of OA. Although it is a slow acting drug but having the benefit of causing relatively less gastric irritation it sounds a better option than other NSAIDs. Nonpharmacological treatment like advice for weight reduction has qualitative role in treating arthritis. There were very few prescriptions of non drug therapy such as physiotherapy and exercise. So, instead of taking multiple drug therapy one should also advise patient regarding the non pharmacological treatments and their benefits.

### ACKNOWLEDGEMENT

Authors would like to express sincere gratitude and respectful thanks to Management and Principal of The Oxford College of Pharmacy, Bengaluru for providing necessary facilities to carry out research. Also would like to thanks to faculty members of Department of Pharmacy Practice, The Oxford College of Pharmacy, Bengaluru for their constant support and help. Authors also thank to The Oxford Medical College, Hospital and Research Centre, Attibele, Bengaluru-562 107, Karnataka, India for providing facilities.

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