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A Prospective Observational Study to Assess Prescription Pattern in Osteoarthritis & Rheumatoid Arthritis Patients at Tertiary Care Hospital, Palakkad, Kerala



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ABSTRACT

Objective: To assess the prescribing pattern of medication used for the management of Osteoarthritis and Rheumatoid arthritis. To determine the prevalence of Osteoarthritis & Rheumatoid arthritis among patients at tertiary care hospital and to obtain the information on demographic characteristics of the patients selected for analysis. **Methodology:** The study was designed as a Hospital based prospective observational study was carried out for a period of 6 months among inpatients and outpatients in the Orthopaedics department. Both male, as well as female with or without co-morbidities of all age groups, were included in the study. Patients diagnosed with other Rheumatic disease were excluded from the study. The gender, age, class of the drugs, route of administration, different classes of drugs prescribed and disease distribution pattern were reported using specially prepared data entry form. **Results:** Out of 217 cases Rheumatoid arthritis & Osteoarthritis was more prevalent in the age group of 36-65 years (36.86%, 41.47%). Whereas, the gender distribution in the OA patients shows that out of 165 patients 91(55.15%) were female patients and 74(44.84%) were males. Whereas the gender distribution of RA patients shows that out of 52 patients, 19(36.53%) patients were male and 33(63.46%) were females. A total of 289 drugs used in OA, Diclofenac 139(48.09%) was most prescribed the drug and in RA, a total of 181 drugs, Hydroxychloroquine 49(27.07%) was most prescribed drug. **Conclusion:** The present study shows that DMARDS are still the preferred treatment of RA. Diclofenac was the most preferred drug in case of OA.



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INTRODUCTION

The main aim of our study To assess the prescribing pattern of medication used for the management of Osteoarthritis(OA) and Rheumatoid arthritis(RA). To determine the prevalence of Osteoarthritis & Rheumatoid arthritis among patients at tertiary care hospital and to obtain the information on demographic characteristics of the patients selected for analysis.

Drug utilization research was defined as the marketing, distribution, prescription, and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences. Periodic evaluation of drug utilization patterns needs to be done to enable suitable Modifications in the prescription of drugs to increase the therapeutic benefit and decrease the adverse effects. The study of prescribing patterns seeks to monitor, evaluate and if necessary, suggest modifications in the prescribing behavior of medical practitioners to make medical care rational and cost effective. Drug prescribing studies aim to provide feedback to the prescriber and to create awareness among them about rational use of medicines.

The term arthritis literally means “joint inflammation” but it is generally used to refer to a family of more than 100 different conditions that affect the joints and may also affect muscles and other tissues. Osteoarthritis (OA) is a common slowly progressive disorder affecting primarily the weight –bearing diarthrodial joints of the peripheral and axial skeleton, It is characterized by progressive deterioration and loss of articular cartilage resulting in osteophyte formation ,pain, limitation of motion, deformity and disability . Based on prevalence data from the National Centers for Health Statistics, an estimated 15.8 million adults, or 12% of those between 25 and 74 years of age, have signs and symptoms of OA. The prevalence of OA is 22% to 39% in India. The main etiological factors include Advanced age, female gender, Obesity, Joint trauma, Heredity, Repetitive stress and Congenital or developmental anatomical defects. Treatment options for OA are NSAIDs, Other oral analgesics, Topical analgesic, Intra articular injections, Adjunctive treatments include Glucosamine, Chondroitin, and surgical interventions.

Rheumatoid arthritis(RA) is a chronic and usually progressive inflammatory disorder of unknown etiology characterized by polyarticular symmetrical joint involvement and systemic manifestations. Study by Wolfe et al. has shown that rheumatoid arthritis (RA) is associated with substantial long-term morbidity, mortality and healthcare costs. Disease-modifying antirheumatic

drug (DMARDs) are the drugs used in the treatment of RA. It does not completely cure the disease but reduces the severity of RA.

Objective of the study

- To study the current trend of a prescribing pattern of the drugs used in the management of osteoarthritis and rheumatoid arthritis at the study site.
- To assess the prevalence of osteoarthritis and rheumatoid arthritis at the study site.
- To obtain, the information on demographic Characteristics of the patients selected for analysis
- To analyze the prescription for diagnosis, name, class of drug and route of administration of the prescribed drug.

MATERIALS AND METHODS

The study was conducted on the Orthopaedic department of tertiary care hospital at Palakkad district, Kerala, India. The study was designed as a prospective observational study. Both male as well as female with or without co-morbidities of all age groups were included in the study. Patients diagnosed with other Rheumatic disease were excluded from the study. The study was carried out for 6 months duration. A specially designed data entry form was used for collecting patient details. Total of 217 patients is included in this study.

RESULTS

Table 1: Age distribution of patients.

Age (Years)	Number of patients (n=217)	Percentage(%)
<20	02	0.92
20-35	15	6.91
36-50	80	36.86
51-65	90	41.47
66-80	29	13.36
>80	01	0.46

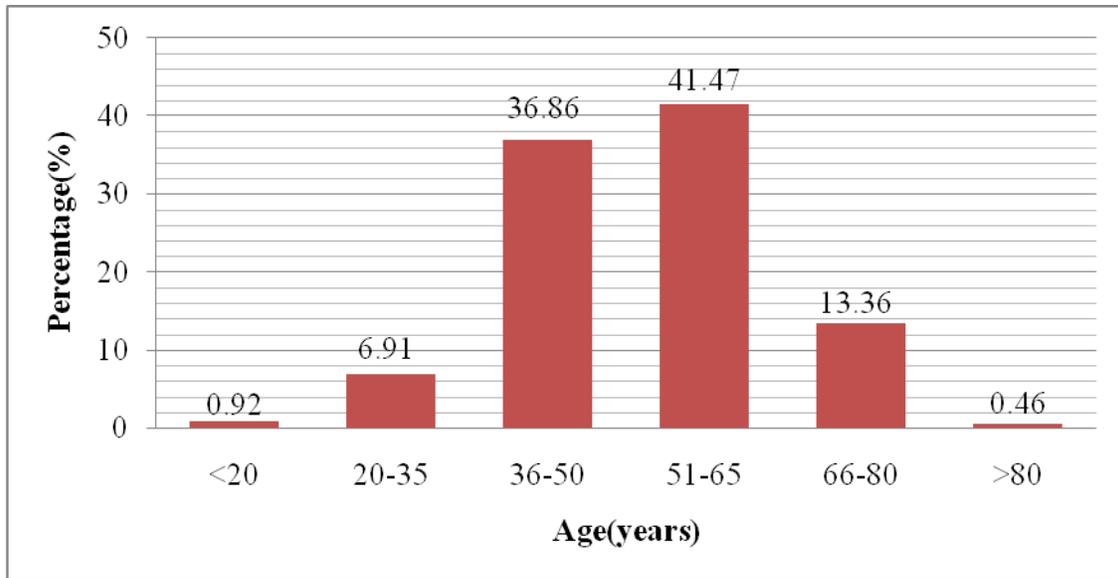


Figure 1: Age distribution of patients

Table 1 & Figure 1 shows the age wise distribution of RA & OA patient and the result revealed that both RA and OA was more prevalent in the age group of 36-65 years(36.86%,41.47%) .

Table 2: Age distribution of Rheumatoid arthritis patients.

Age (years)	Number of Patients (n=52)	Percentage (%)
<20	02	3.84
20-35	08	15.32
36-50	22	42.30
51-65	16	30.76
66-80	03	5.76
>80	01	1.92

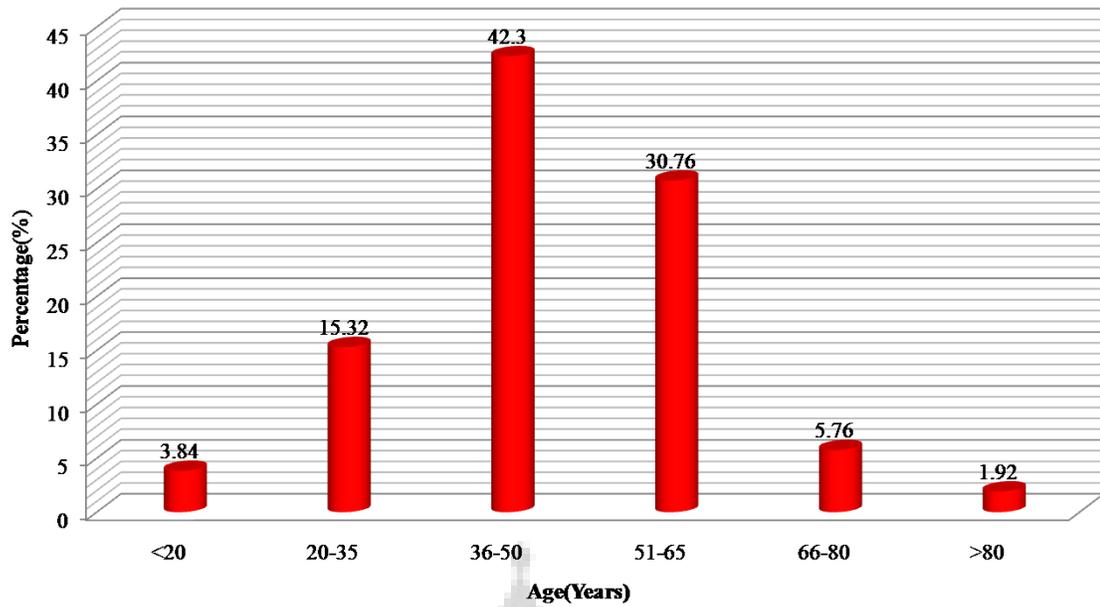


Figure 2: Age distribution of Rheumatoid arthritis patients

Table 2 & Figure 2 shows that the Rheumatoid arthritis was more prevalent in the age group of 36-50 years (42.30%).

Table 3: Age distribution of Osteoarthritis patients

Age (years)	Number of patients (n=165)	Percentage (%)
<20	0	0
20-35	07	4.24
36-50	58	35.15
51-65	74	44.84
66-80	26	15.75
>80	0	0

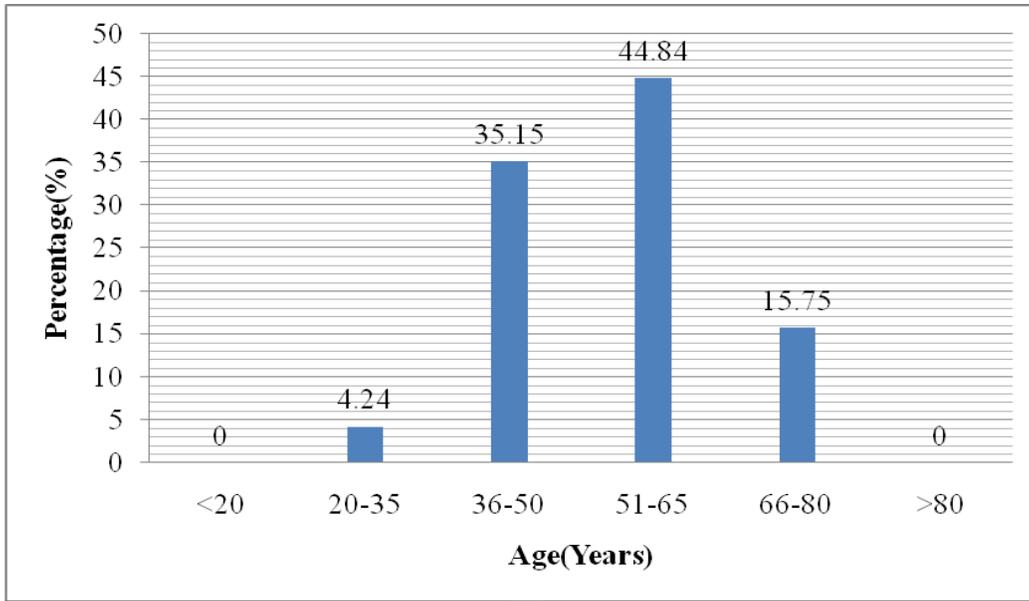


Figure 3: Age distribution of osteoarthritis patients

Table 3 & Figure 3 shows that Osteoarthritis was more prevalent in the age group of 51-56 years(44.84%).

Table 4: Gender distribution of patients

Gender	Number of Patients (n=217)	Percentage (%)
Male	93	42.85
Female	124	57.14

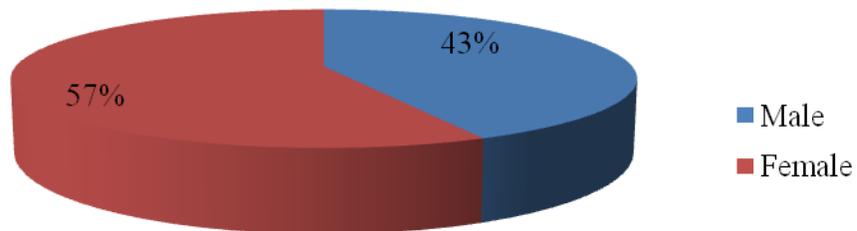


Figure 4: Gender distribution of patients

Table 4 & Figure 4 shows that out of 217 patients 33(63.46) were female both RA and OA commonly seen in female patients

Table 5: Gender distribution of Rheumatoid arthritis patients

Gender	Number of Patients (n=52)	Percentage (%)
Male	19	36.53
Female	33	63.46

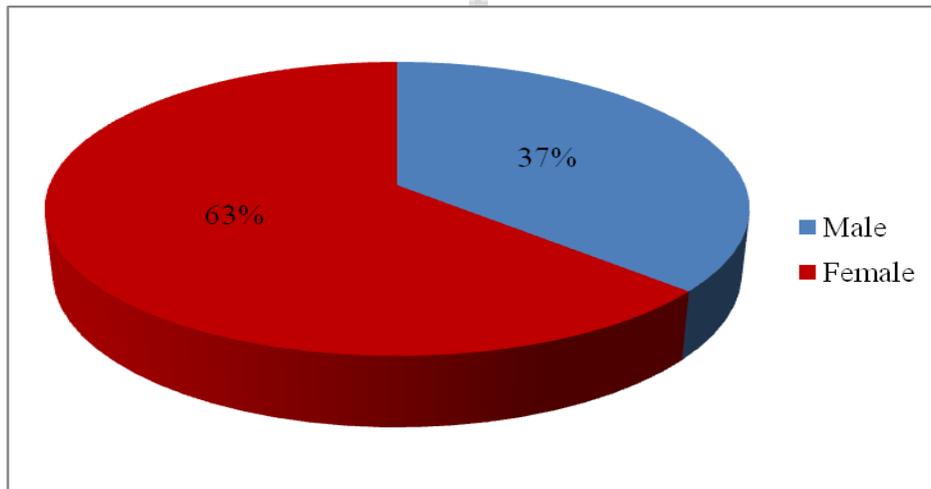


Figure 5: Gender distribution of Rheumatoid arthritis patients

Table 5 & Figure 5 shows that RA is commonly seen in female patients 33(63.46%)

Table 6: Gender distribution of Osteoarthritis patients

Gender	Number of Patients (n=165)	Percentage (%)
Male	74	44.84
Female	91	55.15

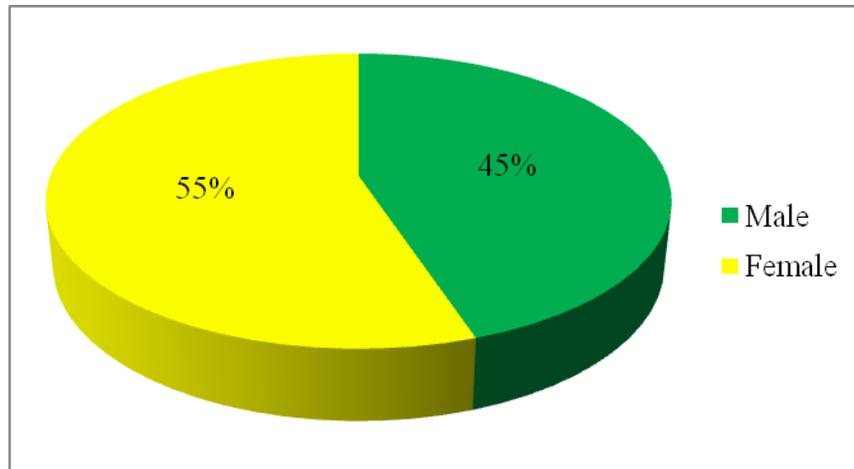


Figure 6: Gender distribution of Osteoarthritis patients

Table 6 & Figure 6 shows that OA is commonly seen in female patients 91(55.15%) than male patients.

Table 7: Disease wise distribution

Disease Condition	Number of Patients (n=217)	Percentage(%)
Rheumatoid arthritis	52	23.96
Osteoarthritis	165	76.03

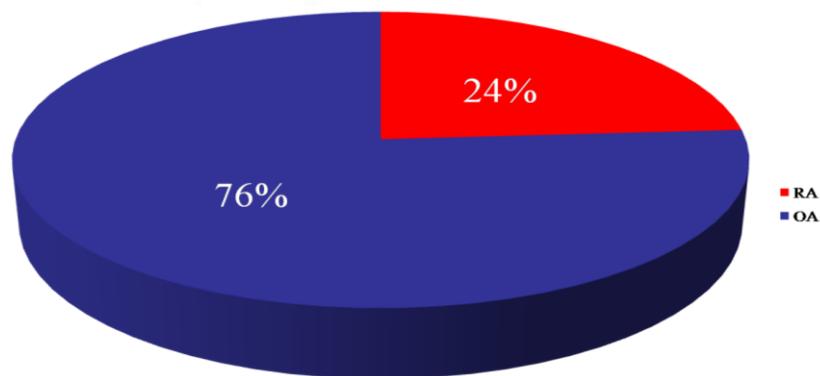


Figure 7: Disease wise distribution

Table 7 & Figure 7 shows that prevalence of OA 165 (76.03%) is more than Rheumatoid arthritis.

Table 8: Pattern of disease distribution in Osteoarthritis

Disease Condition	Number of Patients (n=165)	Percentage(%)
Osteoarthritis of knee	147	89.09
Osteoarthritis of Hip	08	4.48
Osteoarthritis of Hand	06	3.63
Others	04	2.42

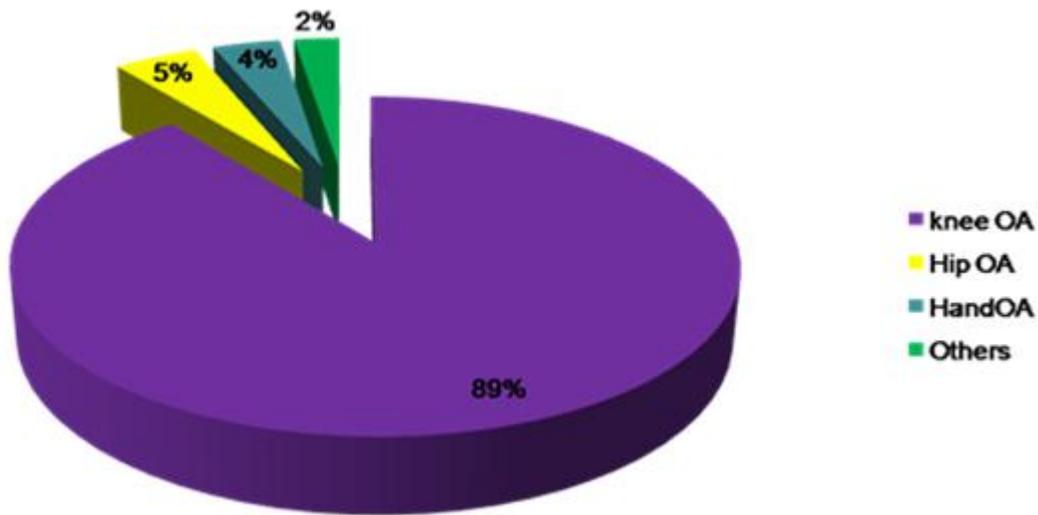


Figure 8: Pattern of disease distribution in Osteoarthritis

Table 8 & Figure 8 shows that maximum number of patients had osteoarthritis of knee 147(89.09%).

Table 9: Number of drugs per prescription wise distribution in Rheumatoid arthritis

Number of drugs	Number of prescriptions (n=52)	Percentage(%)
1	0	0
2	01	1.92
3	07	13.46
4	08	15.38
5	17	32.69
6	18	34.61
7	01	1.92

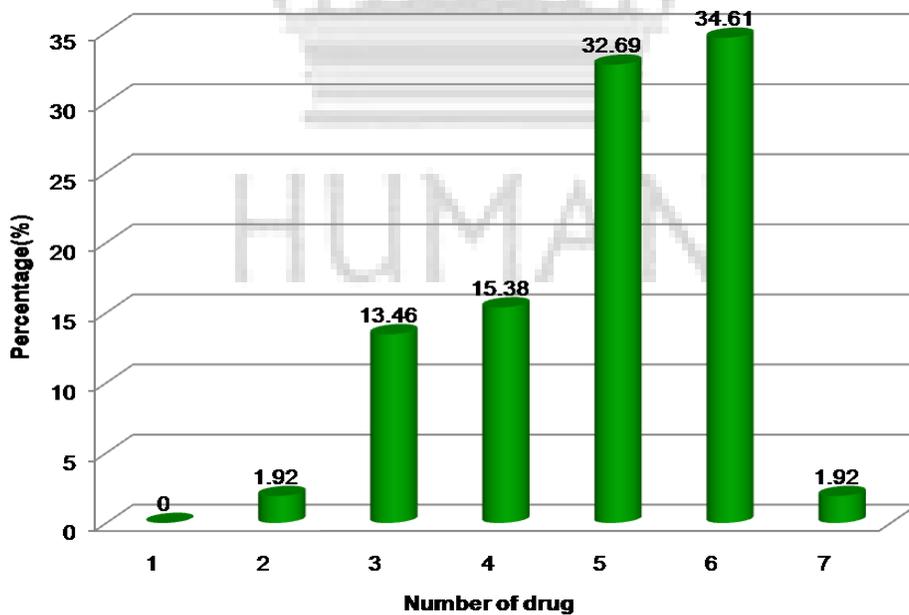


Figure 9: Number of drugs per prescription wise distribution in Rheumatoid arthritis

Table 9, Figure 9 shows the number of drugs per prescription. Maximum number of prescription contains about 6 drugs 18(34.61%)

Table 10: Number of drugs per prescription wise distribution in Osteoarthritis

Number of drugs	Number of prescriptions(n=165)	Percentage (%)
1	0	0
2	31	18.78
3	118	71.51
4	13	7.87
5	03	1.81
6	0	0
7	0	0

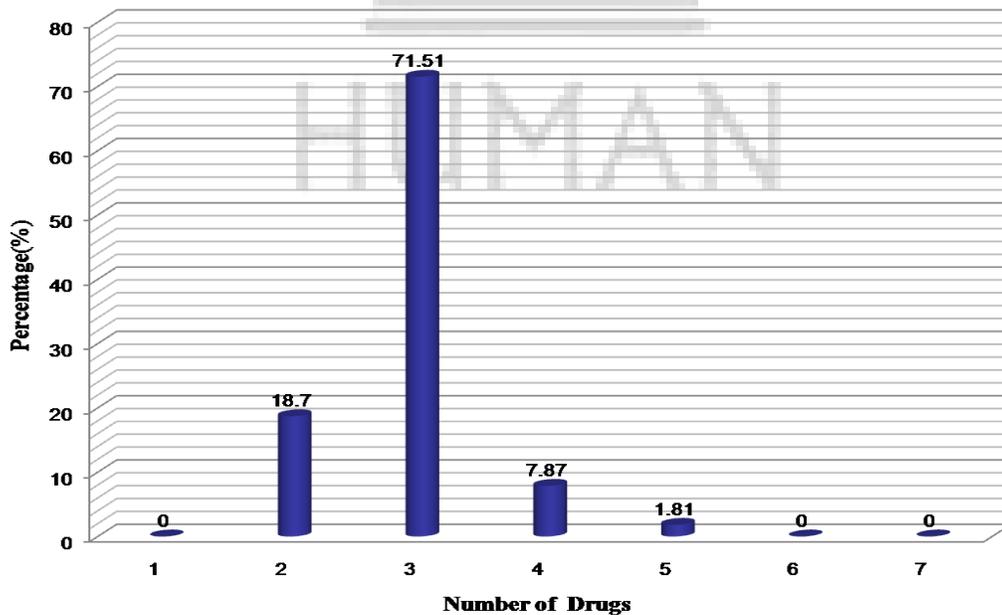


Figure 10: Number of drugs per prescription wise distribution in Osteoarthritis

Table 10 & Figure 10 shows that a maximum number of prescription contains about 3 drugs 118(71.51%).

Table 11: Distribution based on route of administration in Rheumatoid arthritis

Route	Number of prescriptions(n=61)	Percentage (%)
Oral	52	85.24
Topical	02	3.27
Injectable	07	11.47

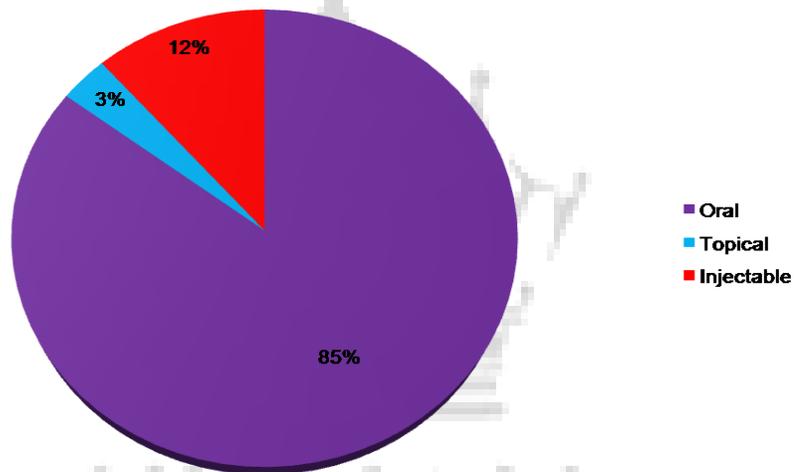


Figure 11: Distribution based on route of administration in rheumatoid arthritis

Table 11, Figure 11 shows that Oral route 52(85.24%) is the most a preferable route of administration in the management of rheumatoid arthritis followed by injectable 7(11.74%) and topical route 2(3.27).

Table 12: Distribution based on route of administration in Osteoarthritis

Route	Number of prescriptions (n=285)	Percentage (%)
Oral	163	57.19
Topical	107	37.54
Injectable	15	5.26

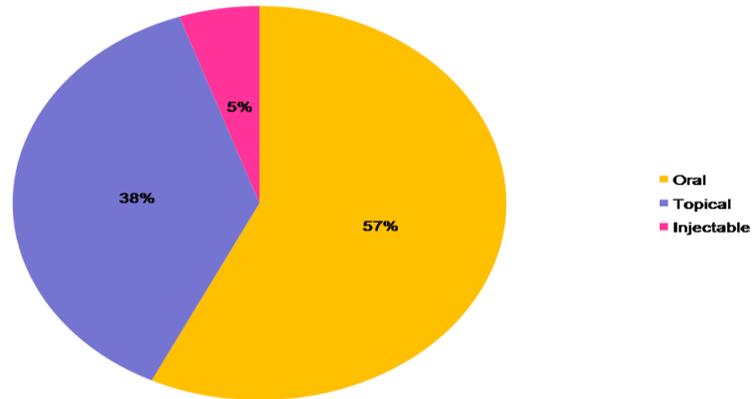


Figure 12: Distribution based on route of administration in Osteoarthritis

Table 12 & figure 12 shows that 163(57.19%) drugs were prescribed by an oral route followed by topical route 107(37.54%) and injectable 15(5.26%).

Table 13: Distribution based on class of drugs prescribed in Rheumatoid arthritis

Class of drugs	Number of drugs prescribed (n=181)	Percentage (%)
NSAID	25	14.97
Simple Analgesic	04	2.39
Corticosteroids	35	20.95
DMARDs	101	60.47
Opioid Analgesic	02	1.19

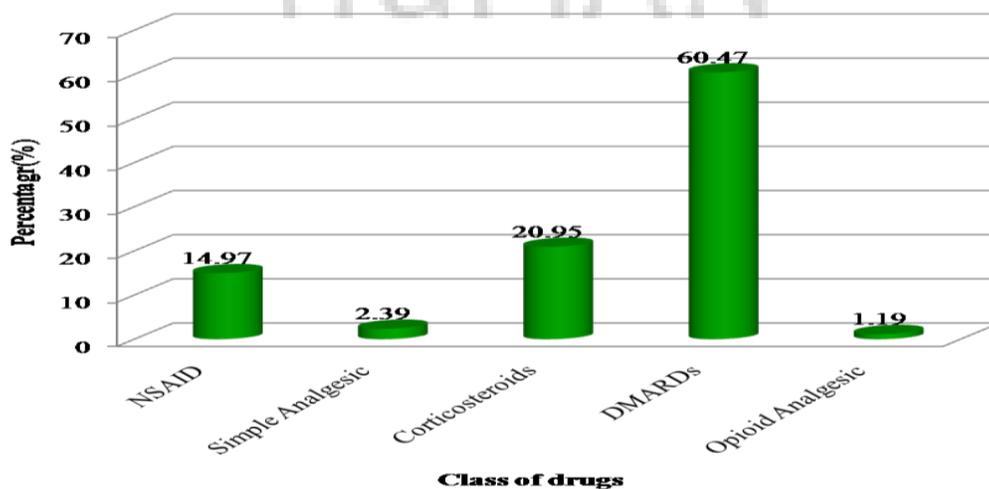


Figure 13: Distribution based on class of drugs prescribed in Rheumatoid arthritis

Table 13 & Figure 13 shows that DMARDs 101(60.47%) were the first choice of drugs prescribed in RA patients.

Table 14: Distribution based on class of drugs prescribed in Osteoarthritis

Class of drugs	Number of drugs prescribed (n=223)	Percentage (%)
NSAID	146	65.47
Simple Analgesic	11	4.93
Corticosteroids	04	1.79
Glucosamine	62	27.80

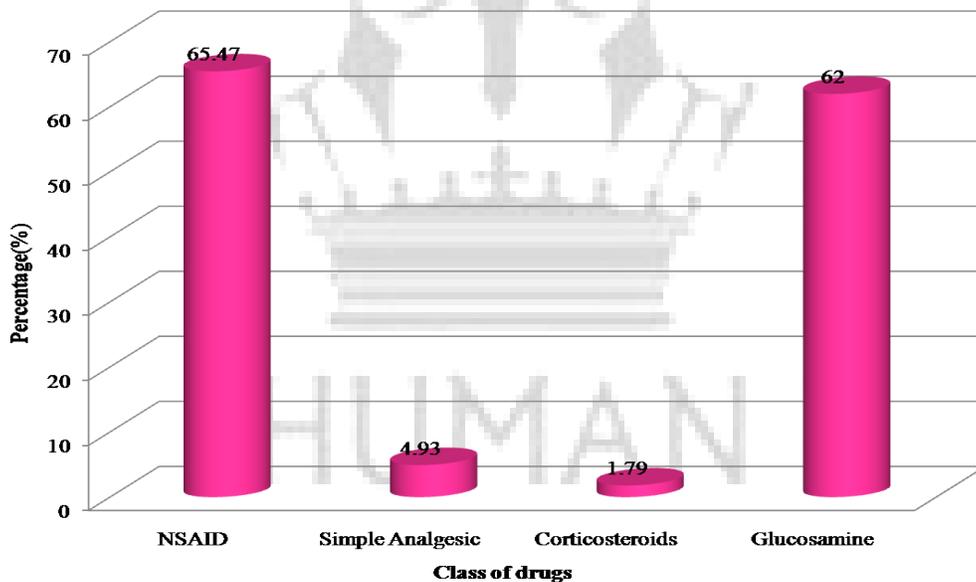


Figure 14: Distribution based on class of drugs prescribed in Osteoarthritis

Table 14 & Figure 14 shows that NSAIDs 146(65.47%) are the first choice of drugs used in the management of OA followed by Glucosamine 62(27.80%).

Table 15: Distribution based on drug prescribed in Rheumatoid arthritis single / combination dosage forms

Drug name	Number of prescriptions (n=181)	Percentage (%)
Hydroxychloroquine	49	27.07
Methotrexate	40	22.09
Tramadol	02	1.10
Diclofenac	14	7.73
Paracetamol	02	1.10
Prednisolone	06	3.31
Deflazacort	25	13.81
Sulfasalazine	11	6.07
Triamcinolone	04	2.20
Aceclofenac	09	4.97
Acetaminophen	02	1.10
Ibuprofen	01	0.55
Azathioprin	01	0.55
Aceclofenac+Paracetamol	06	3.31
Acetaminophen+Tramadol	05	2.76
Paracetamol+Tramadol	03	1.65

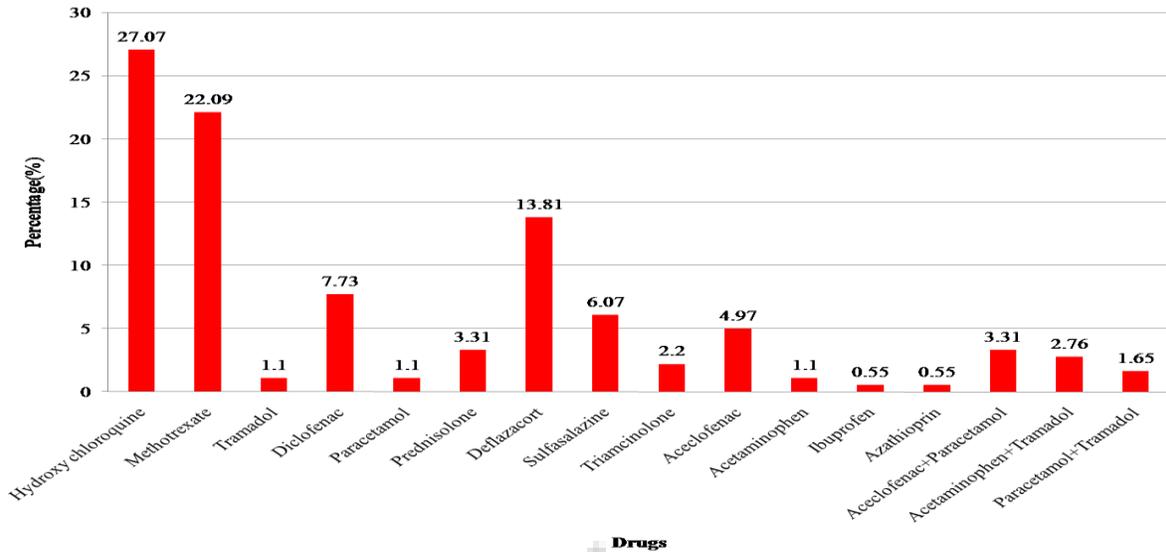


Figure 15: Distribution based on drug prescribed in Rheumatoid arthritis single/combination dosage forms

Table 15, Figure 15 shows that Hydroxychloroquine 49(27.07%) was the most commonly used drug in the management of RA, followed by Methotrexate 40(22.09%) and Deflazacort 25(13.81%).

Table 16: Distribution based on drug prescribed in Osteoarthritis single/combination dosage forms

Drug name	Number of prescriptions (n=289)	Percentage (%)
Diclofenac	139	48.09
Glucosamine	62	21.45
Aceclofenac	07	2.42
Paracetamol	11	3.80
Deflazacort	04	1.38
Acetaminophen	10	3.46
Acetaminophen+Tramadol	40	13.84
Paracetamol+Tramadol	10	1.38
Aceclofenac+Paracetamol	06	2.07

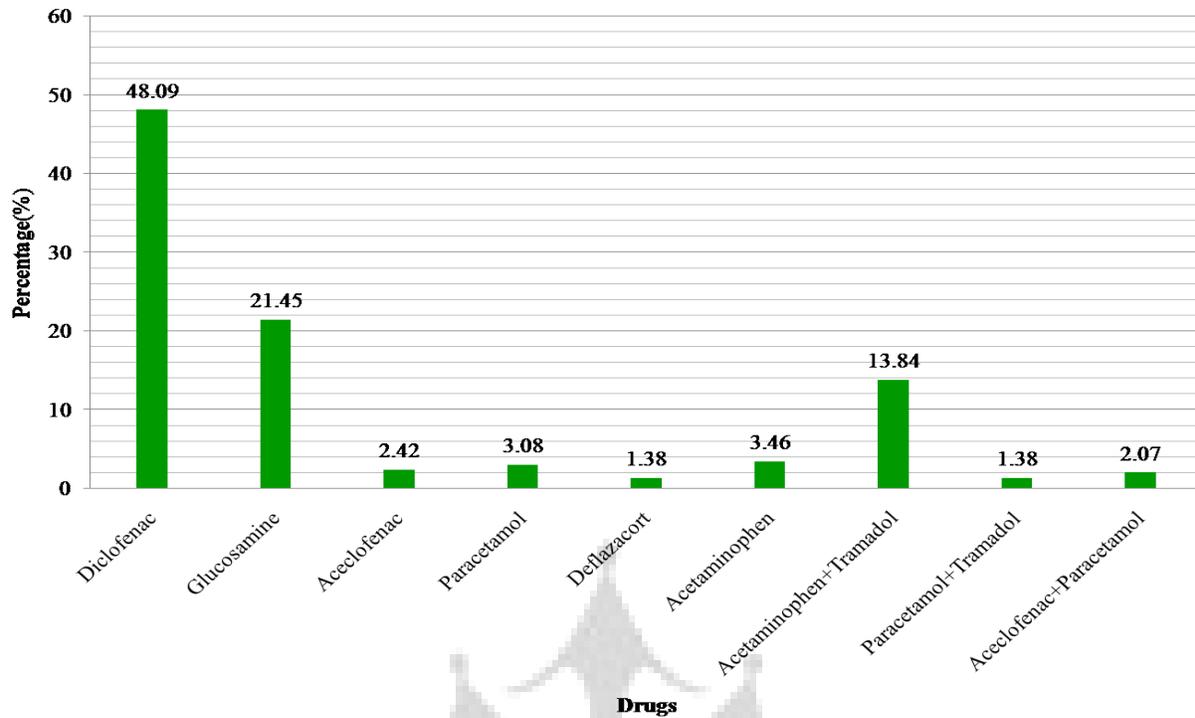


Figure 16: Distribution based on drug prescribed in Osteoarthritis single/ combination dosage forms

Table, Figure 16 shows that Diclofenac 139(48.09%) was the first choice of drug for the management of OA followed by Glucosamine 62(21.45%).

Table 17: Details of approach of management of Rheumatoid arthritis

Therapy	Number of Drugs prescribed (n=181)	Percentage (%)
Monotherapy	167	92.26
Combination therapy	13	7.18

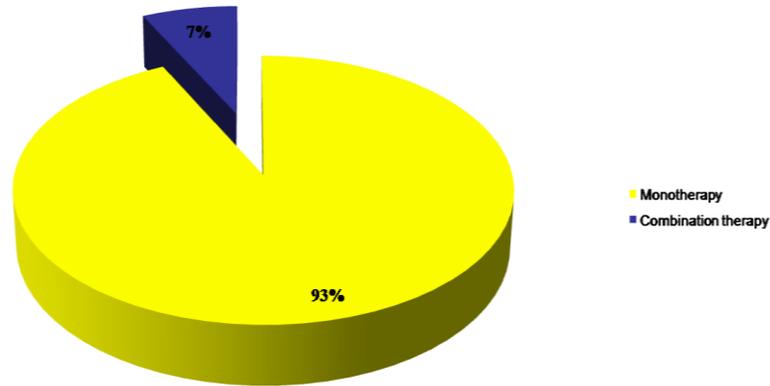


Figure 17: Details of approach of management of Rheumatoid arthritis

Table 17 & Figure 17 shows that more number of patients treated with monotherapy 167(92.26%).

Table 18: Details of approach of management of Osteoarthritis

Therapy	Number of Drugs prescribed (n=289)	Percentage (%)
Monotherapy	223	77.16
Combination therapy	66	22.83

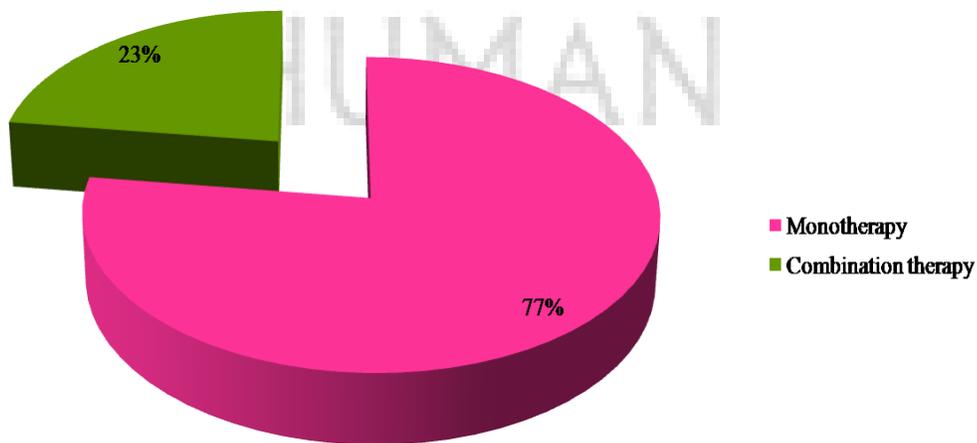


Figure 18: Details of approach of management of Osteoarthritis

Table 18 & Figure 18 shows that more number of OA patients treated with monotherapy 223(77.16%).

DISCUSSION

Age

Age distribution in OA was found to be more prevalent in the age group between 51-56 (44.84%) years as shown in fig.3 and age distribution in RA was found to be more in the age group of 36-50 years(42.30%).This study reveals that, both OA and RA were more prevalent in the age group of years 36-56 years which was found to be in accordance with the study conducted by Mohamed Ahmed (2012) and Sita Gurung (2016).

Gender

The study shows that RA was commonly seen in female patients 33(63.46%) than male patients 19(36.53%) which was in accordance with the conducted by Mohamed Ahmed et al (2012) and B. Premkumar (2013), also OA was more common in female 91(55.15%) patients than male patient 74(44.84%) which was in accordance with the study conducted by Purushottam jhanwar (2012). Hence, our study revealed that the gender distribution in OA and RA found to be more in females than in male.

Prevalence of Disease

The study shows that prevalence of OA 165 (76.03%) is more than RA 52(23.96%) which was in accordance with the conducted by Mohamed Ahmed et al (2012) and Sita Gurung (2016).

Pattern of Disease

The study shows that maximum number of patients had osteoarthritis of knee 147(89.09%) the results show the similarities with the study conducted by Mohamed Ahmed et al (2012) and Sita Gurung (2016). ,08(4.48%) had hip OA,06(3.63%) had hand OA and 04(2.42%) had other types of OA.

Number of drugs per prescription

The study shows that maximum number of prescription contains about 6 drugs 18(34.61%) in a case of RA and in OA maximum number of prescription contains about 3 drugs 118(71.51%).

Route of Administration

It was observed in the study that drugs were prescribed by oral route 52(85.24%) is the most preferable route of administration in the management of rheumatoid arthritis followed by injectable 7(11.74%) and topical route 2(3.27%) which was in accordance with the conducted by Sita Gurung (2016) and in case of OA that 163(57.19%) drugs were prescribed by oral route followed by topical route 107(37.54%) and injectable 15(5.26%). This was found to be in accordance by the study conducted by Mohamed Ahmed (2013).

Classes of Drugs prescribed

The results revealed that DMARDs 101(60.47%) were the first choice of drugs prescribed in RA patients and in OA NSAIDs 146(65.47%) are the first choice of drugs which was in accordance with the study conducted by Mohamed Ahmed (2012) and Sita Gurung(2016).

Drugs Prescribed

The study shows that Hydroxychloroquine 49(27.07%) was the most commonly used drug in the management of RA, which was found to be in accordance with the study conducted by S. R Gawde (2013) and Mohammed Ahmed (2013). and Diclofenac 139(48.09%) was the first choice of drug for the management of OA, which was found to be in accordance with Purushottam and Mohamed Ahmed (2012) and Sita Gurung(2016).

Approach of management of arthritis

The study reveals that more number of patients were treated with monotherapy 167(92.26%) in RA and 223(77.16%) in OA which was found to be in contrast with the study conducted by Mohammed Ahmed (2013) and Sita Gurung(2016).

CONCLUSION

The study was conducted to assess the current prescribing pattern in the management of Osteoarthritis and Rheumatoid arthritis. Age distribution in OA was found to be more prevalent in the age group between 51-56 (44.84%) and age distribution in RA was found to be more in the age group of 36-50 years (42.30%). This study reveals that, both OA and RA were more prevalent in the age group of years 36-56 years. Our study revealed that the gender distribution

in OA and RA found to be more in females 91(55.15%),33(63.46%), than in male 74(44.84%),19(36.53%).

The results revealed that DMARDs 101(60.47%) were the first choice of drugs prescribed in RA patients and in OA NSAIDs 146(65.47%) are the first choice of drugs .The study shows that Hydroxychloroquine 49(27.07%) was the most commonly used drug in the management of RA, and Diclofenac 139(48.09%) was the first choice of drug for the management of OA.

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