



A STUDY OF DRUGS BEING PRESCRIBED TO THE PATIENTS OF RHEUMATOID ARTHRITIS ATTENDING THE RHEUMATOLOGY OUTPATIENT DEPARTMENT IN A TERTIARY CARE TEACHING HOSPITAL: A PROSPECTIVE OBSERVATIONAL STUDY

Pharmacology

Dr Adit Deshmukh	Resident Doctor, Department of Pharmacology, B.J. Government Medical College and Sassoon General Hospital, Pune, Maharashtra, INDIA
Dr Sangeeta Dabhade*	Associate Professor, Department of Pharmacology, B.J. Government Medical College and Sassoon General Hospital, Pune, Maharashtra, INDIA *Corresponding Author
Dr Balasaheb Ghongane	Formerly, Professor and Head, Department of Pharmacology, B.J. Government Medical College and Sassoon General Hospital, Pune, Maharashtra, INDIA

ABSTRACT

INTRODUCTION - Drug utilization studies assess appropriateness of pharmacotherapy. Rheumatoid arthritis (RA) is an autoimmune disease, which, if untreated, may result in degradation of joints.

OBJECTIVE - To evaluate the prescribed drugs according to WHO drug use indicators.

METHODS - Data collected included Demographics, details of medications prescribed for RA and other co-morbidities.

RESULTS - Average no of drugs per prescription were 4.98 ± 1.21 . Methotrexate was prescribed to every patient. Percentage of patients prescribed Single DMARD, Two DMARDS and Three DMARDS were 10%, 48% and 42% respectively. 99.38% and 90.68% of the Drugs for RA were prescribed from NLEM 2015 and 20th WHO Model List of Essential Medicines (March 2017) respectively. 75.9% drugs were prescribed by Generic name.

CONCLUSION - The standard treatment guidelines for treatment of RA are followed. Drugs were mostly prescribed from the Essential drug lists. Majority of the drugs have been prescribed by generic names.

KEYWORDS

Rheumatoid arthritis, Drug utilization studies, DMARDS.

INTRODUCTION:

Drug utilization studies assess appropriateness of pharmacotherapy with important implications for clinical practice as they provide the clear picture of real world use pattern and allow identifying areas that need change and improvement. It also provides insight in to efficacy of drugs^[1]. Without the knowledge of how the drugs are being prescribed, it is difficult to suggest the measures to improve prescribing habits^[2].

Drug utilization research (DUR) was defined by the World Health Organization (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"^[3].

The increased interest in DUR has resulted from recognition of the virtual explosion in the marketing of new drugs, the wide variations in the patterns of drug prescribing and consumption, and the increasing concern about the cost of drugs^[4].

More studies to ascertain the clinical appropriateness of prescribing practices are needed^[1].

Rheumatoid arthritis (RA) is an autoimmune disease which is characterised by chronic inflammatory synovitis and joint erosion. It affects around 1% of the population worldwide. It can occur at any age. But the peak age of onset is more common in 4th - 5th decade. It is more common in females than in males and the female-to-male ratio is 3:1. The patients with rheumatoid arthritis suffer from significant disability, morbidity and mortality^[5].

RA, if uncontrolled may result in the degradation of the joints causing disability. It can also affect other organs in the body. Improvement of the therapeutic outcome can be achieved due to early therapeutic intervention^[6].

Disease modifying antirheumatic drugs (DMARDs) are the first line agents used in the treatment for patients with established rheumatoid arthritis. They may be classified into biologic and non-biologic or synthetic DMARDs. The non-biologic agents include drugs like methotrexate, chloroquine, hydroxychloroquine, azathioprine, cyclophosphamide, sulfasalazine, gold salts, cyclosporine, leflunomide, mycophenolate mofetil. Biologic DMARDs used in the treatment of rheumatoid arthritis include abatacept, rituximab, tocilizumab and TNF-alpha blocking agents^[5].

Although DMARDs gain increasing importance in the treatment of RA, there are still many patients who need Nonsteroidal Anti-inflammatory drugs (NSAIDs) medication to decrease the pain and inflammation of joints^[7]. But NSAIDs don't prevent the joint damage or the progression of disease activity. Glucocorticoids in rheumatoid arthritis will retard the disease progression and joint damage in addition to the anti-inflammatory effects^[8].

Keeping this in mind, the present study was designed to analyse the pattern of utilization of Drugs for RA (DMARDs, NSAIDs and Glucocorticoids) prescribed in the Rheumatology outpatient department of a tertiary care teaching hospital.

Aims -

1. To evaluate the utilization of drugs being prescribed for RA.
2. To compare the prescribed Drugs for RA with American College of Rheumatology Guideline for the treatment of Rheumatoid Arthritis 2015^[8].

Objectives-

1. To delineate the classes and types of drugs used in RA.
2. To evaluate the prescribed drugs according to WHO drug use indicators^[9]

MATERIALS AND METHODS-

This was a prospective, cross-sectional, observational study carried out in the patients visiting the Rheumatology Out-Patient Department (OPD) of a tertiary care teaching hospital. The study was conducted over 6 months.

Inclusion criteria -

1. Patients of either sex with age more than or equal to 18 years, attending Rheumatology OPD for existing RA disease^[10],
2. with disease duration more than 1 year,
3. receiving stable therapy for at least 3 months, and
4. willing to give informed consent were included.

Exclusion criteria-

1. Patients with acute or chronic medical condition requiring hospitalization,
2. Preexisting hepatic or renal dysfunction,
3. Pregnant and lactating mothers, and
4. those with Osteoarthritis, psoriatic arthritis were excluded

Data collection –

After obtaining permission from Institutional Ethics Committee (Ref no: ND-Dept 0217044-044), Medical case sheets and drug charts were recorded in a self-designed standardized proforma. Written informed consent was obtained from every study participant.

The collected data included the following elements:

1. Demographics
2. Medications prescribed with their Dosage form, Doses, Route and frequency of administration, and Duration of therapy
3. Any other co-prescribed medication with its dose, duration and frequency.

Detailed research plan:

The collected data was analysed for:-

1. Demographic variables
2. Average number of drugs per prescription (including other co-prescribed drugs): Mean ± SD (SD= Standard Deviation)
3. Average number of Drugs for RA per prescription : Mean ± SD
4. Percentage of prescriptions with an injection prescribed
5. Percentage of drugs prescribed from the National List of Essential Medicines (NLEM) 2015 ^[11]
6. Percentage of drugs prescribed from 20th WHO Model List of Essential Medicines (March 2017) ^[12]
7. Percentage of drugs prescribed by Generic name
8. DMARDs prescribed ^[8]

i) Single DMARD- Hydroxychloroquine
OR Methotrexate

ii) Two DMARDs
Methotrexate + Hydroxychloroquine
OR Sulfasalazine + Hydroxychloroquine
OR Methotrexate + Sulfasalazine

iii) Three DMARDs
Methotrexate + Hydroxychloroquine+ Sulfasalazine

RESULTS:

Total 50 patients gave consent to participate in the study. Out of these 50 participants, 11(22%) were Males and 39 (78%) were Females. Maximum number of study participants [34 (68%)] were belonging to the age group of 51–65 years.

Table 1: Prescription Analysis of study population

Prescribing Indicators	Results
Average number of drugs per prescription (including other co-prescribed drugs): Mean ± SD	4.98 ± 1.21
Average number of Drugs for RA per prescription : Mean ± SD	3.22 ± 0.99
Percentage of prescriptions with an injection prescribed	Zero
Percentage of drugs prescribed by Generic name	75.9 %
Percentage of drugs prescribed by brand name	24.1 %

81.37% of the drugs for RA were prescribed by Generic name while 18.63% of them were prescribed by Brand name. Whereas in case of other co-prescribed drugs, 65.91% medicines were prescribed by Generic name, and 34.09% medicines were prescribed by Brand name. Considering all the drugs together, 75.9% drugs were prescribed by Generic name, while 24.1% drugs were prescribed by Brand name (Table 1).

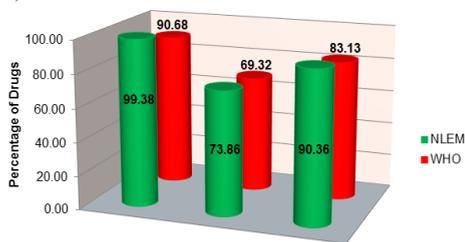


Figure 1: Percentage of drugs prescribed from NLEM and WHO list

Out of the drugs prescribed for RA, 99.38% drugs were prescribed from NLEM 2015, and 90.68% drugs were prescribed from WHO

Model List 2017. Whereas, in case of other co-prescribed drugs, 73.86% drugs were from NLEM 2015 and 69.32% drugs were from WHO model list 2017. Considering all the drugs together, 90.36% drugs were prescribed from NLEM 2015, while 83.13% drugs were from WHO model list 2017 (Figure 1).

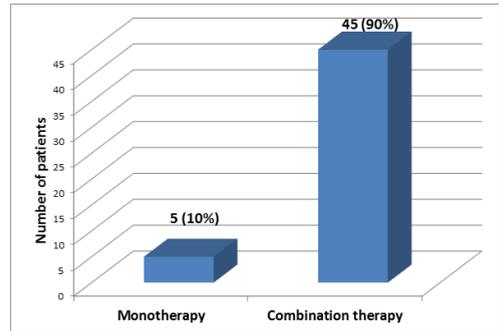


Figure 2: Number of patients receiving DMARDs Monotherapy and Combination therapy

Table 2: DMARDs prescribed to study population

Single DMARD	Number of patients	%
Hydroxychloroquine	Zero	Zero
Methotrexate	5	10
Two DMARDs		
Methotrexate + Hydroxychloroquine	20	40
Sulfasalazine + Hydroxychloroquine	Zero	Zero
Methotrexate + Sulfasalazine	4	8
Three DMARDs		
Methotrexate + Hydroxychloroquine+ Sulfasalazine	21	42

From Figure 2 and Table 2, it is evident that among the Disease modifying antirheumatic drugs (DMARDs) prescribed, Methotrexate as Monotherapy was given to 5 patients (10%), while none of the patients received Hydroxychloroquine as monotherapy. Combination DMARD therapy was given to 45 patients (90%). In this, Two-DMARD combination was used in 48% patients out of which 40% received Methotrexate + Hydroxychloroquine combination while 8% received Methotrexate + Sulfasalazine combination. Three-DMARD combination (Methotrexate + Hydroxychloroquine+ Sulfasalazine) was the most commonly prescribed combination (42%), while Sulfasalazine + Hydroxychloroquine combination was not prescribed to any patient.

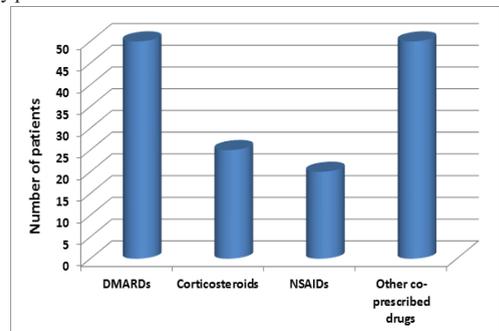


Figure 3: Classes of medications prescribed

Figure 3 shows that, out of Drugs for RA prescribed, DMARDs were prescribed to all 50 patients, followed by Corticosteroids given to 25 patients (50%), while Non-steroidal anti-inflammatory drugs (NSAIDs) were prescribed to 20 patients (40%). Prednisolone was the only corticosteroid prescribed to study participants. Among NSAIDs, Diclofenac was the most commonly prescribed drug (28% patients) and Paracetamol (10%) and Etoricoxib (2%) were other NSAIDs prescribed. All 50 patients received other co-prescribed drugs.

Figure 4 depicts that, out of the Drugs for RA, Methotrexate was prescribed to 100% patients, followed by Hydroxychloroquine (82% patients). Each of Sulfasalazine and Prednisolone was prescribed to 50% of the patients. Etoricoxib was the least commonly prescribed drug for RA (2% patients).

