ORIGINAL RESEARCH PAPER
Volume - 12 | Issue - 09 | September - 2023 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

A PROSPECTIVE OBSERVATIONAL STUDY ON DRUG UTILIZATION REVIEW OF DMARD'S IN TERTIARY CARE RHEUMATOLOGY CENTRE

Pharmaceutical Science

Shaziya Tahniyath Student, Department Of Pharmacy Practice, Vaagdevi Pharmacy College, Bollikunta, Warangal, Telangana. India.

Akula Darvika Student, Department Of Pharmacy Practice, Vaagdevi Pharmacy College, Bollikunta, Warangal, Telangana. India.

M. Sandeep Goud* Assistant Professor, Department Of Pharmacy Practice, Vaagdevi Pharmacy College, Bollikunta, Warangal, Telangana. India. *Corresponding Author

ABSTRACT

This study was conducted to determine the percentage evaluation of DMARDs and to evaluate the most pharmacoeconomic drug. This study was carried out in Dr NARESH ARTHRITIS & RHEUMATISM CENTRE, Hanamkonda for a period of 6 months. From our study we can conclude that percentage utilization of DMARDS was found to be (94.90%) which is considered to be higher among other categories of drugs. methotrexate is considered as an affordable drug among other DMARDs.

KEYWORDS

Drug utilization review, DMARDs, Rheumatoid arthritis, Methotrexate.

INTRODUCTION:

Drug Utilization Review:

Drug utilization review is an authorized, structured, ongoing review of prescribing, dispensing & use of medication. It ensures proper medication decision-making & positive outcomes. It is classified into 3 types:

Prospective
Retrospective
Concurrent

IMPORTANCE OF DUR:

It plays an essential role in helping the healthcare systems to improve prescribing, administration & use of medications. DUR results are used to encourage more efficient use of limited health care resources. It provides an opportunity for pharmacists to identify trends in prescribing medications. DURs are used as tools in health economics.

RHEUMATOLOGY DEPARTMENT:

Rheumatology is a field of medicine that deals with the diagnosis and treatment of rheumatic diseases.

Ex: Autoimmune diseases (Rheumatoid arthritis, Psoriatic arthritis, SLE) Autoinflammatory diseases (Behcet's disease, familial Mediterranean fever) Vasculitis

DISEASE MODIFYING ANTI-RHEUMATIC DRUGS (DMARDs) THERAPY:

Rheumatoid arthritis patients are prescribed with a group of medications known as DMARDs.

DMARDs act by suppressing the body's overactive immune system or the underlying inflammatory condition.

DMARDs are usually used in union with NSAIDs & CORTICOSTEROIDS to prevent further joint destruction

OPTING BETWEEN DMARDs:

The choice of DMARDs is considered depending on Stage and seriousness of patient's condition.
Balance between risk and benefit.
Economic status.

TYPES OF DMARDs:

DMARDs differ greatly in their production, cost, administration, and side effects.

TRADITIONAL/CONVENTIONAL DMARDs	
HYDROXYCHLOROQUINE (200-400mg/day)	METHOTREXATE (7.5-25mg/week)
LEFLUNOMIDE (10-20mg/day)	SULFASALAZINE (1-2g/day)
AZATHIOPRINE (25-200mg/day)	

TARGETED SYNTHETIC DMARDs		
BARICITINIB (4mg/day)	TOFACITINIB (5-10mg/day)	UPADACITINIB (15mg/day)

BIOLOGIC DMARD's	
ANTI-TNF BIOLOGICS	NON-TNF BIOLOGICS
ADALIMUMAB (160mg/day)	RITUXIMAB (100-400mg/hr)
ETANERCEPT (25-50mg/day)	TOCILIZUMAB (4-8mg/kg IV)
INFLIXIMAB (3mg/kg/week)	

RHEUMATOLOGICAL DISEASES:

RHEUMATOID ARTHRITIS:

Rheumatoid arthritis is an autoimmune disease when a person's immune system mistakenly attacks the normal proteins within the body. The resulting chronic inflammation primarily affects the synovium (the lining of the joints), leading to swelling, stiffness, pain & deformation of joints.

PSORIASIS:

Psoriasis is an auto-immune disease, causing inflammation in the body. It is a complication of psoriasis. The common signs such as plaques & scales on the skin are visible. It results in increased skin cell growth because of an overactive immune system.

GOUT:

Gout is an inflammatory disease in which monosodium urate crystals deposit into a joint, making it red, hot, tender, & swollen within hours. When it occurs, called as gouty attack.

OSTEOPOROSIS:

Osteoporosis is a result of the demineralization of bones leading to low bone mass, fragility of bones and porous bones thereby increases the risk of fractures. It can occur as a result of an imbalance between resorption & the bone formation rate.

OSTEOARTHRITIS:

Osteoarthritis is a medical syndrome characterized by arthralgia & dysfunction of articular cartilage due to joint degeneration. It occurs due to wearing down of protective cartilage cushioning the joints, which leads to structural issues in the joint.

FIBROMYALGIA:

Fibromyalgia is a condition that causes myalgia associated with tenderness, sleep issues, tiredness, & cognition impairment. It is not a life-threatening condition but affects the quality of life. The pain can be burning, aching, throbbing, tingling, stabbing, or numbing in onset.

SYSTEMIC LUPUS ERYTHEMATOSUS:

It is a chronic autoimmune disease involving multi-system inflammation. The disease has a relapsing and remitting course. It involves the production of autoantibodies against the body's immune system leading to the formation of the immune complexes which get deposited into the various areas of the body.

SJOGREN's syndrome:
It is an autoimmune rheumatic disorder affecting the salivary gland and lacrimal gland causing keratoconjunctivitis sicca(xeropthalmia), xerostomia, and arthritis.

MIXED TISSUE CONNECTIVE DISEASE:
It is a systemic autoimmune disorder that affects the connective tissue. It shows the overlapping symptoms of 3 diseases- systemic sclerosis, systemic lupus erythematosus, and polymyositis.

AIMS OF STUDY
The study is conducted to know the drug utilization pattern in different rheumatologic diseases.

To evaluate the DMARDs usage in different rheumatological diseases.

MATERIALS AND METHODS:
Study site: NARESH ARTHRITIS AND RHEUMATISM CENTRE in Warangal, Telangana, India.

Study Design: Prospective observational study.

Study Population: 432 patients.

Study Duration: - 6 months

Study Criteria:
Inclusion Criteria
1. Patients of either gender.
2. Patients with inflammatory conditions with co-morbidities.
3. All patients attending the rheumatology O.P

Exclusion Criteria
1. Patients who are not willing to participate in the study.
2. Pregnant women.

Study Procedure:
1. Subjects with rheumatological diseases were selected based on the inclusion & exclusion criteria. Patients of all age groups were considered for the study. Demographic details were collected from the patient's records. The diagnostic results & treatment were noted. The data was collected over a period of 6 months from 432 patients. The data was analyzed. The outlined data was entered in Microsoft office word. Patients were apportioned based on age.

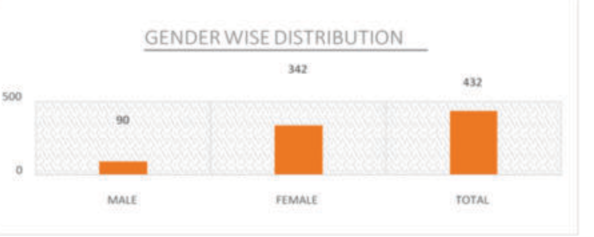


Fig-1: Gender-wise Distribution Of Patients

Among the total sample size of 432 patients, 90 (20.8%) were found to be male and 342 (79.1%) were female

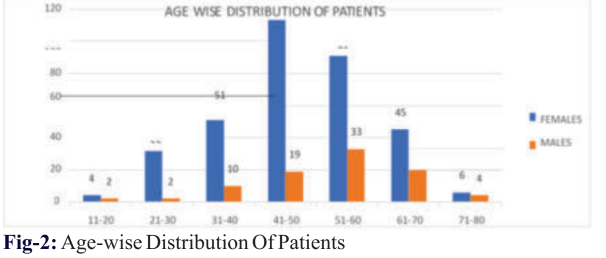


Fig-2: Age-wise Distribution Of Patients
Among all the age groups, the 41-50 age group of females were found to be highly affected followed the by 51-60 age group of males.

Table-1:- Distribution Of Rheumatologic Diseases

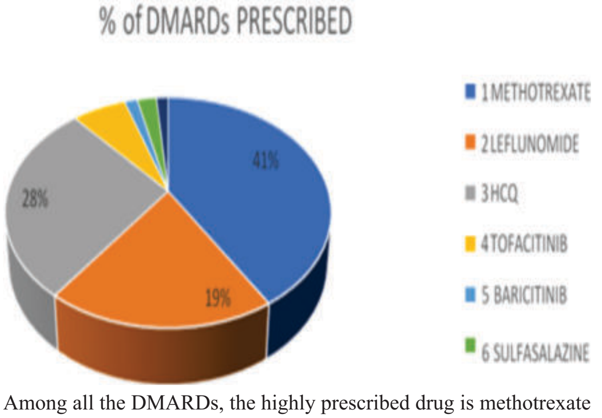
S. No	Diseases	No. Of Persons
1	RHEUMATOID ARTHRITIS	346
2	DERMATOMYOSITIS	1
3	FIBROMYALGIA	12
4	GOUT	12
5	OSTEOPOROSIS	1
6	PSORIASIS	11
7	SJOGRENS SYNDROME	5
8	SSA	3
9	SLE	28
10	VASCULITIS	1
11	OSTEOARTHRITIS	7
12	MCTD	3
13	SCLERODERMA	2

Among all the rheumatologic diseases, the subjects with RA 346(80%) were found to be high followed by SLE 28(6.48%).

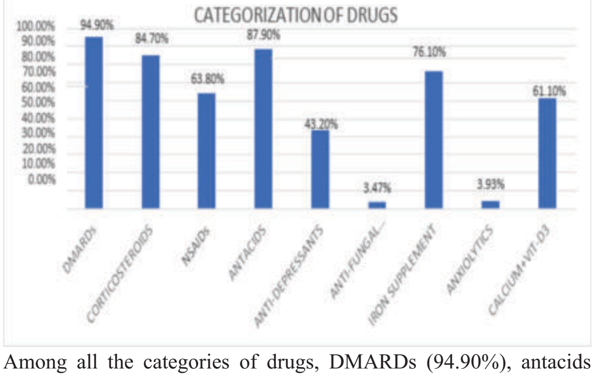
RESULTS
Table-2:- Age-wise Segregation Of Patients

AGE	RA	OA	OSP	PSORIA SIS	SLE	FM	SS	GOU T	MCT D	DM	VAS CULI TIS	SSA	SD
11-20	2	-	-	4	3	-	-	-	-	-	-	-	-
21-30	15	-	-	-	14	-	-	1	2	-	-	2	-
31-40	48	-	-	2	7	2	-	1	-	-	-	-	1
41-50	110	1	1	3	3	4	3	4	1	-	-	1	1
51-60	105	3	-	1	1	6	2	5	-	-	1	-	-
61-70	56	3	-	4	-	-	-	1	-	1	-	-	-
71-80	10	-	-	-	-	-	-	-	-	-	-	-	-

Among all the age groups of subjects, the 41-50 age group is highly affected by RA followed by the 51-60 age group.



Among all the DMARDs, the highly prescribed drug is methotrexate (41%) followed by HCQ (28%), Leflunomide (19%) respectively.
Fig-3: Types Of Dmards Prescribed

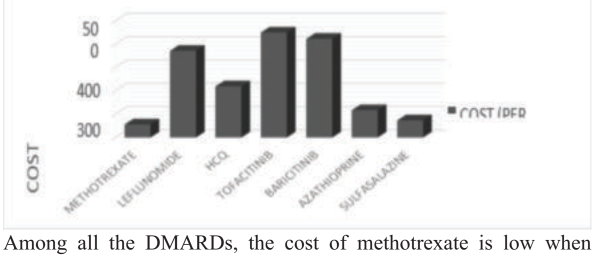


Among all the categories of drugs, DMARDs (94.90%), antacids (87.90%) corticosteroids (84.70%), iron supplements (76.10%) are mostly used in all diseases.
Fig-4: Categorization Of Drugs Used In Different Diseases

Table-3:- Percentage Utilization Of DMARDs

DISEASE	MEXAT E	LEFRA	HCQ	TFCT- NIB	BARICI TINIB	AZATH IO PRINE	SULFA SALAZI NE	ANT I GOUT	XO INHIBIT OR
RA	83.52%	41.6%	54.6 %	12.7%	3.46%	1.1%	3.70%	-	-
FM	16%	8.3%	8.3%	-	-	-	-	-	-
GOUT	-	-	-	-	-	-	-	100%	100%
PSORIASIS	100%	-	-	41.6%	-	-	-	-	--
SLE	46.4%	3.50%	53.50 %	-	-	17.85%	7.14%	-	-
VASCULITIS	-	-	100%	-	-	-	-	-	-
OA	42%	42%	85%	-	-	-	-	-	-
OSP	100%	-	100%	-	-	-	-	-	-
MCTD	-	-	100%	-	-	33.33%	-	-	-
SS	20%	20%	80%	-	-	20%	-	-	-
SD	50%	-	50%	-	-	-	-	-	-
DM	100%	-	-	-	-	-	-	-	-
SSA	33.33%	--	-	33.33%	-	-	100%	-	-

DMARDs are almost prescribed in all the above diseases except GOUT



Among all the DMARDs, the cost of methotrexate is low when compared to other drugs.

Fig-5: Cost Of DMARDS

DISCUSSION

In this study, a total of 432 subjects were recruited with different rheumatological diseases. Among them 346(80%) RA, 28(6.48%) SLE, 12(2.7%) fibromyalgia, 12(2.7%) Gout, 11(2.54%) Psoriasis, 7(1.6%) Osteoarthritis, 5(1.1%) Sjogren Syndrome, 3(0.69%) SSA, 3(0.69%), 3(0.69%) MCTD, 2(0.46%) Scleroderma, 1(0.23%) Dermatomyositis, 1(0.23%) vasculitis, 1(0.23%) Osteoporosis subjects were found.

The categories of drugs used in the treatment of different rheumatological diseases were Immunosuppressants (94.90%), NSAIDs (63.80%), Corticosteroids (84.70%), Antacids (87.90%), Anti-depressants (43.20%), Anti-fungal agents (3.47%), Anti- gout agents (100%), Anxiolytics (3.93%), Iron supplements (76.10%) & Calcium+Vit-D3 (61.10%).

As many of the subjects were belonging to the lower socio-economic classes, they can't afford DMARDs of higher cost thereby most of the patients were losing their follow up. In this study it has found that the cost of methotrexate can be affordable when compared to other DMARDs. In order to minimize the cost burden on patients it is advisable to prefer generic drugs.

CONCLUSION:

Our study has shown that the usage of DMARDs is higher in RA (79.86%) & SLE (6.25%), followed by psoriasis (2.54%), osteoarthritis (1.38%), Sjogren syndrome (1.15%), fibromyalgia (0.92%), MCTD (0.69%), Scleroderma (0.46%), Vasculitis (0.29%), Osteoporosis (0.23%), Dermatomyositis (0.23%) respectively. The cost of methotrexate is lower when compared to other DMARDs. As many of the subjects were belonging to a low socio-economic class, it is easier to afford the price of methotrexate.

Acknowledgements:

The authors thank Dr. M. Sandeep Goud and guidance from all teaching staff, our parents, classmates and friends. We thank Dr. A. Naresh for allowing us to use their hospital facilities.

Conflict Of Interest:

None of the researchers have any conflict of interest including finance.

REFERENCES:

1. Xue Mei Jin, Joongyub Lee, Nam-Kyong Choi, Jong-Mi Seong, Ju-Young Shin, Mi-Sook Kim, Bo Ram Yang, Byung-Joo Park UTILIZATION PATTERNS OF DISEASE-MODIFYING ANTIRHEUMATIC DRUGS IN ELDERLY RHEUMATOID ARTHRITIS PATIENTS FROM JANUARY 1,2005 TO JUNE 30, 2006
2. C.G. Grijalva, C.P. Chung, C.M. Stein, E.F. Mitchel, Jr, M.R.Griffin CHANGING PATTERNS OF MEDICATION USE IN PATIENTS WITH RHEUMATOID ARTHRITIS IN A MEDICAID POPULATION.
3. S.R. Gawde, Y.C Shetty, S Merchant, U.J.Kulkarni and M.Y.Nadkar DRUG UTILIZATION PATTERN AND COST ANALYSIS IN RHEUMATOID ARTHRITIS PATIENTS-A CROSS SECTIONAL STUDY IN TERTIARY CARE HOSPITAL, MUMBAI.
4. Kateeja Mehaneesha, Rishab P, Shetty Shradha Seetharam, Lawrence Mathias, Sharad Chand Treesa P Varghese, Nandakumar UP, Anjaly Vijayan RETROSPECTIVE STUDY ON DRUG UTILIZATION PATTERN IN MANAGEMENT OF RHEUMATOID ARTHRITIS FROM SEPTEMBER 2018-MARCH 2019.
5. Lydumila Sizova APPROACHES TO THE TREATMENT OF EARLY RHEUMATOID ARTHRITIS WITH DISEASE-MODIFYING ANTIRHEUMATIC DRUGS.
6. So-Hee Park, Ha-Lim Jeon, Seoyoung C.Kim, Jodie Hillen, Svetla Gadzhanova, Ju-Young Shin, and Nicole Pratt UTILIZATION OF TARGETED DISEASE-MODIFYING ANTI- RHEUMATIC DRUGS (DMARDs) FOR MANAGING RHEUMATOID ARTHRITIS IN THE LAST DECADE: A TWO-COUNTRY COMPARISON.