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RESEARCH ARTICLE

Evaluation of drug use pattern and quality of life in patients suffering from rheumatoid arthritis – A cross-sectional study at a tertiary care teaching hospital

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ABSTRACT

Background: Rheumatoid arthritis (RA) is the most common autoimmune arthritis and it affects 1% of the adult population in India. It is an inflammatory disease which leads to bilateral joint pain and swelling. The swelling destroys joints and results in permanent deformities like ankylosis. **Aims and Objectives:** The objectives of this study were to study and evaluate the prescribing pattern in patients suffering from RA and to evaluate the quality of life (QoL) in RA patients. **Materials and Methods:** After getting permission from the Indian Council of Medical Research and Institutional Review Board, the study was started. Informed consent form of individual patient was obtained. All the patients of either sex attending rheumatology department and diagnosed with RA and receiving antirheumatoid drugs for 1 month were matriculate in the study and patients suffering along with osteoarthritis, and the newly diagnosed patient was excluded from the study. **Results:** A total of 50 patients were enrolled for the study which shows middle-aged people suffered more with female dominance and mostly used drug being methotrexate and hydroxychloroquine. RAQoL average being 17 which showed impaired QoL. Prescribing pattern in RA relied more on disease-modifying antirheumatoid agents. **Conclusion:** Commonly used drugs were disease-modifying antirheumatoid agents. It was found that the majority of the cost is borne by the patient as there are few drugs available at the hospital pharmacy which can be given free. Polypharmacy was common, being the cost burden to the patients.

KEY WORDS: Disease-modifying Antirheumatoid Drugs; Quality of Life; Rheumatoid Arthritis

INTRODUCTION

Rheumatoid arthritis (RA) is a symmetric inflammation of the joint due to autoimmune etiology. Untreated, the disease can result in variety of sequelae including fibrosis, ankylosis, and damage to internal organs, which can lead to further loss of function. RA patients had a loss of productivity within a span of 3 years after diagnosis, if they remain untreated.[1,2] Persistent pain and loss of function are the most deleterious effect of the disease.

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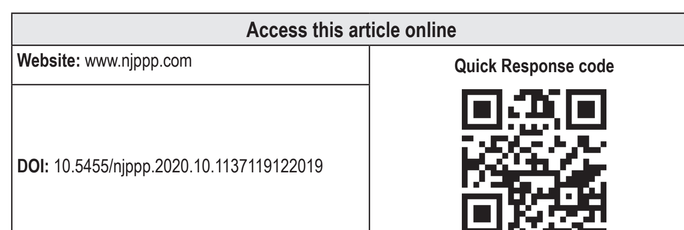

The World Health Organization defines the impact of the disease in terms of impairment, disability, and handicap. RA is a chronic disease that affects the mobility of the patient and thereby affects the quality of life (QoL).

There are many drugs available that can decrease the flaring up of the disease and control the progression of the disease. The treatment of RA is divided into agents that provide

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symptomatic relief, disease-modifying antirheumatoid drugs (DMARDs), and newer agents such as biological response modifiers. The main goal of the treatment is to improve the QoL and reducing disability. The correlation of the drug use pattern and the QoL is an unexplored field, so we decided to undertake the study with some objectives listed below.

Objectives

The objectives of this study were as follows:
- To evaluate the prescribing pattern in patients suffering from RA
- To evaluate the QoL in RA patients.

MATERIALS AND METHODS

All the patients attending rheumatology department and diagnosed with RA and receiving antirheumatoid drugs for 1 month would be enrolled in the study in accordance to our inclusion and exclusion criteria after obtaining approval from the Institutional Ethics Committee, Indian Council of Medical Research, and Hospital Superintendent; also, a written informed consent of the patient was taken after explaining the aim of the study.

Inclusion Criteria

The following criteria were included in the study:
- Patients attending the rheumatology department of medicine outpatient department (OPD) at a tertiary care teaching hospital who are fulfilling American College of Rheumatology-2010 criteria and receiving antirheumatoid drugs for 1 month[3]
- Either gender
- Patients willing to give written informed consent.

Exclusion Criteria

The following criteria were excluded from the study:
- Patients suffering from osteoarthritis
- Newly diagnosed RA patient.

Demographic data such as name, age, sex, address, and socioeconomic class would be recorded on the case record form. Thereafter, clinical diagnosis, history of present illness, history, and family history would be noted. The prescription prescribed to the RA patient including the medicine prescribed, its dose, its frequency, and its duration of the treatment would be noted on the case record form.

The RAQoL consists of 30 items; respondents are required to indicate whether or not each of the items applies to them. Final scores range from 0 to 30, with a higher score representing poor QoL. The RAQoL is an easy instrument, takes only 4–5 min to complete, so it is used in both clinical setup and in clinical trials.[4]

RESULTS

A total number of 50 patients were enrolled with a mean age of 45.94 ± 12.42 years. The most common age group in the study was 31–40 and 51–60 [Table 1]. In our study, there were 46 females and 4 males. There was a female dominance. The male-to-female ratio was 1:11.5. Joint pain was the most common complaint followed by swelling [Figure 1]. Ten patients suffered from hypertension (HTN) while six of them suffered from thyroid disorders and four patients suffered from diabetes mellitus (DM). Mean body weight in our patient was 54.46 ± 15.46 kg.

The mean drug prescribed per patient was 4.96. The total number of drugs prescribed was 253. Percentage of drugs prescribed by generic name 138 (54.54%). Percentage of drugs prescribed by brand name 115 (45.45%). The percentage of drugs actually dispensed from the hospital pharmacy 43 (16.99%). The type of drugs and combinations are described in Table 2 and Figure 2.

Mean score was 17.80 ± 7.071. The age has a negative correlation with RAQoL r = −0.17, P = 0.908. The total number of drugs has a negative correlation with RAQoL r = −0.167, P = 0.247 [Table 3]. Cronbach's alpha value of RAQoL in our study was 0.904.

DISCUSSION

Our study was aimed to identify the drug used pattern in Indian rheumatoid patients with focus on QoL. QoL in Indian

Table 1: Age distribution pattern (n=50)

Age (years)	Frequency
1–10	0
11–20	0
21–30	7
31–40	13
41–50	11
51–60	13
61–70	6

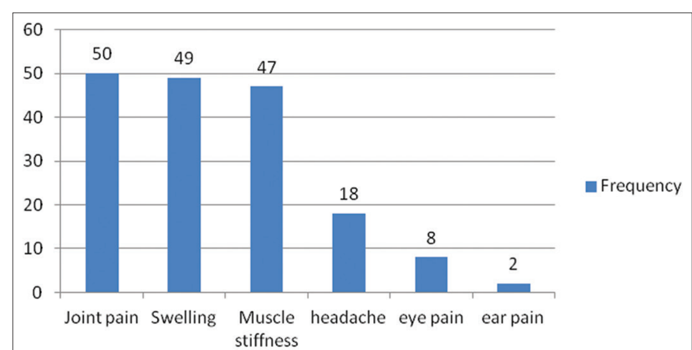

Figure 1: Chief complaints (n = 50)

patients was also correlated with the drug use pattern. In our study conducted at a tertiary care teaching hospital, we recruited a total of 50 patients a similar Indian study done by Gawde and Shetty recruited 100 patients, the difference in the number of recruitments might be our being a small duration-based study.[5]

The most common age group in our study was 31–40 and 51–60 years. The mean age in our study was around 46 years, which was in accordance with the early study done by Gawde *et al*. which reported 42 years.[5]

In our study, there were 46 females and 4 males. There was a female preponderance. The male-to-female ratio was 1:11.5. The ratio was also similar to the study done by Gawde *et al*. which reported 87 females out of 100 patients since RA is an autoimmune condition that has a very high incidence rate in females.[5] In our study, joint pain, joint swelling, and muscle stiffness were most commonly seen. In our study, 20 patients had comorbid conditions such as DM, HTN, and thyroid disorder.

Table 2: Combinations of DMARDs prescribed

Combination	*n*
Single DMARD	
Methotrexate	1
Two DMARDs	
Methotrexate+hydroxychloroquine	43
Azathioprine+hydroxychloroquine	1
Methotrexate+leflunomide	1
Hydroxychloroquine+leflunomide	1
Three DMARDs	
Methotrexate+hydroxychloroquine+sulfasalazine	2
Methotrexate+hydroxychloroquine+leflunomide	1

DMARDs: Disease-modifying antirheumatoid drugs

About 98% of patients received more than one DMARD in our study compared to another study by Gawde and Shetty which reported 67%. The most frequently prescribed DMARDs combination was methotrexate and hydroxychloroquine (HCQ) (86%) which was in accordance with the previous study which reported 64%.[5] In our study, 62% of the patients received nonsteroidal anti-inflammatory drugs (NSAIDs), of which the most common was paracetamol (26%); in our study, clinicians used NSAIDs less as compared to the previous study which reported 33.5%.[5]

The most commonly prescribed glucocorticoid was prednisolone in our study (9, 18%). In our study, clinicians

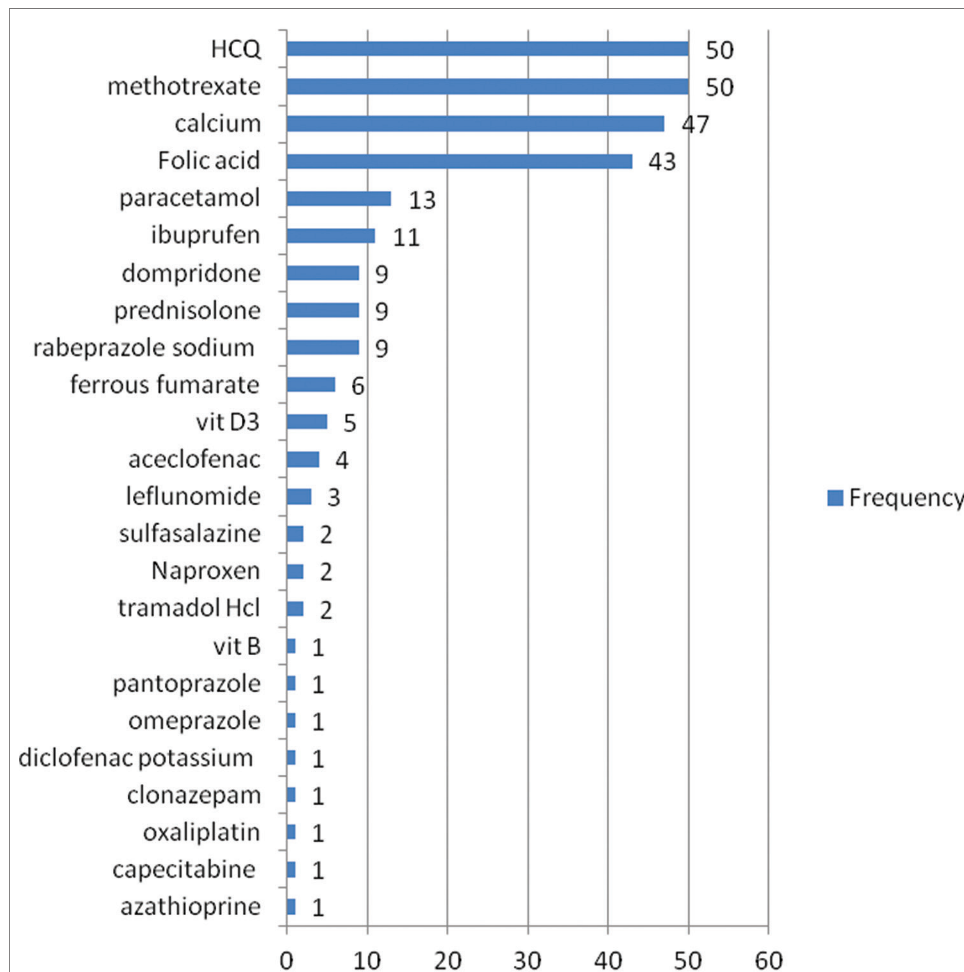

Figure 2: Drugs used (*n* = 50)

Table 3: Questionnaire of rheumatoid arthritis quality of life (*n*=50)

Questions	Yes (%)	No (%)
I have to go to bed earlier than I would like to	56	44
I am afraid of people touching me	30	70
It is difficult to find comfortable shoes that I like	40	60
I avoid crowds because of my condition	56	44
I have difficulty in dressing	56	44
I find it difficult to walk to the shops	70	30
Jobs about the house take me a long time	84	16
I sometimes have problems using the toilet	66	34
I often get frustrated	84	16
I have to keep stopping what I am doing to rest	70	30
I have difficulty using a knife and fork	62	38
I find it hard to concentrate	58	42
Sometimes I just want to be left alone	44	56
I find it difficult to walk very far	74	26
I try to avoid shaking hands with people	54	46
I often get depressed	72	285
I am unable to join in activities with my family or friends	60	40
I have problems taking a bath/shower	62	38
I sometimes have a good cry because of my condition	60	40
My condition limits the places I can go	72	28
I feel tired whatever I do	80	20
I feel dependent on others	66	34
My condition is always on my mind	66	34
I often get angry with myself	74	26
It is too much effort to go out and see people	56	44
I sleep badly at night	62	38
I find it difficult to take care of the people I am close to	62	38
I feel that I am unable to control my condition	50	50
I avoid physical contact	30	70
I am limited in the clothes I can wear	60	40

used prednisolone more as compared to the previous study which reported 11%.

Along with anti-inflammatory agents, the most commonly prescribed antisecretory agent was rabeprazole 9 (18%), pantoprazole and omeprazole were given in 1 (2%), respectively. Ninety-four patients received calcium which was higher than the previous study.[5]

Among the drugs listed in the WHOs list of essential drugs for RA and scheduled in hospital formulary, methotrexate, folic acid, and calcium were available in hospital pharmacy rest, which were not available. No biologics were used in our study as compared to other studies. Methotrexate and HCQs were mostly given in doses of 15 mg/week tablet or injection and 200 mg tablet, respectively. Azathioprine was given in a dose of 50 mg; prednisolone was given in the dose of 5 mg. Leflunomide was given in the dose of 10 mg. There was a paucity of the studies for the disease of RA. A meta-analysis study demonstrated DMARD use, ranging from 30% to 63%.[6]

Another study done by Vibeke Strand, Strand *et al*. assessed the efficacy of leflunomide or methotrexate compared with placebo in disease progression and health-related QoL using Short Form-36, the reported statistically significant improvements in function and health-related QoL.[7]

Another Indian study revealed around 70% of patients in the study population were on a combination of two DMARDs, and methotrexate and HCQ were the most frequently prescribed.[8]

In another RADIUS, most of the patients started with methotrexate monotherapy followed by a combination of methotrexate and infliximab. In RADIUS 2, most patients were on methotrexate and etanercept patients with long-standing severe disease received a biologic agent.[9] Another research study reported that the NSAID group was the most commonly prescribed medication followed by the use of DMARD and corticosteroids.[10] Another researcher reported that methotrexate was the most commonly used DMARD. During the study period, the overall utilization of glucocorticoids decreased, whereas the use of DMARDs, biologics, NSAID, and opioids utilization was on rise ($P < 0.001$).[11] Another study reported that the role of biologic therapies in the treatment of RA patients has futile rise.[12]

Drug Prescribing Indicators

The mean drug prescribed per patient was 4.96, which is less than the previous study (6.17 ± 1.01); the percentage of drugs prescribed by generic name 138 (54.54%), which is more than the previous study (35%). Percentage of drugs prescribed by brand name 115 (45.45%), which is less than the previous study (49.55%).[5] The total number of drugs prescribed was 253. In our study, the normal trend was polypharmacy; all patients received more than 3 drugs, which were in accordance with the previous studies.[5-8]

RAQoL

The majority (80–90%) of the people felt difficulty in household work, they often get frustrated and tired. Furthermore, 70–80% of the patients have difficulty in walking, they required to rest, they felt depressed and angry, and the disease limits the places to wander.

Many of the patients (60–70%) have difficulty in crowded places, to dress, to use the bathroom and toilet, knife, and

fork. They feel lonely, dependent and they do not have a good amount of sleep. More than half of the patients had difficulty in concentration and shaking and meeting people. A lesser amount of people had difficulty to find their shoes and felt pain when someone touches them. Internal consistency was also found to be excellent with Cronbach's 0.92–0.94 in the previous studies, as compared to our study (0.904).[13]

Limitations

This study has several limitations. First, a cross-sectional design, and second, small size with a few number of patients were included in the study. Furthermore, it is a short-term study of 2 months. No cost analysis was carried out. The patients were recruited as they appeared in the OPD to avoid any disruption of the standard clinical practice program planned by the department. In addition, the researchers were involved in both, in recruiting and in the assessment. The questionnaire was administered by the researcher, not filled up by the patient himself, so there may be chances of bias in the study. QoL was not correlated with the severity of the disease.

Positive Aspects of the Study

The entire drug use pattern of patients was recorded. The questionnaire was administered in patients who had completed more than 3 months of therapy.

CONCLUSION

The drug use pattern in RA relied more on disease-modifying antirheumatoid agents and it was found that the majority of the cost is beard by the patient as there are few drugs available at the hospital pharmacy which can be given free. The most common drug was methotrexate followed by HCQ. Polypharmacy was common, being the cost burden to the patients. RAQoL questionnaire had an average score of 17, which states a poor QoL.

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