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Original Research Article

Sociodemographic and drug prescription pattern in patients with rheumatoid arthritis in a tertiary care teaching hospital

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ABSTRACT

Background: Rheumatoid arthritis (RA) is a chronic systemic autoimmune inflammatory disease that affects mainly the small joints of the hands and feet. RA is widely prevalent throughout the world.

Methods: A prospective and observational study was carried out on 44 patients for 6 months. Patients of either sex, aged between 18 to 70 years diagnosed with rheumatoid arthritis were screened and recruited in the study. Patients were diagnosed on the basis of clinical assessment and the lab parameters assessed were rheumatoid factor and anti-CCP (anti-cyclic citrullinated peptide antibody). Prescriptions were analyzed for socio-demographic details and drug prescribing pattern.

Results: Out of 44 patients, 36 (81.82%) were females, 8 (18.18%) were males. Maximum occurred 19 (43.18) between 31 to 40 years of age. Out of 19 (43.18%), females were 16 (36.36%), males were 3 (6.83%). 39 (88.63%) were from rural and 5 (11.37%) from urban area, 21 (47.73%) illiterate, 15 (34.09%) primary educated, 7 (15.91%) secondary educated, 1 (2.27%) educated above higher secondary, 4 (9.08%) unemployed, 2 (4.55%) students, 19 (43.18%) housewives, 7 (15.91%) agricultural workers, 7 (15.91%) non-agricultural outdoor workers and 5 (11.37%) non-agricultural indoor workers. Most common co-morbidity was hypertension 28 (63.63%). Anti-CCP was positive in 38 (86.36%). All of the patients 44 (100%) received disease-modifying anti-rheumatic drugs (DMARDs). Majority of the patients were prescribed with triple DMARDs combination 30 (68.18%).

Conclusions: We observed that female were dominant over the male with male: female ratio of 1: 4.5. Prescriptions pattern was primarily based on DMARDs.

Keywords: Rheumatoid arthritis, Housewives, DMARDs, Sulfasalazine

INTRODUCTION

Rheumatoid arthritis (RA) is a chronic multisystem disease of unknown cause. Although there are a variety of systemic manifestations the characteristic feature of RA is unabated inflammatory synovitis, usually involving peripheral joints in a symmetric distribution. The potential of synovial inflammation to cause cartilage damage and bone erosions and subsequent changes in joint integrity is the characteristic trait of the disease. Affecting around 1% of the population worldwide it is

the most common autoimmune inflammatory joint disease worldwide.^{1,2} It has a significant negative impact on the ability to perform daily activities, including work and household tasks, and health related quality of life.³ With a prevalence of 0.75% in the Indian adult population it is one of the many chronic autoimmune diseases that predominates in women with approximately 75% of prevalent cases being female.^{4,5} The basis of the gender differences is not known but presumably is related to effects of the hormonal milieu on immune function. There is an inverse association between socioeconomic

status measured by education and -occupational class and risk of RA.²

According to the American College of Rheumatology (ACR) and the European League against Rheumatism (EULAR), the current approach focuses on disease early treatment with synthetic or biological disease-modifying anti-rheumatic drugs (DMARDs) as soon as the diagnosis is completed. The recommendation is to initiate the use of synthetic DMARD while the biological DMARD is usually recommended after its failure. It is recommended during the first 3 months after the diagnosis of RA. As adjunctive therapy in the treatment of RA, symptomatic drugs that act in the control of pain and inflammation such as analgesics, nonsteroidal anti-inflammatory drugs (NSAIDs), and steroids (corticosteroids) are recommended.⁶

The first Indian guidelines on management of RA were published in 2002. Since then there has been a paradigm shift in the management of RA which now aims at induction of remission and maintenance of tight control through use of conventional and biological disease modifying antirheumatoid drugs (DMARDs). The latter are more expensive and beyond the reach of majority of patients. These developments have actually posed new challenges to those practising rheumatology in a resource poor country like ours.⁷

Presently, studies on RA in detail regarding the sociodemographic profile are sparse in southern part of Assam, present study was undertaken to analyze the socio-demographic profile and drug prescribing pattern in patients with RA in Silchar Medical College and Hospital, Silchar. This is the only referral hospital located in southern part of Assam.

METHODS

This was a prospective observational study in the OPD of orthopaedics in SMCH, Silchar for a period of six months from June 2017 to November 2017. Patients were diagnosed on the basis of clinical assessment and the lab parameters assessed were rheumatoid factor and anti-CCP (anti-cyclic citrullinated peptide antibody). Patients between 18 to 70 years of age were included. Pregnant and lactating women and patients having deranged liver and kidney function parameters were excluded. Patients having uncontrolled diabetes mellitus, congestive heart failure or having immunosuppression due to drug or disease were also excluded.

Written informed consent was taken from each participant. Socio-demographic and medication details and relevant data of lab investigations were collected using a specially designed proforma. Prescriptions of the study patients were collected and analysed. The details of medication collected from the patients included the name of the prescribed drug or drug combinations, dosage form, daily dosage, frequency, drugs prescribed by

generic or brand name and all the co-prescribed drugs. The drugs prescribed for the RA were analyzed on 44 prescriptions.

The study was carried out for a period of 6 months from July 2017 to December 2017. Subject recruitment was started only after obtaining approval from the Institutional Ethical Committee (IEC) meeting held on 20/02/2017.

Data were entered in computer database and statistical analysis was done with the help of Microsoft Excel 2007.

RESULTS

Table 1 shows the gender distribution of the study population. Out of 44 rheumatoid arthritis patients, 36 (81.82%) were females and 8 (18.18%) were males. If we look at the age wise distribution of cases, most of the cases fall under the age group of 31 to 40 (43.19%), followed by age group of 41 to 50 years (25%) (Table 1).

Table 1: Distribution of patients according to sex and age group.

Age in years	Male (n=8)	Female (n=36)
	N (%)	N (%)
18-30	1 (2.27)	5 (11.36)
31-40	3 (6.83)	16 (36.36)
41-50	2 (4.55)	9 (20.45)
51-60	2 (4.55)	5 (11.36)
61-70	0 (0)	1 (2.27)

Table 2: Distribution of cases according to residence and age group

Age group	Rural	Urban
	N (%)	N (%)
18-30	5 (11.36)	1 (2.27)
31-40	16 (36.36)	3 (6.83)
41-50	10 (22.73)	1 (2.27)
51-60	7 (15.91)	0 (0)
61-70	1 (2.27)	0 (0)
Total	39 (88.63)	5 (11.37)

It was seen that, out of 44 patients, 39 (88.63%) were from rural area and 5 (11.37%) were from urban area. Most rural and urban patients were from the age group 31-40 years (36.36% and 6.83% respectively) (Table 2).

According to educational status, out of 44 patients, 21 (47.73%) were illiterate, 15 (34.09%) were primary educated, 7 (15.91%) were secondary educated and 1 (2.27%) were educated above higher secondary. Out of the 21 illiterate patients, 16 (36.36%) were females and 5 (11.37%) were male patient (Table 3).

Out of 44 patients 4 (9.08%) were unemployed of which 3 (6.81%) were females and 1 (2.27%) were male. Along

with that, there were 2 (4.55%) students, 19 (43.18%) housewives, 7 (15.91%) agricultural workers, 7 (15.91%)

non-agricultural outdoor workers and 5 (11.37%) non-agricultural indoor workers (Table 4).

Table 3: Distribution of cases according to educational status.

Gender	Illiterate	Primary	Secondary	Higher secondary and above	Total
	N (%)	N (%)	N (%)	N (%)	N (%)
Male	5 (11.37)	1 (2.27)	1 (2.27)	1 (2.27)	8 (18.18)
Female	16 (36.36)	14 (31.82)	6 (13.64)	0 (0)	36 (81.82)
Total	21 (47.73)	15 (34.09)	7 (15.91)	1 (2.27)	44 (100)

Table 4: Distribution of cases according to occupational status.

Gender	Unemployed	Student	Housewife/ Homeworker	Agricultural worker	Non-agricultural outdoor worker	Non-agricultural indoor worker
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Male	1 (2.27)	0	0	3 (6.82)	2 (4.55)	2 (4.55)
Female	3 (6.81)	2 (4.55)	19 (43.18)	4 (9.09)	5 (11.36)	3 (6.82)
Total	4 (9.08)	2 (4.55)	19 (43.18)	7 (15.91)	7 (15.91)	5 (11.37)

Table 5: Distribution of co-morbid conditions.

Co-morbidities	No. of patients (%)
Hypertension	28 (63.63)
Diabetes mellitus	10 (22.73)
Hypothyroidism	2 (4.55)

Hypertension was observed in 28(63.63%), diabetes mellitus in 10 (22.73%) and hypothyroidism in 2 (4.55%) of the cases (Table 5).

Table 6: Distribution of laboratory parameters.

	N (%)
Positive RA factor	31 (70.45)
Raised anti-CCP	38 (86.36)

Out of 44 patients positive serum RF was observed in 31 (70.45%) and anti-CCP was raised in 38 (86.36%) of the cases (Table 6).

Table 7: Drugs prescribed.

Drug groups	Name of drugs	No of prescriptions (%)
DMARDS	Sulfasalazine	44 (100)
	Methotrexate	40 (90.9)
	Hydroxychloroquine	36 (81.81)
DMARDS combinations	Sulfasalazine+methotrexate+hydroxychloroquine	30 (68.18)
	Sulfasalazine+methotrexate	9 (20.46)
	Sulfasalazine+hydroxychloroquine	5 (11.36)
NSAIDs and analgesics	Celecoxib	6 (40)
	Naproxen	4 (26.67)
	Diclofenac	3 (20)
	Paracetamol	2 (13.33)
Proton pump inhibitors and histamine-2 receptor antagonist 25 (56.82%)	Rabeprazole	12 (48)
	Pantoprazole	6 (24)
	Omeprazole	5 (20)
	Ranitidine	2 (8)
Calcium and multivitamin 8 (18.18%)	Calcium with multivitamin	5 (62.5)
	Multivitamin	3 (37.5)
Corticosteroids 4 (9.09%)	Prednisolone	3 (75)
	Dexamethasone	1 (25)

Table 7 shows the drugs that were prescribed. About 14 (31.82%) were taking two DMARDs and 30 (68.18%) were on three DMARDs. None of them were on biologic DMARDs. Sulfasalazine was prescribed in all cases

(100%) followed by methotrexate (90.9%) and hydroxychloroquine (81.81%). Most commonly prescribed drugs following DMARDs were NSAIDs 15 (34.09%), celecoxib being the most common NSAID prescribed.

Corticosteroids were prescribed in 4 (9.09%) of the patients.

DISCUSSION

This study revealed that prevalence of RA was more in females 36 (81.82%) than males 8 (18.20%). Similar type of studies done by Shini et al showed that females patients were (83.46%) and males were 16.54%.⁸ A study conducted by Mittal et al., has reported that more than 80% of the RA patients were females, which is in agreement with our study.⁹ In this research, we observed that male to female ratio was 1:4.5 which was very close to 1:4 ratio observed by Aletaha et al.¹⁰ Whereas in a study conducted by Singh et al.¹¹ Male to female ratio (1:8.4) was higher than the ratio in this study. Since rheumatoid arthritis is an auto immune disease, this female predominance is due to reasons like the influence of hormonal factors and X linked genes involved in pathogenesis of rheumatoid arthritis.¹² Our study showed that the peak prevalence of RA was in the age group of 31-40 (43.18%) followed by 41-50 (25%) in both the genders. In all the age groups the female were dominant over the male in number. But, peak prevalence of RA observed by Bajraktari et al in both genders was 40-49 (32.5% of females, 33% of males respectively).¹³ Present study shows that there is an increase preponderance of RA in rural area 39 (88.62%). Microtrauma to musculo-skeletal tissues from occupational overuse and/or misuse can pose an issue to villagers.¹⁴ In our study, the vast majority of the patients were housewives 19(43.18%) which was similar to a study done by Kashefi et al where most of the patients were housewives (66.4%). The higher prevalence of RA among the housewives or farmers was probably due to prolonged the duration of physical work with standing posture in the household work or agricultural field.¹⁵

Present study shows that majority of the patients were illiterate 21 (47.73%). Behavioral risk factors such as smoking, diet, obesity, and a sedentary lifestyle appear to be more frequent among persons with low education. Individuals with low education are more likely to be unemployed or have higher risks of injury due to work in physically demanding jobs and greater degrees of stress. In addition, they are less likely to engage in self-care activities for RA.¹⁶ Positive serum RF was observed in 31 (70.45%) of RA patients which was found to be similar to the study done by Bal et al (69.2%).¹⁷ The anti-CCP was raised in 38 (86.36%) of the patients which is almost similar to the study by Shini et al where anti-CCP was raised in 87.29% of the patients.⁸ In our study hypertension 28 (63.63%) was the most common co-morbidity followed by diabetes mellitus 10 (22.73%) which was similar to the study conducted by Immanuel et al.¹⁸

All the patients were on treatment with DMARDs, the most commonly prescribed being SSZ followed by MTX and HCQ. The most prescribed combination was the triple

DMARD combination of SSZ, MTX and HCQ followed by the dual combinations. None of the patients received single DMARD. Early intervention with disease specific anti-rheumatic drugs, also called second line drugs or disease-modifying antirheumatic drugs (DMARDs) is the cornerstone of treatment and, in the early stages may be able to curb or arrest the progressive synovitis and joint destruction and thereby limit disability.¹⁹ There has been increased interest in using combination DMARD therapy for patients with early RA. The principle behind combination therapy is to combine drugs with different mechanisms of action to increase efficacy, while maintaining a favourable side effect/toxicity profile, analogous to the use of combination cytotoxic treatment in oncology.²⁰

It was observed that the most commonly prescribed drug following DMARDs was NSAIDs 15 (34.09%) which is similar to the study done by Gurung et al, which showed that most commonly prescribed drug following DMARDs was NSAIDs 29 (28.71%).²¹ Analgesics and NSAIDs are used mainly on a temporary basis until the DMARDs take effect, as well as during disease flares.²² Due to the reduction of prostaglandins production in the gastrointestinal mucosa, NSAIDs can cause gastric damage and compromise cardiovascular safety.²³ In our study the most commonly prescribed gastroprotective agents were rabeprazole 12 (48%) followed by Pantoprazole 6 (24%). Calcium and multivitamin were prescribed in 8 (18.18%) of the patients. In our study Prednisolone 3 (75%) was the more commonly prescribed steroid The EULAR recommends the use of a low-dose corticosteroid as part of the initial treatment strategy in combination with DMARD for up to 6 months, decreasing the dose as clinically as possible.²⁴

CONCLUSION

This study mainly focused on the socio-demographic details and treatment pattern in RA patients in southern Assam. The socio-demographic aspects of the present study showed that prevalence of rheumatoid arthritis is higher among females and between the ages of 31 and 40 years. Majority of the patients are housewives. Other socio-demographic factors are rural locality, illiteracy and low socioeconomic status. Hypertension is the most common co-morbid condition. The drug use pattern in RA is found to be primarily based on DMARDs, sulfasalazine being the most commonly used DMARD. The study of prescription pattern is an important guide for practising physicians in managing patients with RA. Future research are needed to be carried out on a larger scale to get the complete picture of the of the drug usage pattern and of the epidemiology of rheumatoid arthritis.

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