

## ORIGINAL ARTICLE



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# Prevalence of comorbid conditions in rheumatoid arthritic patients diagnosed at a rheumatology clinic at a tertiary care hospital of western India

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## Abstract

**Background /Objectives:** Rheumatoid arthritis (RA) is an auto immune disease affecting 1% of the world's population causing permanent deformation of the affected joint. The objective is to study the prevalence of different comorbidities found amongst the RA patients frequenting the rheumatology clinic at a tertiary care hospital of western India. **Methodology:** The study was carried amongst the RA patients frequenting the rheumatology outpatient clinic between the years January 2012 till December 2014. A Total of 6,158 patients of Rheumatoid arthritis were studied. All the patients were diagnosed based on the 2010 ACR standard classification criteria with their consent. **Findings:** Out of 6,158 patients surveyed, the disease was found to be more common in females (66.79%) than males (33.21%) making the ratio approximately 2:1. Comorbid conditions were associated with 34.33% of rheumatoid arthritis patients. The most frequent comorbid condition was found to be thyroid dysfunction with 16.68% patient population affected. Frequency of RA females (65.53%) was higher as compared to RA males (34.47%). Hypertension was the second most co prevalent disorder which was found in 12.34% of the patient population. Osteoporosis (3.33%), Soft tissue rheumatism (2.55 %) and Systemic Lupus Erythematosus (0.86%) were also found in few of the RA patients. **Application/Improvements:** An in depth understanding of the frequency of prevalence of the different comorbid conditions to the rheumatoid arthritis patients will in future assure prompt and timely treatment for various diseases.

**Keywords:** Rheumatoid Arthritis; Prevalence; Co-morbid conditions; Western India

## 1 Introduction

Rheumatoid arthritis (RA) being a chronic inflammatory disorder leads to tissue destruction in the synovial joint<sup>(1)</sup>. The RA was observed more in females, not only impairs the musculoskeletal system but can also affect the entire body by increasing morbidity and

mortality of the affected population. It affects approximately 1% of the general population worldwide and about 0.75% adult population in India<sup>(2,3)</sup>.

It has been recognized for decades that survival among people with RA is significantly worse than survival in the general population as the chronic inflammation affects organ system as well<sup>(4,5)</sup>. Patients with RA have also been shown to be at increased risk of other important comorbidities like infection, hypertension, thyroid problems, osteoporosis and malignancy as well as other conditions due to which increase in the mortality rate is observed in the patients with RA than the general population. Some of these comorbidities are observed more often among RA patients because of the medications with which they are treated, especially glucocorticoids, and because of traditional risk factors, such as tobacco smoking<sup>(4–7)</sup>.

Therefore, this study focused on the prevalence of different comorbidities found amongst the rheumatoid patients frequenting the rheumatology clinic at a tertiary care hospital of western India.

## 2 Methodology

Around six thousand patients with RA meeting retrospective application of 2010 ACR standard classification criteria, attending the rheumatology outpatient clinic between the years January 2012 till December 2014 were surveyed for different comorbid conditions. Comorbidity was defined as the presence of coexisting or co-occurring conditions with RA in our study.

## 3 Results

Out of 6158 RA patients, the disease was found to be more common in females (66.79%) than males (33.21%) ( [Figure 1](#)).

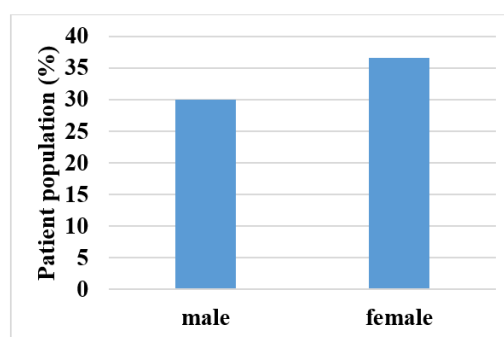


Fig 1. Comorbidities in the RA population

Comorbid conditions were found to be associated with 32.57% of RA population as depicted in [Table 1](#) .

**Table 1.** Comorbid conditions in RA patients

Comorbid conditions	% (male)	% (female)	% (RA)
Thyroid dysfunction	34.47	65.53	16.68
Hypertension	17.11	82.89	12.34
Osteoporosis	27.32	72.68	3.33
Soft Tissue Rheumatism	21.66	78.34	2.55
Connective Tissue Rheumatism	54.72	45.28	0.86
Others	36.00	64.00	0.41
Total	27.48	72.52	

The most common comorbid condition was found to be thyroid dysfunction with 16.68 % of the total RA patients, out of which 12.34% of the patient population was having hypertension followed by Osteo Arthritis (3.33 %), Soft Tissue Rheumatism (2.55%) and Connective Tissue Rheumatism (0.86%) as depicted in [Figure 2](#). The distribution of the comorbid conditions in both the gender is shown in [Figure 3](#) .

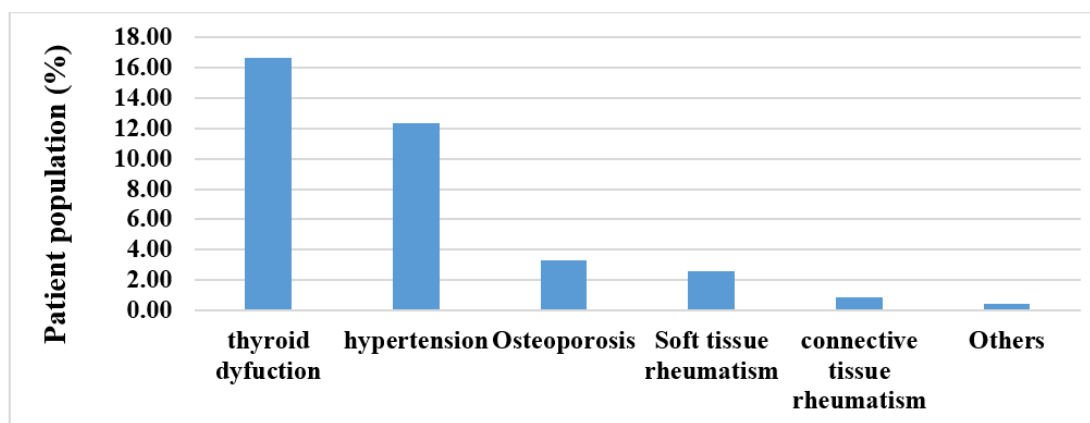


Fig 2. Percentage of different comorbid conditions in RA patients

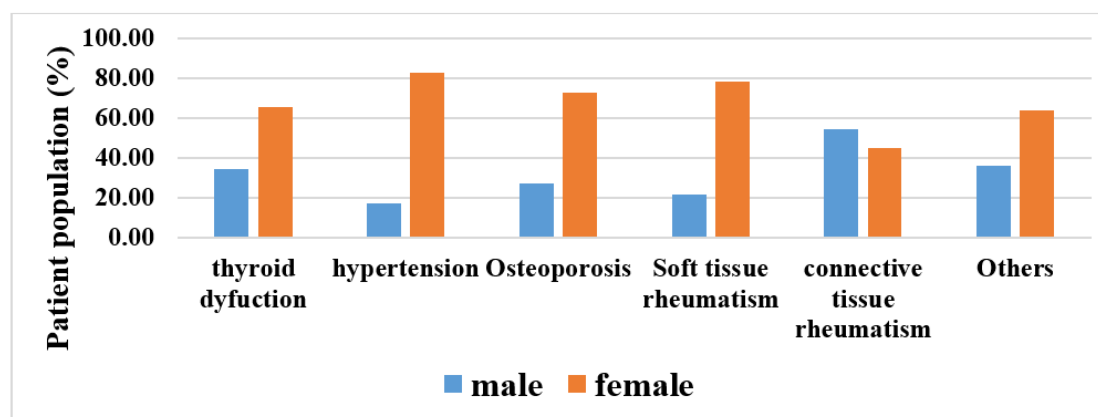


Fig 3. Prevalence of comorbid conditions in both the genders

## 4 Discussion

This cross-sectional study was undertaken to shed more light on the limited data available on the incidence of various comorbidities found in RA in western part of India.

The disease was found to be more common in females than males making the ratio approximately 2:1 clearly supporting female dominance in the disease<sup>(8)</sup>. Comorbid conditions were associated with 34.33% of rheumatoid arthritis patients which is close to the prevalence with those reported in Great Britain (31.6%)<sup>(9)</sup>. Other studies conducted worldwide showed comparatively more prevalence of comorbid conditions<sup>(4,10–12)</sup>.

Thyroid dysfunction was the most common comorbidity followed by hypertension and Osteoporosis in this study. There have been few studies on comorbidities in RA done in India. In a recent study done by Yadav et al. in South India, hypertension (25%) was found to be the most common comorbidity which was followed by hypothyroidism (19.8%), Diabetes Mellitus (16.2%) and Intestinal Lung Disease (1.4%)<sup>(13)</sup>. In another study by Singh et al., in a hospital in Northeast India, majority of the patients with RA were Anemic (66.67%) followed by infection (13.73%), thyroid disease (9.80%), renal disease (7.84%), osteoporosis (5.88%), CVD (5.88%), lung disease (5.88%), and vasculitis (1.96%)<sup>(14)</sup>. In a recent comorbidity study by Luque Ramos et al., osteoarthritis (44%), depression (32%), and osteoporosis (26%) were found to be more prevalent in RA patients than the normal population<sup>(15)</sup>.

In our study, the most common comorbid condition was found to be thyroid dysfunction with 16.68% of the total RA patients which accounted for 48.58% of the total comorbidities out of which 65.53% were females and 34.47% were males. 12.34% of the patient population was having hypertension which accounted for 35.95% of the comorbidities, out of which 82.89% were females and 17.11% were males. The next in order was Osteoporosis which was 3.33% of the total RA patient population

which accounted for 9.70% of the comorbidities, of which 72.68% were females and 27.32% were males. Soft tissue rheumatism constituted of total 2.55 % in the patient population which accounted for 7.43% of the comorbidities out of which 78.34% were found to be females and 21.66% were found to be males in the patient population studied. Among the connective tissue disorder, the most common was found to be Systemic Lupus Erythematosus which was 0.86% of the total patient population which accounted for 2.51% of the comorbidities, it was found that 45.28% were females and 54.72% were males. And other connective tissue disorder like Vasculitis, Scleroderma, Sjogren syndrome, Mixed connective tissue disorder were found in 0.41% of the patient population which accounted for 1.25% of the comorbidities with 64.0% females and 36.0% males.

Previous reports have suggested the use of glucocorticoids, DMARDs, NSAIDs, and biological agents to be associated with a number of comorbidities in patients with RA<sup>(6)</sup>. The glucocorticoids use in patients with RA are commonly associated with the development of hypertension, hyperglycemia, infection, and osteoporosis<sup>(16)</sup> whereas NSAIDs use are mostly associated with risk of hypertension, gastrointestinal bleeding, nephropathy, nephritis and anaemia<sup>(6)</sup>.

## 5 Conclusion

It was observed that along with Rheumatoid arthritis, the most prevalent comorbid condition was found to be thyroid dysfunction, followed by hypertension. Furthermore, it is also seen that females are more affected than males in most of the comorbid conditions. This was observed in all comorbidities like thyroid dysfunction, hypertension except in connective tissue disorders like Lupus. So, Rheumatologists should consider comorbidities as an important aspect of therapeutic management in RA patients however a definite correlation between comorbidities and disease activity in RA patients' needs to be yet established.

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