

# The Prevalence of Inflammatory Joint Diseases among Males Attending Rheumatology Clinic in a Tertiary Care Centre.

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## ABSTRACT

**Background:** Rheumatic diseases are one of the commonest disorders preventing mobility and ease of motion in a larger part of population. Epidemiology of rheumatic disorders has been known to play an important role in understanding as well as preventing the rheumatic diseases in a particular human population. Therefore, the current study was designed to assess the prevalence of different types of rheumatic disorders and their distribution among different age group of male patients. **Methods:** The present study included eight hundred and ten male patients of all ages who were taken from two thousand patients suffering from rheumatic disorders registered at the rheumatology clinic of Govt Medical College, Thrissur. A questionnaire was given to each and every patient for the differential diagnosis of various rheumatic disorders. Criteria of the American College of Rheumatology was used to establish the diagnosis of each rheumatic disease. **Results:** Results of the present study revealed that rheumatoid arthritis (23.73%) was the most common type followed by Psoriatic arthritis (23.36%) which was the second most prevalent type among rheumatic diseases in the study population. Further, results showed that Osteoarthritis (15.08%) and Ankylosing spondylitis (19.78%) were between 10 to 20% prevalent among study population. In the age group of 20-59 years psoriatic arthritis was the most common inflammatory joint disease followed by ankylosing spondylitis and rheumatoid arthritis. Such a trend was not seen in age group less than 20 years and more than 60years. **Conclusion:** Findings of the current study suggest that four types of rheumatic diseases namely rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis and osteoarthritis were highly prevalent among the study population. In the male population of age group 20-59years psoriatic arthritis was the most common inflammatory joint disease. Thus a vigorous search for psoriatic arthritis is highly warranted in male patients of the age group 20-60years who are presenting with features of inflammatory joint disease.

**Keywords:** Rheumatoid arthritis, prevalence, osteoarthritis, male.

## INTRODUCTION

Rheumatic diseases are one of the commonest disorders preventing mobility and ease of motion in a larger part of population.<sup>[1]</sup> Epidemiology of rheumatic disorders has been known to play an important role in understanding as well as preventing the rheumatic diseases in a particular human population. Epidemiological studies of various rheumatic diseases have been found helpful in assessing the frequency, gender based distribution, co morbidity, mortality and clinical symptoms of different population.<sup>[2]</sup> Reports showed that high incidence of rheumatic disorders have been considered as a significant source of morbidity in

male population especially in developing countries.<sup>[3,4]</sup> There have been few studies providing glyphs of prevalence and distribution of rheumatic diseases in India.<sup>[5]</sup> This prevalence of rheumatic disorders may be varying from region to region due to effects of various environmental factors. That is why prevalence of rheumatic disorders in different geographical regions should be estimated.<sup>[6,7]</sup> Therefore, the current study was designed to assess the prevalence of different types of rheumatic disorders and their distribution among different age group of male patients.

## MATERIALS AND METHODS

It was a data base study which was conducted at rheumatology centre of Government Medical College, Thrissur from November 2017 to January 2018. This study was ethically approved by ethical committee of the Government Medical College, Thrissur. This is a part of India found in Thrissur

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district, Kerala state and is considered as a rural region. The present study included eight hundred and ten male patients of all ages who were taken from two thousand patients suffering from rheumatic disorders registered in rheumatology clinic in a tertiary care centre in Thrissur.

**Inclusion criteria**

Male patients of all ages registered in rheumatology clinic.

**Exclusion criteria**

Patients suffering from any type of chronic diseases like diabetes mellitus, hypertension and renal failure. Patients on any type of medications except medications taken for rheumatic disorders.

**Methodology**

A questionnaire was given to each and every patient for the differential diagnosis of various rheumatic disorders like osteoarthritis (OA), rheumatoid arthritis (RA), Ankylosing spondylitis (AS), Fibromyalgia (FM), Juvenile idiopathic arthritis (JIA), Mechanical low back pain (LBA), Mixed connective tissue disease (MCTD), polymyalgia rheumatica (PMR), Psoriatic arthritis (PSA), Systemic sclerosis (SSc), Post viral arthritis (PVA), Systemic lupus erythematosus (SLE), Sjogren's syndrome (SS), Takayasu arthritis (TA). This questionnaire also included questions about the demographic as well as lifestyle variables like gender, age, socioeconomic status, occupation and personal habits. For the personal variables qualitative scores were given eg. intake of alcohol were divided into 4 categories :grade 1 for occasional drinkers, grade 2 for 2 drinks per day, grade 3 for up to 4 drinks per day and grade 4 for more than 4 drinks per day. A qualitative score 0 and 1 were used for yes or no answers of qualitative questions.

All the present and past medical history was recorded in detail of each patient. Careful physical examination and laboratory investigations were done under the supervision of rheumatologist.

Criteria of the American College of Rheumatology was used to establish the diagnosis of each rheumatic disease.<sup>[8,9]</sup> All the patients were explained the purpose of the study and written consent was given by every patient prior to taking part in this study.

**Statistical analysis**

Results of all the variables were expressed as number and percentage of patients. Chi- square test of independence variable was used for the statistical analysis of different variable of the study. Logistic regression analysis was used to assess the relation between rheumatic diseases with age and other variables. All the statistical calculations were done with the SPSS v.13.0 manufactured by USA. A p value <0.05 was considered as significant.

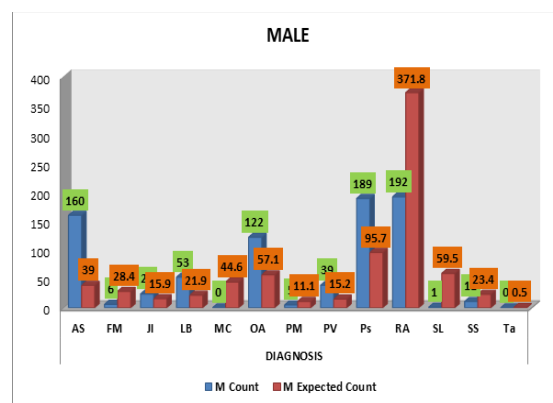
**RESULTS**

The present study included eight hundred and ten male patients suffering from various types of rheumatic disorders. Results of the present study revealed that rheumatoid arthritis (23.73%) was the most common type followed by Psoriatic arthritis (23.36%) which was the second most prevalent type of rheumatic diseases in the study population. Further, results showed that Osteoarthritis (15.08%) and Ankylosing spondylitis (19.78%) were between 10 to 20% prevalent among study population. Few types of inflammatory arthritis like Juvenile idiopathic arthritis (2.97%), Mechanical low back pain (6.55%) Systemic sclerosis (1.36) and Post viral arthritis (4.82%) were less than 10% prevalent. Fibromyalgia (0.74%), Polymyalgia rheumatica (0.62%), Systemic lupus erythematosus (0.12%), Sjogren's syndrome (0.87%) were the types of inflammatory arthritis which were prevalent in less than 1% patients. Mixed connective tissue disease (0%) and Takayasu arthritis (0%) were not found in our study population. [Table 1]

**Table 1: Analysis of total male patients**

| Diagnosis          | Percentage (%) of total male |
|--------------------|------------------------------|
| OA                 | 15.08%                       |
| RA                 | 23.73%                       |
| AS                 | 19.75%                       |
| FM                 | 0.74%                        |
| JIA                | 2.97%                        |
| LBA                | 6.55%                        |
| MCTD               | 0.00%                        |
| PMR                | 0.62%                        |
| PsA                | 23.33%                       |
| SSc                | 1.36%                        |
| PVA                | 4.82%                        |
| SLE                | 0.12%                        |
| SS                 | 0.87%                        |
| Takayasu arteritis | 0.00%                        |
| Total              | 100.00%                      |

[Figure 1] depicts the association of gender with diagnosis of different types of inflammatory arthritis. Rheumatoid arthritis was found in 192 patients. Whereas, Psoriatic arthritis, Ankylosing spondylitis and osteoarthritis were found in 189, 160 and 122 male patients respectively.



**Figure 1: Association between gender and diagnosis**

[Table 2] shows that prevalence of rheumatic disorders were most high in 40 to 59 years age group. Further, various types of arthritis were more common in elderly 60 to 79 years age group

compared to younger age group of 20 to 39 years. Juvenile idiopathic arthritis and rheumatoid arthritis were the only types of inflammatory arthritis which were recorded in less than 20 years age group.

**Table 2: Prevalence of various rheumatoid arthritis according to age.**

| Diagnosis | Age group    |       |       |       |              | Total  | %      |
|-----------|--------------|-------|-------|-------|--------------|--------|--------|
|           | Less than 20 | 20-39 | 40-59 | 60-79 | 80 and above |        |        |
| AS        | 0            | 28    | 120   | 12    | 0            | 160    | 19.75  |
| FM        | 0            | 1     | 4     | 1     | 0            | 6      | 0.74   |
| JIA       | 24           | 0     | 0     | 0     | 0            | 24     | 2.97   |
| LBA       | 0            | 0     | 23    | 30    | 0            | 53     | 6.55   |
| MCT       | 0            | 0     | 0     | 0     | 0            | 0      | 0.00   |
| OA        | 0            | 0     | 48    | 67    | 2            | 117    | 15.08  |
| PMR       | 0            | 0     | 3     | 2     | 0            | 5      | 0.62   |
| PVA       | 0            | 18    | 21    | 0     | 0            | 39     | 4.82   |
| PsA       | 0            | 40    | 132   | 17    | 0            | 189    | 23.33  |
| RA        | 33           | 28    | 90    | 34    | 5            | 190    | 23.7   |
| SLE       | 0            | 8     | 1     | 0     | 0            | 9      | 0.12   |
| SS        | 0            | 0     | 6     | 1     | 0            | 7      | 0.87   |
| SSc       | 0            | 3     | 6     | 2     | 0            | 11     | 1.36   |
| Tak       | 0            | 0     | 0     | 0     | 0            | 0      | 0.00   |
| TOTAL     | 57           | 126   | 454   | 166   | 7            | 810    | 100.00 |
| %         | 7.03         | 15.55 | 56.04 | 20.49 | 0.86         | 100.00 |        |

## DISCUSSION

The study of prevalence and pattern of rheumatic diseases in a particular society or population is of prime importance for the prevention and effective treatment of rheumatic diseases. However, epidemiological studies suggest that pattern of distribution of different types of rheumatic disorders are almost the same throughout the world. 10 Rheumatic diseases are among the most threatening diseases which induce incapability of locomotor mobility in patients since several centuries.<sup>[11]</sup> Studies suggest that various forms of rheumatic disorders seriously affect the lifestyle of a large number of human population throughout India. Moreover, these disorders have been found associated with atherosclerosis and premature death. Nevertheless, the overall disease burden is still unknown and underestimated in India.<sup>[5,11,12]</sup> Moreover, impact of rheumatic diseases is severe in developing countries compared to developed countries due to delayed diagnosis of types of rheumatic diseases.<sup>[13]</sup> Very few epidemiological studies have been done in India to observe the prevalence and distribution of different rheumatic diseases.<sup>[12]</sup> Therefore, the present study recorded the various types of rheumatic disorders in Thrissur region. Findings of the current study showed that Rheumatoid arthritis was the most prevalent type of inflammatory arthritis among the present study population. Further, rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis and osteoarthritis were the most prevalent types of rheumatic diseases which were found in more than 70% of the study population. These findings are consistent with the earlier study of Gabriel SE et al,<sup>[14]</sup> as they recorded higher prevalence of rheumatoid arthritis in their study. Moreover, they observed rheumatoid arthritis,

psoriatic arthritis, ankylosing spondylitis and osteoarthritis were the highly prevalent variety of rheumatic disorders. Similarly, Chopra A 10 reported ill defined symptoms (35%) was most prevalent among rheumatic disorders followed by osteoarthritis (29%), soft tissue rheumatism (20%), undifferentiated inflammatory arthritis (7%), Miscellaneous (6%) and Rheumatoid arthritis (3%) in Bhigwan India. Alike, Malaviya AN et al,<sup>[15]</sup> showed that rheumatoid arthritis along with psoriatic arthritis and osteoarthritis were the most commonly prevalent types of rheumatic diseases. In addition, Anagnostopoulos I et al,<sup>[16]</sup> reported in their study that there was a significant relation between gout and male gender. Moreover, they observed there was prevalence of rheumatoid arthritis 0.58%, ankylosing spondylitis 0.29%, systemic lupus erythematosus 0.11% and psoriatic arthritis in 0.35%.

Epidemiology has been considered an important source of providing essential information about the prevalence, distribution, co-morbidity, mortality rate and various other variants in a particular population as well as in all ages and sexes.<sup>[17]</sup>

Further, the present study showed that different types of rheumatic disorders were highly prevalent in 40 to 59 years age group compared to other age groups. Nevertheless, more than 20% of total population were suffering from various types of arthritis individually 60 to 79 years of age group and age group of 20 to 39 years. These findings are in full agreement to the earlier study of Symmons et al.<sup>[18]</sup> He observed in their study that different varieties of arthritis were most common in 50 to 70 years age group and they concluded that the mean age of onset of rheumatoid arthritis was 44.8 years for male patients. Similarly, Goronzy J et al showed that different types of rheumatic diseases were most commonly prevalent among 40 to 60 years age group male patients.<sup>[13]</sup>

Epidemiological studies may be helpful in understanding the rheumatic diseases prevalence and distribution of particular form of rheumatism in the population. This in turn help in better treatment and improved prognosis of the rheumatic diseases in particular region and surrounding areas.<sup>[13-17]</sup> Previous studies suggested that environmental and atmospheric changes from place to place may change the epidemiology of rheumatic diseases even in the same state or country.<sup>[17,18]</sup>

## CONCLUSION

Findings of the current study suggest that four types of rheumatic diseases- rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis and osteoarthritis were highly prevalent among the study population. In the male population of age group 20-59years psoriatic arthritis was the most common inflammatory joint disease. Thus a vigorous search for psoriatic arthritis is highly warranted in male patients of the age group 20-60years who are presenting with features of inflammatory joint disease. Findings of our study may provide useful guidelines as well as these results may reflect the prevalence of various types of rheumatic disorders in male population of India.

## REFERENCES

1. Yelin E, Cisternas M, Pasta D, Trupin L, Murphy L, Helmick CG: Medical care expenditures and earning losses of persons with arthritis and other rheumatic conditions in the United States in 1997:total and incremental estimates. *Arthritis Rheum* 2004, 50:2317-26.
2. Oliver JE, Silman AJ: What epidemiology has told us about risk factors and aetiopathogenesis in rheumatic diseases. *Arthritis Research & Therapy* 2009, 11:223.
3. Ferraz MB. Tropical rheumatology. Epidemiology and community studies: Latin America. *Baillieres Clin Rheumatol* 1995;9:1-9.
4. Sato EI, Atra E, Schichikawa K, Inoue K. Estudo da prevalência da Artrite Reumatóide em população de origem japonesa em Mogi das Cruzes. *Rev Bras Reumatol* 1990;30:133-6.
5. Chopra A. Disease burden of rheumatic diseases in India: COPCORD perspective. *IJR*; 2015: Vol 10 (2): 70-77.
6. Fessel WJ: Epidemiology of systemic lupus erythematosus. *Rheum Dis Clin North Am* 1988, 14:15-23.
7. Chiffot H, Fautrel B, Sordet C, Chatelus E, Sibilia J: Incidence and prevalence of systemic sclerosis: a systematic literature review. *Sem Arthritis Rheum* 2008, 37:223-35
8. Wallace SL, Robinson H, Masi ET, Decker JL, Mc Carty DJ, Yu TF: Preliminary criteria for the classification of the acute arthritis of primary gout. *Arthritis Rheum* 1977, 20:895-900.
9. Bird HA, Esselinckx W, Dixon AS, Mowat AG, Wood PH: An evaluation of criteria for polymyalgia rheumatica. *Ann Rheum Dis* 1979, 38:434-9.
10. Chopra A, Abdel-Nasser A. Epidemiology of rheumatic musculoskeletal disorders in the developing world. *Best Prac Res Clin Rheumatol* 2008; 22: 583-604.
11. Mahajan A, Jasrotia DS, Manhas AS, Jamwal SS. Prevalence of major rheumatic disorders in Jammu. *JK Science*. 2003; 5: 63-66.
12. Erika Rodrigues Senna, Ana Letícia P. De Barros, Edvânia O. Silva, Isabella F. Costa, Leonardo Victor B. Pereira, Rozana Mesquita Ciconelli, And Marcos Bosi Ferraz. Prevalence of Rheumatic Diseases in Brazil: A Study Using the COPCORD Approach. *The Journal of Rheumatology* 2004; 31:3.
13. Goronzy J, Cornelia M. Rheumatoid arthritis epidemiology, pathology and pathogenesis. In: Klippel JH, Wehand CM, Wortmann RL, ed. *Primer on the rheumatic disease* 11th ed. Georgia:WilliamM, 1997; pp 155-74.
14. Gabriel SE and Michaud K. Epidemiological studies in incidence, prevalence, mortality, and comorbidity of the rheumatic diseases. *Arthritis Research & Therapy* 2009, 11:229.
15. Malaviya AN, Kapoor SK, Singh RR, Kumar A, Pande I. Prevalence of rheumatoid arthritis in the adult Indian population. *Rheumatology International*. 1993; 13 (4): 131-134.
16. Anagnostopoulos I, Zinzaras E, Alexiou I, Papatheanasiou AA, Davas E, Koutroumpas A, Barouta G, Sakkas LI. The prevalence of rheumatic diseases in central Greece: a population survey. *BMC Musculoskeletal Disorders*; 2010: 11:98.
17. Fessel WJ: Epidemiology of systemic lupus erythematosus. *Rheum Dis Clin North Am* 1988, 14:15-23.
18. Symmons DPM, Barrett EM, Bankhead CR, Scott DGI, Silman AJ. The incidence of rheumatoid arthritis in United Kingdom: results from the Norfolk Arthritis Register. *Br J Rheumatol* 1994; 33: 735-9.

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