Original Research Article

Prevalence and spectrum of rheumatological diseases in a newly formed Peripheral Medical College in Northern India

Mohd Arif Kelam[1], Susheel Kumar Sharma[1], Altaf Ahmed Malik[2]*

[1]Department of General Medicine, [2]Department of General Surgery, GMC, Doda, Jammu and Kashmir, India

*Correspondence:
Dr. Altaf Ahmed Malik,
E-mail: altafmalik09@gmail.com

ABSTRACT

Background: Rheumatic disorders are chronic inflammatory and non-inflammatory disorders of the musculoskeletal system and connective tissue causing a significant socioeconomic burden resulting in immense morbidity owing to poor quality of life, loss of function and productivity.
Methods: In this prospective study, consecutive patients attending Medicine Outpatient Department at GMC Doda, between august 2019 and July 2022, were studied for various rheumatological diseases. Rheumatological diagnoses of 3560 consecutive newly detected and returning patients were recorded for three year.
Results: During the study period, a total of 27546 patients visited the Medicine OPD, 3560 of which were diagnosed with various rheumatic diseases, yielding a prevalence of 12.9%. The mean age of the patients in the study was 42.33±13.18 years ranging from a minimum age of 18 to a maximum age of 96 years. Females were notably predominant in all diseases at 64%. Non inflammatory rheumatological disorders osteoarthritis and soft tissue rheumatism were most predominant in this study.
Conclusions: Osteoarthritis and soft tissue rheumatism were the most predominant rheumatic disorders in our study. Rheumatic diseases constitute a major disease burden in almost all of the age groups, especially in young patients (30-50 years) within our setup.

Keywords: Arthritis, Inflammatory, Soft tissue rheumatism

INTRODUCTION

Rheumatic disorders are chronic inflammatory and non-inflammatory disorders of the musculoskeletal system and connective tissue causing a significant socioeconomic burden resulting in immense morbidity owing to poor quality of life, loss of function and productivity.[1,2] Globally rheumatic disorders are the leading cause of disability accounting for close to half of years lived with disability from various diseases in 2019.[3-5,6] Moreover inflammatory rheumatic diseases are known to cause premature atherosclerosis, vascular complications and early death and about 5% of the population suffer from a chronic inflammatory rheumatic diseases.[7] Non-inflammatory rheumatic diseases on the other hand are the most common rheumatic diseases but are highly age-dependant and usually have a better prognosis.[8]

In literature more than 150 classified rheumatic disease conditions exist all having a specific pathogenesis, clinical profile, treatment, and prognosis. Knowledge of each condition and its variations is essential for successful diagnosis and treatment.[9] Some of the most common ones are rheumatoid arthritis, lupus, scleroderma, juvenile idiopathic arthritis, Sjögren's syndrome, spondyloarthropathies, polymyalgia rheumatic, and systemic vasculitis.[10] Morbidity and

mortality rates are even higher in regions where access to treatment is limited due to demographic and socioeconomic circumstances. Despite this, many regions of the India still lack population-level data on these disorders.[11] In particular, data from rural populations are very scarce. Although available studies show that musculoskeletal disorders affect a significant proportion of rural population in India, our work is primarily aimed to assess the spectrum and prevalence of rheumatic diseases in patients visiting outpatient department (OPD) of a newly formed Peripheral Medical College, GMC Doda in Jammu and Kashmir, India which largely caters to the under-privileged population from rural areas over three districts catering to an overall population of approximately 1 million.

METHODS

In this prospective study, consecutive patients attending Medicine Outpatient Department at GMC Doda, between august 2019 and July 2022, were studied for various rheumatological diseases. Rheumatological diagnoses of 3560 consecutive newly detected and returning patients were recorded for three year. A returning patient was defined as attending the outpatient department regularly (once every 3-12 months). Standard operational definitions based on the American College of Rheumatology 1990 criteria for diagnosing rheumatological diseases were used for various clinical diagnoses to ensure uniformity in diagnosis by the clinicians.[12]

This study included individuals with rheumatic diseases of the following types and were broadly divided into two major categories: A) Non-inflammatory: osteoarthritis (spine and knees), Soft Tissue Rheumatism (STR) further classified as diffuse fibromyalgia and regional STR (shoulder pain syndrome, carpal tunnel syndrome), nonspecific low backache (LBA) and osteoporosis. B) Inflammatory: crystal-induced (gout), autoimmune (systemic lupus erythematosus and scleroderma, rheumatoid arthritis, Sojgrens syndrome) and spondyloarthropathy (ankylosing spondylitis and psoriatic arthritis).

Patients of either gender with age ≥18 years with a definite rheumatological disorder (according to American College of Rheumatology guidelines) and can cooperate were included in the study. Data regarding diagnosis, age at disease onset, and gender were recorded and the information was entered into a computer.

Statistical analysis

Statistical analysis SPSS software (Statistical Package for the Social Sciences) 20 was used for data entry and analysis. Continuous data was shown as mean and standard deviation (mean±SD), and categorical variables were shown as percentages.

RESULTS

During the study period, a total of 27546 patients visited the medicine OPD, 3560 of which were diagnosed with various rheumatic diseases, yielding a prevalence of 12.9%. The mean age of the patients in the study was 42.33±13.18 years ranging from a minimum age of 18 to a maximum age of 96 years. Females were notably predominant in all diseases at 64% and males accounted for 36% of patients with the exception of gouty arthritis and regional STR where males accounted for 78.3% and 52.4% respectively. The proportion of women was 97.3% in SLE, 97% in osteoporosis, 100% in systemic sclerosis and Sjogrens syndrome.736 (20.6%) patients were diagnosed with inflammatory rheumatological diseases whereas majority 2824 (79.4%) of patients had non-inflammatory rheumatological diseases (Figure 1).
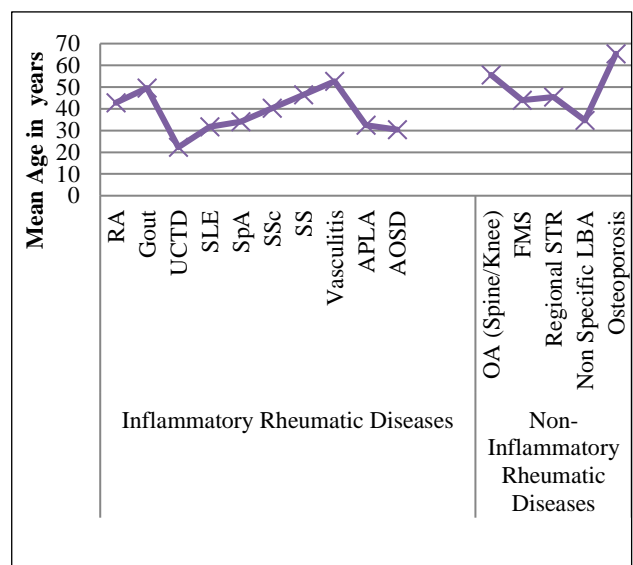

Figure 1: Age distribution in inflammatory vs non inflammatory rheumatic diseases.
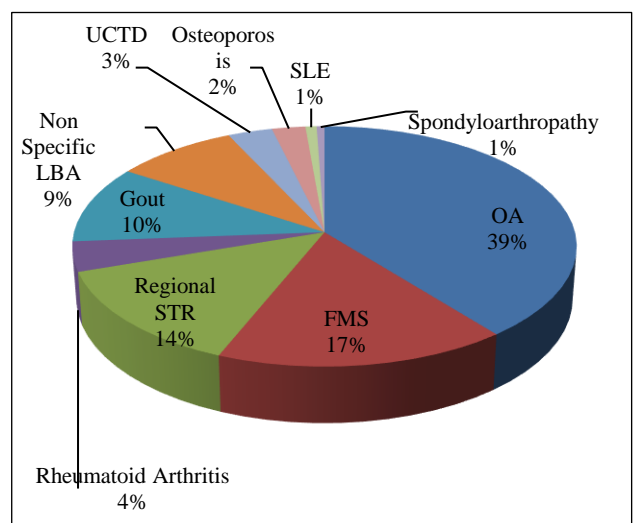

Figure 2: Spectrum of rheumatological diseases in medicine OPD.

Patient's ages ranged from 18 to 96 years, with a mean of 42.33±13.18 years. Most patients in inflammatory rheumatic diseases were in the age group of 30-50 years (58.4%) whereas in non-inflammatory group most patients were in the age group of 40-60 years (67.7%).

Osteoarthritis (38.2%) was the most common rheumatic disease, followed by fibromyalgias (16.3%), regional soft tissue rheumatism (13.3%), gout (10.3%), nonspecific LBA (8.3%) and rheumatoid arthritis (4%). The frequency of SLE, spondyloarthropathy systemic sclerosis and Sojgrens syndrome was 1%, 0.6%, 0.4% and 0.2% respectively (Figure 2). The prevalence, frequency, and gender distribution of rheumatic diseases are listed in Table 1.

Table 1: Prevalence and gender distribution of all rheumatological disorders.

Disease	Prevalence %	Frequency		Gender (%)	
		No	%	Male	Female
OA	4.9	1361	38.2	34.9	65.1
FMS	2.1	583	16.3	14.8	85.2
Regional STR	1.7	474	13.3	52.4	47.6
Rheumatoid arthritis	0.5	142	4	17.8	82.2
Gout	1.3	367	10.3	78.3	21.7
Non specific LBA	1.1	306	8.5	42.3	57.7
UCTD	0.4	137	3.8	0	100
Osteoporosis	0.3	100	2.8	3	97
SLE	0.1	37	1	2.7	97.3
Spondyloarthropathy	0.07	21	0.6	50	50
Systemic sclerosis	0.05	14	0.4	0	100
Sjogrens syndrome	0.02	7	0.2	0	100
Vasculitis	0.02	6	0.2	50	50
Antiphospholipid antibody syndrome	0.01	3	0.1	0	100
Adult onset stills disease	0.007	2	0.1	0	100
Total		3560	100		

DISCUSSION

The current study conducted in the Department of General Medicine in a newly formed Medical College was designed as a prospective study on the prevalence and distribution of rheumatic diseases. The total number of patients in our study was 27546 out of which 3560 were diagnosed with different types of rheumatological diseases giving a prevalence of 12.9% which was comparable to what has been reported by Oguntona et al where the prevalence of rheumatic diseases in a hospital community of Nigeria was 15.1%.[13] Whereas this was much lower than the prevalence of 22.7% in the United States according to the Centers for Disease Control and Prevention March 2017.[14] The discrepancy probably could be attributed to higher rates of obesity and increased life expectancy in their population.

The mean age of our patients was 42.33±13.18 years. Similar results have been reported from studies done at the Rheumatology Clinic, University Kebangsaan Malaysia and at a University Hospital in Riyadh, Saudi Arabia.[15, 16] In contrast, the mean age reported by workers in Ume (Sweden) was 50 years.[17] The age of the patients ranged from 18 years to 96 years. Overall among both inflammatory and non-inflammatory groups large proportion (75.9%) of the patients seen were in the third to fifth decade of life which was almost comparable to that of a study done at the Rheumatology Clinic, University Kebangsaan Malaysia where also the majority of the patients were in the second to fifth decade of life.[15] We understandably didn't have large number of patients in second decade as our cut off for inclusion in this study was age ≥18 years. This cut off was chosen as patients <18 years are attended by department of paediatrics in hospital.

There was a predominance of female patients in this study at 64%. Likewise, in most other major studies, there was a similar trend except for the study done at the Tri-service Hospital in Taipei which covers the military population there and the study done at the Chittagong Medical college Hospital, Bangladesh which also has a slight male predominance.[18,19]

Osteoarthritis was the predominant diagnosis in this study with a prevalence of 4.9% and accounting for about 39% of all the patients who presented with rheumatic

disorders. The prevalence of osteoarthritis as reported in prior studies ranged from as low as 1.79% in Nigeria 13 to a high of 37% in Canada.[13,20] This discordance has been largely attributed to the proportional relation between obesity rates and ostearthritis in the respective countries.[21] After osteoarthritis the most prevalent rheumatic disorders in hospital were soft tissue rheumatism, diffuse (fibromyalgia) being slightly more common than regional STR accounting for 16.3% and 13.3% of rheumatological patients yielding a hospital based prevalence of 2.1% and 1.7% respectively. Fibromyalgia was more common in females (85.2%) whereas regional STR was predominant in males (52.4%) which could be attributed to difference in occupation related problems and level outdoor activities. Uhunmwangho et al also reported the prevalence of STR at 17.0% in sub urban Nigerian population with a female preponderance 66.7% vs. 33.3% males.[22]

The frequency of RA in this study (4%) was much lower than that in the German (50.6%) and Nigerian study (25.6%).[23,24] The frequency of gout in this study was 10.3% which was more than that seen in German study (8.5%) but much less than Nigerian study (39%).[23,24] In both the studies the frequency of rheumatoid arthritis was much more than gout which was in contrast to this study. This difference needs further population based epidemiological studies to define the exact frequency and prevalence of these diseases which are still lacking in this community. Besides rheumatoid arthritis has a higher rate of prevalence in high-income countries than in the low- and middle-income countries.[25]

Next in line was non-specific low back pain with a frequency of 8.5%. A prior research conducted by Clemence et al showed a frequency of 12.5% in France.[25] SLE was seen in 37 patients (1.0%) in this study. This was much lower comparable to a study done at a tertiary care center in western India.[27] Scleroderma was diagnosed in 14 (0.4%) patients. All of the patients with scleroderma were females. This was comparable with previous studies.[13,19]

Being confined to a single department in a tertiary care setup our study may not be representative of the actual disease burden in the community which is expected to be much higher. Moreover, hospital based studies usually give a lower prevalence rate as patients with mild symptoms do not seek medical attention. Advantage of hospital based study like ours is that it is based on more accurate diagnosis. A community based epidemiological study will be more appropriate to determine the actual prevalence of rheumatic diseases in the community. . However the data in this study may help in contributing to the development of such healthcare facilities that will effectively screen the incoming patients for the absence or presence of rheumatic disease. This can be accomplished by creating awareness amongst the general population regarding rheumatic diseases and its risk factors, educating the primary health care physicians and paramedical professionals, and conducting more epidemiologic and etiologic researches featuring rheumatic diseases in the country.

CONCLUSION

Osteoarthritis and soft tissue rheumatism were the most predominant rheumatic disorders in this study. Rheumatic diseases constitute a major disease burden in almost all of the age groups, especially in young patients (30-50 years) within this setup.

REFERENCES

1. Chopra A. Rheumatology: made in India (Camps, COPCORD, HLA, Ayurveda, HAQ, WOMAC and Drug Trials). J Ind Rheumatol Assoc. 2004;12:43e53.
2. Chopra A. Community rheumatology in India. A COPCORD driven perspective. Ind J Rheumatol. 2009;4(3):119e126.
3. Smith E, Hoy DG, Cross M, Vos T, Naghavi M, Buchbinder R, et al. The global burden of other musculoskeletal disorders: estimates from the Global Burden of Disease 2010 study. Ann Rheum Dis. 2014;73(8):1462-9.
4. Woolf AD, Pfleger B. Burden of major musculoskeletal conditions. Bull World Health Organ. 2003;81(9):646-56.
5. Vos T, Flaxman AD, Naghavi M, Lozano R, Michaud C, Ezzati M, et al. Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990-2010: a systematic analysis for the global burden of disease study 2010. Lancet. 2012;380(9859):2163-96.
6. Cieza A, Causey K, Kamenov K, Hanson SW, Chatterji S, Vos T. Global estimates of the need for rehabilitation based on the global burden of disease study 2019: a systematic analysis for the global burden of disease study 2019. Lancet. 2020;396(10267):2006-2017.
7. Schumacher HR. Classification of rheumatic diseases. In: Clipped JH, Dieppe PA, (eds.) Rheumatology. Mosby, London; 1994:1-4.
8. Glazier R, Fry J, Badley E. Arthritis and rheumatism are neglected health priorities: a bibliometric study. J Rheumatol. 2001;28 (4):706-11.
9. Malaviya AN, Singh RR, Kapoor SK, Sharma A, Kumar A, Singh YN. Prevalence of rheumatic diseases in India. Results of a population survey. J Indian Rheum Assoc. 1994;2:13-7.
10. Raza K, Gerlag DM. Preclinical inflammatory rheumatic diseases. Rhe Dis Clin. 2014;40(4):569-80.

11. Hoy DG, Smith E, Cross M, Sanchez-Riera L, Blyth FM, Buchbinder R, et al. Reflecting on the global burden of musculoskeletal conditions: lessons learnt from the global burden of disease 2010 study and the next steps forward. Ann Rheum Dis. 2015;74(1):4-7.
12. Singh JA, Solomon DH, Dougados M, Felosn D, Hawker G, Katz P, et al. Development of classification and response criteria for rheumatic diseases. Arthritis Rheum. 2006;55(3):348-52.
13. Oguntona SA, Edunjobi AS, Olatunde AO. Prevalence of rheumatic diseases in a rheumatology outpatient practice of a tertiary hospital. Int Res J Med Biomed Sci. 2016;1(2):11-8.
14. Barbour KE, Helmick CG, Boring M, Brady TJ. Vital signs: prevalence of doctor-diagnosed arthritis and arthritis-attributable activity limitation-united States, 2013-2015. MMWR Morb Mortal Wkly Rep. 2017;66(9):246-53.
15. Chin GL, Shukor AB. The spectrum of rheumatic diseases seen at the Rheumatology Clinic, University Kebangsaan Malaysia. Med J Malaysia. 1988;43(3):297-301.
16. Rajapakse CN. The spectrum of rheumatic diseases in Saudi Arabia. Br J Rheumatol. 1987;26(1):22-3.
17. Bjelle A, Mägi M. Regional rheumatology practice in Umeå a northern Swedish experience. J Rheumatol. 1981;8(1):110-8.
18. Schumacher HR. Rheumatology and rheumatic disease in the Republic of China. J Rheumatol. 1982;9(2):169-71.
19. Al Hasan S, Rahim MA, Siddiq MA, Hossain MS, Taslim A, Paul S, et al. Study of spectrum of rheumatic diseases in the department of physical medicine and rehabilitation, Chittagong medical college hospital, Bangladesh. JCMCTA. 2009;20(1):6-11.
20. MacDonald KV, Sanmartin C, Langlois K, Marshall DA. Symptom onset, diagnosis and management of osteoarthritis. Statistics Canada; 2014;25:10-7.
21. Ng M, Fleming T, Robinson M, Thomson B, Graetz N, Margono C, et al. Global, regional, and national prevalence of overweight and obesity in children and adults during 1980–2013: a systematic analysis for the Global Burden of Disease Study 2013. Lancet. 2014;384(9945):766-81.
22. Courage UU, Tolulope AO. Prevalence and pattern of soft-tissue rheumatism in a semi-urban Nigerian population. J Autoimmune Disord. 2017;3(3):39.
23. Zink A, Listing J, Klindworth C, Zeidler H. The national database of the German Collaborative Arthritis Centres: I. Structure, aims and patients. Ann Rheum Dis. 2001;60(3):199-206.
24. Oguntona SA, Edunjobi AS, Olatunde AO. Prevalence of rheumatic diseases in a rheumatology outpatient practice of a tertiary hospital. Inter Res J Med Biomed Sci. 2016;1(2):11-8.
25. Rudan I, Sidhu S, Papana A, Meng SJ, Xin–Wei Y, Wang W, et al. Prevalence of rheumatoid arthritis in low–and middle–income countries: A systematic review and analysis. J Glob Heal. 2015;5(1):10409.
26. Palazzo C, Ravaud JF, Papelard A, Ravaud P, Poiraudeau S. The burden of musculoskeletal conditions. PloS one. 2014;9(3):e90633.
27. Saigal R, kansal A, Mittal M, Singh Y, Maharia HR, Juneja M. Clinical profile of systemic lupus erthyematous patients at a tertiary care centre in western India. J Indian Acad Clin Med. 2011;13(1):27-32.