Rheumatological disorder (RD) in Indian women above 40 years of age: A cross-sectional WHO-ILAR-COPCORD-based survey

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ABSTRACT

Aim and Objective: To evaluate rheumatological profile among Indian women above 40 years.
Materials and Methods: A cross-sectional survey was carried out for a period of one year using pre-validated questionnaire of COPCORD /WHO-ILAR. Those who complain of pain, tenderness, stiffness or swelling were subjected to clinical evaluation and diagnosis was established using the ACR's criteria for various RDs.
Results: Mean age of the patients was 55.06 ± 6.82 years, mean age at menopause was 47.30 ± 2.50 years and the mean time since menopause was 9.077 ± 5.43 years. Among the total population evaluated (*N* = 130), 37.69% women presented with RD and 37.06% women among the menopausal women had RD with the most common being low backache (16.92%), followed by osteoarthritis (12.30%), fibromyalgia (3.84%) and rheumatoid arthritis (2.30%). The most common site involved was knee (9.23%) followed by lumbar spine (8.46%), hip (3.07%) and other sites (16.92%) such as neck, upper back, hand joints, shoulder, thighs, etc. Study failed to show any statistical correlation with any socio-demographic or other parameters of interest with RD. HAQ-DI (Health Assessment Questionnaire Disability Index) was found to be highly significant (*P* < 0.000) in 13.84% women when correlated with RD.
Conclusion: The prevalence of RD is substantially high among Indian women above 40 years demanding attention of health care providers.

Key Words: Advancing age, COPCORD, menopause, rheumatic disorders, WHO-ILAR

INTRODUCTION

Rheumatic diseases (RD) constitute a major health problem in the general population. Prevalence of RD is increasing drastically worldwide both in urban and rural areas.[1] The majority of people suffering from RD are elderly and since the life expectancy of the population is increasing, the burden related to these diseases is expected to increase in the future.

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This has led to alarming increase in physical, social and economic burden, which is preventable to a greater extent with early identification of disease and treatment.[2]

Female population constitutes a big strength with the advancement of age and is more prone to the onslaught of various chronic diseases. Few studies have documented that females are suffering more of musculoskeletal and rheumatic complaints especially with the advancement of age.[3-7] The presentation of various RD however remains varied and complex.

However, to the best of our knowledge no such study exists from this part of the country. Hence, an attempt was made to evaluate rheumatological profile among women above 40 years of age.

MATERIALS AND METHODS

A cross-sectional survey was carried out for a period of one year in all the women above 40 years of age attending Internal Medicine Department of a tertiary care teaching institute of North India. Those who had pain, tenderness, stiffness, swelling or other similar complaints were subjected to clinical evaluation and diagnosis was established using the ACR's criteria for various RDs. Wherever necessary, based on clinical evaluation and preliminary screening the patients were subjected to the relevant investigations for the confirmation of diagnosis after getting due clearance from IEC vide no. IEC/Pharma/Thesis/Research/2-B/2012/2741 Dated 1-11-2012. The demographic profiles of all the enrolled patients were recorded along with a detailed history and examination as per the pre-validated proforma/questionnaire designed by WHO-ILAR (World Health Organization-International League Against Rheumatism) that is, COPCORD (Community-Oriented Program for the Control of Rheumatic Diseases).[2,5]

Statistical analysis

Data was entered in Microsoft excel and analyzed using SPSS (Statistical Package for Social Sciences software) version 18. The association between the age of the women, age at menopause, time since menopause, type of menopause, co-morbid conditions, type of work and HAQ-DI (Health Assessment Questionnaire Disability Index) with RD was analyzed using Pearson correlation test. P values < 0.05 was taken as significant.

RESULTS

The current study was conducted on 130 women above 40 years of age; mean age of the patients was 55.06 ± 6.82 years, mean age at menopause was 47.30 ± 2.50 years and mean time since menopause was 9.077 ± 5.43 years. Out of 130 women, 116 women had reached menopause; 109 women had natural menopause and 7 had surgical menopause. It was found that the age at menopause, time since menopause and the type of menopause had no relationship with the onset of RD. Total 76 women were educated, out of which 45 had gone to middle school, 20 to a high school and 11 were graduates, while 54 women were illiterate. Total 105 women were married and 25 were widow. Total 97 women were Hindus, 25 were Muslims and 8 were Sikhs. In all, 26 women were earning, whereas 104 women had no source of income. Total 69

women were non-vegetarian while 61 were vegetarian. Total 109 women were non-smokers, 19 ex-smokers and 2 women were currently smokers. Among total population evaluated (N = 130), 49 (37.69%) women presented with RD and while undertaking subgroup analysis 43 (37.06%) women among the menopausal group had RD with the most common being low backache (16.92%), followed by osteoarthritis (12.30%), fibromyalgia (3.84%), rheumatoid arthritis (2.30%) with one patient each of SLE, gout and sciatica. The most common site involved was knee (9.23%) followed by lumbar spine (8.46%), hip (3.07%) and other sites (16.92%) such as neck, upper back, hand joints, shoulder, thighs, etc. In all 54 women had some co-morbid condition present, with hypertension being the commonest followed by anemia, diabetes mellitus and other conditions. Total 76 women were engaged in mild work, 40 in moderate while 14 engaged in heavy work. The HAQ-DI among 49 patients affected with RD was found to be <1 in 31 patients while 18 women had HAQ-DI score between 1 and 3. In all, 29 women were receiving allopathic treatment, 12 were receiving homeopathy treatment while 8 women were under no treatment [Tables 1-5].

DISCUSSION

The prevalence of RD noted in the current study is in accordance with the findings of an Indian study carried out in the past.[8,9] Shah *et al.,*[8] from Mumbai

Table 1: Showing the presence or absence of rheumatological disorder in all the women studied

Rheumatological disorder N = 130	No. of women
Present	49 (37.69%) [95% CI (29.9-45.5)]
Absent	81 (62.30%)

Table 2: Showing prevalence of sub-classification of rheumatological disorders

Sub-Classification of RD	Prevalence (95% CI)
Low back ache	16.92 (10.9-22.8)
Osteoarthritis	12.30 (7.05-17.55)
Fibromyalgia	3.84 (0.76-6.92)
Rheumatoid arthritis	2.30 (0.09-4.69)
Others	2.30 (0.09-4.69)

Table 3: Prevalence of the most common site involved in women with rheumatological disorder

Most common site involved	Prevalence (95% CI)
Knee	9.23 (4.61-13.85)
Lumbar spine	8.46 (4.01-12.91)
Hip	3.07 (0.31-5.83)
Others	16.92 (10.91-22.89)

Table 4: Socio-demographical parameters in women with rheumatological disorder

Variables	Prevalence (%)	(95% CI)
Prevalence of rheumatological disorder on the basis of smoking habits		
Smoker; Non-Smoker; Ex-Smoker	0.76; 32.30; 4.61	(0.63-2.15); (24.82-39.78); (1.25-7.95)
Prevalence of rheumatological disorder on the basis of number of children		
0-2; 3-5; >5	9.23; 22.30; 6.15	(4.61-13.85); (15.64-28.96); (2.31-9.99)
Prevalence of rheumatological disorder in women according to dietary habit		
Veg Vs. Non-Veg	23.07; 14.61	(16.26-29.74); (8.97-20.25)
Distribution of women according to the source of income in rs per month with rheumatological disorders		
<10,000; 10-20,000; 20-30,000; >30,000	2 (1.53); 10 (7.69); 9 (6.92); 5 (3.84)	
Prevalence of rheumatological disorder in women as per religion		
Hindu; Muslim; Sikh	28.46; 6.92; 2.30	(21.25-35.67); (2.86-10.98); (0.09-4.69)
Prevalence of rheumatological disorder as per the marital status of women		
Married; widowed	27.69; 10.0	(20.54-34.84); (5.20-14.80)
Education status of study population		
Educated; Illiterate	58.46 (*N*=76) 41.53 (*N*=54)	

Table 5: Socio-demographical and other parameters of interest with statistical correlation in women with rheumatological disorder

Variables	No. of women (%)	Prevalence (95% CI)	Statistical correlation
Age (in years)			
40-45; 46-50; 51-55; >56	13 (10.0); 22 (16.92); 36 (27.69);	(1.25-7.95); (3.97-12.83);	Pearson chi-square 2.707a; df-3; two-tailed significance 0.439; non-significant (NS)
Age at menopause (in years)			
<45; 46-50; 51-55	59 (45.38) 23 (19.82); 87 (75); 06 (5.17)	(3.97-12.83); (10.5-22.44) (1.06-7.56); (23.5-38.41); (0.38-3.78)	Pearson chi-square 3.204a; df-3; two-tailed significance 0.361; non-significant (NS)
Time since menopause (in yrs)			
1-5; 5-10; 11-15; 16-20; >21	36 (31.03); 45 (38.79); 19 (16.37); 13 (11.20); 3 (2.58)	(8.19-19.21); (5.44-15.16); (2.83-10.95); (1.06-7.56); (0.38-3.78)	Pearson chi-square 4.730a; df-6; two-tailed significance 0.579; non-significant (NS)
Type of menopause			
Natural Vs. Surgical	109 (93.96) Vs. 7 (6.34)	(27.66-42.9) Vs. (0.38-3.78)	Pearson chi-square 0.407a; df-2; two-tailed significance 0.816; non-significant (NS)
Co-morbid condition among women with rheumatological disorder			
Anemia; HT; DM; Others	10.76; 6.15; 1.53; 1.53	(5.80-15.72); (2.31-9.99); (0.43-3.49); (0.43-3.49)	Pearson chi-square 12.966a; df-4; two-tailed significance 0.011; significant (S)
Rheumatological disorder according to the type of work			
Mild; Moderate; Heavy	22.30; 10.0; 5.38	(15.6-28.96); (5.20-14.80); (1.78-8.98)	Pearson chi-square 1.369a; df-2; two-tailed significance 0.504; non-significant (NS)
Haq-di prevalence in women having rheumatological disorder			
<1; 1-3	23.84; 13.84	(16.98-30.62); (8.32-19.36)	Pearson chi-square 125.794a; df-2; two-tailed significance 0.000; significant (S)

reported muscle and joint pain to be as high as 37.4% while Sharma *et al.*,[9] reported rheumatic pains to be 48.13%, which is equivalent to our study. Similarly, in a study carried out among American women (Bagga, 2004),[10] 53.8% women presented with ache in back of neck and skull region. The findings of the current study are in contradiction with other Indian studies. [11,12] In a study conducted by Kaur *et al.,* 2004,[11] diminished acuity of vision, and in a study conducted by Singh and Arora, 2005,[12] diminished acuity of vision and hot flushes were the most frequent symptoms encountered.

The possible reasons for contradiction with these may be due to the varied perception of rheumatological problems. Moreover, diversities in region, community, ethnic variations, genetic and environmental factors, variation in age at menopause and time since menopause are some of the reasons responsible for these variations.

The most common RD reported in the current study was low backache (16.92%) followed by osteoarthritis (12.30%), fibromyalgia (10.20%) and rheumatoid arthritis (2.30%). In the first report by Chopra *et al.,* 2001,[5] 18.5% of the patients had rheumatological complaints with osteoarthritis being the most common (5.8%) followed by soft tissue rheumatism (5.1%), rheumatoid arthritis (0.5%) and unclassifiable inflammatory arthritis (0.9%). Similarly, Mahajan *et al.,* 2003[13] in their study from Jammu region of urban population reported 23.9% patients to have rheumatological problems with low backache (34.7%) being the most common followed by osteoarthritis (24.9%), unclassified rheumatic diseases (18.7%), soft tissue rheumatism (17.9%) and rheumatoid arthritis (0.8%). In a study by Tandon and Mahajan (2007),[14] females were affected more with RD as compared to males. Osteoarthritis was the common disorder followed by symptom-related ill-defined rheumatic symptoms, vague symptoms and rheumatoid arthritis. Low backache, myalgia, frozen shoulder, sero-positive rheumatoid arthritis and gout were some of the common RDs.

Haq *et al.,* 2005[15] in Bangladesh reported RD to be the common cause of morbidity, disability and work loss in rural and urban communities and found that women were affected more commonly than men, and point prevalence of RD was found to be 24.0% with the most common RD being osteoarthritis followed by low backache, lumbar spondylosis, fibromyalgia and soft tissue rheumatism.

Dai *et al.,* 2003[16] in their study conducted in China, reported that rheumatic symptoms were more common in women than men. In all, 21.2% presented with knee osteoarthritis and STR in 3.4%. Crude prevalence rate for RA in total population was 0.47% and for gout was 0.33%.

The wide variation seen from the current study in the prevalence of various RDs in different studies can be explained on the basis that all these studies were generalized epidemiological surveys taking both men and women into account. But one very interesting fact among these studies is that woman were most commonly affected than men by RD.

The possible linkage to high prevalence of RD with advancing age in women is the hormonal depletion corresponding with their menopause and variations among the prevalence of RD may be because of inter-individual differences in estrogen depletion among women of different ethnicity and different countries.[17] The findings of the current study underscore another very important and interesting thing that rheumatic complaints, age at menopause, time since menopause and type of menopause failed to show any statistical correlation with RD thereby indicating that these factors, in view of the current study failed to influence the pattern and prevalence of RD. However, the number of women included in the current study is too small to truly conclude non-correlation of RD with these parameters.

In our study the most common site involved in women with RD was knee. In a study conducted by Chopra *et al.*, 2002[2] the most common sites involved were knee (13.2%), lumbar (11.4%), shoulder (7.4%), calf (6.6%), ankle and elbow (6.5%), wrist (6.4%), hand (6.1%). Chopra *et al.*, 2001[1] reported back pain and painful neck in 17.3% and 9.5% of women, respectively. In an Australian study by Minaur *et al.*, 2004[18] the most common sites were low back (12.5%), knee (11.2%) and shoulder (8.9%). Similarly Dai *et al.*, 2003[16] in China reported knee to be the most common site seen in 7.0% followed by lower back (5.6%), shoulder (4.7%) and neck (2.4%). Haq *et al.*, 2005[15] reported the most commonly affected sites to be low back, knees, hips and shoulders. In a study by Minn Hoa *et al.*, 2003[19] the most common sites involved were knee (18.2%), low back pain (11.2%) and soft tissue disorder in 15.4% patients. The current study failed to show any statistical correlation with any of the socio-demographic and other parameters of interest with RD in women.

In our study hypertension, anemia and diabetes mellitus were common co-morbid conditions. Similarly, the study conducted by Minaur *et al.*, 2004[18] reported co-morbid conditions as 58% overweight, 27% obese, 24% hypertensives, 12.5% diabetics and 2% dyslipidemia. Similarly, in a study conducted by Mahajan *et al.*, 2003[13] hypertension, diabetes mellitus obesity and anemia were the most common co-morbid conditions among the population affected by osteoarthritis. In a study conducted by Mahajan and Tandon, 2007[14] to study RD among rural population hypertension, diabetes mellitus, dyslipidemia, anxiety, acid peptic disease and anemia were the most common co-morbid conditions. It is well established that various cardiovascular risk factors are reportedly seen more commonly in men than in women until 55 years of age but thereafter women supersedes men.[20] Thus, the current study highlights the fact that RD should get their due importance by primary physicians.

In our study the HAQ-DI was found to be highly significant in 13.84% women when correlated with RD

statically. Similar trends in accordance with our study were observed in a study conducted by Chopra *et al*., 2001[5] in which HAQ-DI was found to be 21% but many more patients reported significant difficulty in the individual items of walking, hygiene (squatting), arising from sitting cross-legged, reaching and occupational/household activities, which corresponded to the dominant pain sites in lower back and lower limbs. In another study by AL-Awadhi *et al*., 2004[21] females were more affected in comparison to males and the functional disability was reported among 39.1% of patients.

CONCLUSION

The prevalence of rheumatic disorders is substantially high among Indian menopausal women demanding attention of health care providers. Low backache followed by osteoarthritis, fibromyalgias and rheumatoid arthritis were the most common RDs affecting women above 40 years of age. Hypertension, anemia and diabetes mellitus were the associated common co-morbid conditions.

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Conflict of interest
There are no conflicts of interest.

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