A STUDY OF EXTRA-ARTICULAR MANIFESTATIONS OF RHEUMATOID ARTHRITIS

Harsha N. S[1], Thimma Reddy S. R[2], Madhuvan H.S[3], Ravishankar S. N[4]

[1]Associate Professor, Department of General Medicine, Akash Institute of Medical Sciences and Research Centre, Bangalore.
[2]Assistant Professor, Department of General Medicine, Akash Institute of Medical Sciences and Research Centre, Bangalore.
[3]Assistant Professor, Department of General Medicine, Akash Institute of Medical Sciences and Research Centre, Bangalore.
[4]Professor, Department of General Medicine, Akash Institute of Medical Sciences and Research Centre, Bangalore.

ABSTRACT

BACKGROUND

Diseases of musculoskeletal system are among the most common human afflictions. Rheumatoid Arthritis (RA) is a systemic autoimmune disease of unknown aetiology characterised by symmetric erosive arthritis and in some cases extra-articular involvement. Characteristic feature of RA is persistent inflammatory synovitis usually involving peripheral joints in a symmetric distribution.

The aim of the study is to study the extra-articular manifestations of Rheumatoid Arthritis (RA).

MATERIALS AND METHODS

50 cases who satisfied the criteria for diagnosis of RA laid down by the American Rheumatism Association Criteria were selected. They were studied for evidence of extra-articular manifestations by clinical, biochemical, radiological, echocardiographic and pulmonary function tests. Data was collected and analysis was made using various statistical parameters.

RESULTS

Among the 50 cases of RA studied, the disease was common in females and maximum incidence was seen between 30-39 years of age (30%). Morning stiffness, pain and swelling in the joints were the commonest presenting symptoms. The joints of the hand (70%) were the most commonly involved followed by wrist, knee, ankle and foot joints. In the present study, 28 (56%) had extra-articular manifestations with more incidence in males than females. The commonest one was anaemia (20%) followed by cardiac involvement (12%). Next, in the order of involvement were pulmonary, lymphadenopathy, vasculitis and rheumatoid nodule. Pericardial effusion was the most common cardiac finding followed by mitral regurgitation and aortic regurgitation. RA factor was positive in 33 (66%) cases. All the patients who had extra-articular manifestation had RA factor positive.

CONCLUSION

Although, the rheumatoid arthritis was common among females, the extra-articular manifestations were common among males. Longer duration of disease and positive RA factor were associated with higher incidence of extra-articular manifestations. Currently, there are no reliable predictors for these features in early RA, although they are associated with men, more severe joint disease and worse function. Early recognition and appropriate treatment might limit the morbidity and lead to better outcomes.

KEYWORDS

Rheumatoid Arthritis, Extra-Articular Manifestations, RA Factor.

HOW TO CITE THIS ARTICLE: Harsha NS, Reddy SRT, Madhuvan HS, et al. A study of extra-articular manifestations of rheumatoid arthritis. J. Evid. Based Med. Healthc. 2017; 4(81), 4783-4785. DOI: 10.18410/jebmh/2017/955

BACKGROUND

Diseases of musculoskeletal system are among the most common human afflictions.[1] Rheumatoid Arthritis (RA) is a systemic autoimmune disease of unknown aetiology characterised by symmetric erosive arthritis and in some cases extra-articular involvement. Characteristic feature of RA is persistent inflammatory synovitis usually involving peripheral joints in a symmetric distribution. The potential of the synovial inflammation to cause cartilage destruction and bone erosions and subsequent changes in joint integrity is the hallmark of the disease.[2] Despite its destructive potential, the course of RA can be quite variable, some patients may experience only a mild oligoarticular illness of brief duration with minimal joint damage, whereas others will have a relentless progressive polyarthritis with marked functional impairment.

Although, RA is more common in females, extra-articular manifestations of the disease are more common in males. The extra-articular manifestations of RA can occur at any age after onset. It is characterised by destructive polyarthritis and extra-articular organ involvement, including

Financial or Other, Competing Interest: None.
Submission 01-10-2017, Peer Review 03-10-2017,
Acceptance 06-10-2017, Published 09-10-2017.
Corresponding Author:
Dr. Thimma Reddy S. R.,
Assistant Professor, Department of General Medicine,
Akash Institute of Medical Sciences and Research Centre,
Devanahalli, Bangalore.
E-mail: drsrtmothkur@gmail.com
DOI: 10.18410/jebmh/2017/955

the skin, eye, heart, lung, renal, nervous and gastrointestinal systems.

Extra-articular organ involvement in RA is more frequently seen in patients with severe active disease and is associated with increased mortality. Early disability is one of the main predictors of extra-articular involvement.[3]

A better control of disease activity in the last decade due to the availability of more efficacious drugs has resulted in a lower frequency of extra-articular Manifestations of RA (ExRA) as well as better outcomes in many patients.[4]

Aims and Objectives- The aim was to study the extra-articular manifestations of Rheumatoid Arthritis (RA).

MATERIALS AND METHODS

50 cases of RA who are attending either the OPD or admitted to the wards of Akash Hospital over a period of 1 year (October 2016 - September 2017) were selected. The cases were diagnosed using ARA criteria 1987. All patients underwent clinical examination and the following investigations were done- Complete haemogram, ESR, RBS, RFT, RA factor, chest x-ray PA view, x-ray of the joints, 2D echo and PFT (wherever necessary).

The data was collected in a pretested questionnaire meeting the objective of the study. Analysis was made using various statistical parameters.

1.	Morning stiffness	Morning stiffness in and around the joints, lasting for at least 1 hour before maximal improvement.
2.	Arthritis of 3 or more joints	At least 3 joint areas (out of 14 possible areas, tight or left PIP, MCP, wrist, elbow, knee, ankle, MTP joints) simultaneously have had soft tissue swelling of fluid (no bony growth) as observed by the physician.
3.	Arthritis of hand joints	At least one area swollen (as defined above) in wrist, MCP, PIP joints.
4.	Symmetric arthritis	Simultaneous involvement of the same joint areas (as defined in 2) on both sides of body (bilateral involvement of PIPs, MCP, MTP) without absolute symmetry is accepted.
5.	Rheumatoid nodules	Subcutaneous nodules over the bony prominences or extensor aspects or in juxta-articular region as observed by physician.
6.	Serum rheumatoid factor	Demonstration of abnormal rheumatoid factor by any method for which the result had been positive in less than 5% of normal control subjects.
7.	Radiographic criteria	PA hand and wrist x-ray's, must include juxta-articular or generalised osteoporosis, subluxation, secondary osteoarthritis.

Table 1. ARA 1987 Criteria for Diagnosis of RA

For classification purposes, a patient is said to have RA if he/she has satisfied at least 4 of the above 7 criteria. 1 through 4 must be present for at least 6 weeks.

Inclusion Criteria- Patients presenting with polyarthritis who satisfy the ARA 1987 criteria are included in the study.

Exclusion Criteria- Patients presenting with polyarthritis, but not satisfying the ARA criteria 1987 are excluded from the study.

RESULTS

In the present study, maximum incidence of RA was between 30-39 years of age. Females were more affected than males. Morning stiffness, pain and swelling in the joints were the commonest presenting symptoms. The joints of the hand were the most commonly involved followed by wrist, knee, ankle and foot joints. Anaemia was the commonest extra-articular manifestation seen in 10 (20%) patients, which was normocytic normochromic type. Cardiac involvement was seen in 6 (12%) patients. Pericardial effusion (6%) was the most common finding followed by mitral regurgitation (4%) and aortic regurgitation (2%). Pulmonary involvement was seen in 4 (8%) patients who showed restrictive pattern on pulmonary function testing. Next, in the order of involvement was lymphadenopathy (8%), which was generalised. Vasculitis was seen in 4 (8%) patients, in which 3 had digital ischaemic ulcers and 1 had peripheral neuropathy. Rheumatoid nodule was seen in 1 (2%) patient, which was seen over dorsal aspect of the arm.

RA factor was positive in 33 cases (66%). All the patients who had extra-articular manifestation were RA factor positive.

Sl. No.	Age Group (in years)	Sex		Total	Percentage
		M	F		
1.	20-29	4	10	14	28
2.	30-39	4	11	15	30
3.	40-49	2	6	8	16
4.	50-59	3	3	6	12
5.	>60	4	3	7	14

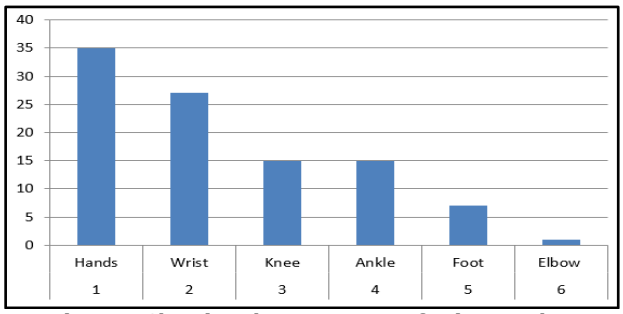
Table 2. Age and Sex Distribution of the Cases

Symptoms	Numbers	Percentage
Morning stiffness	43	86
Pain and swelling in the joints	45	90
Fatigue/Muscular pain	20	40
Fever	19	38

Table 3. Presenting Symptoms at the Time of Admission

Sl. No.	Joints	Total No.	Percentage
1.	Hands	35	70
2.	Wrist	27	54
3.	Knee	15	30
4.	Ankle	15	30
5.	Foot	7	14
6.	Elbow	1	2

Table 4. Frequency of Joint Involvement at the Time of Presentation



Bar Diagram Showing the Frequency of Joint Involvement

Extra-Articular Manifestations	Male	Female	Total	%
Anaemia	4	6	10	20
Cardiac involvement	4	2	6	12
Pulmonary involvement	3	1	4	8
Lymphadenopathy	1	3	4	8
Vasculitis	1	2	3	6
Rheumatoid nodule	1	0	1	2
Total	**14**	**14**	**28**	**56**

Table 5. Extra-Articular Manifestation

Echo Findings	Male	Female	Total
Pericardial effusion	1	2	3
MR	2	0	2
AR	1	0	1

Table 6. Echocardiographic Findings

PFT Abnormality	Male	Female	Total
Restrictive	3	1	4
Obstructive	0	0	0

Table 7. PFT

DISCUSSION

In the present study, it was noted that, the females were more affected than males and the maximum number of cases were in the age group of 30-39 years. Similar findings were noted in the study conducted by J. C. Banergia.[5] Though the disease is more common among females, the extra-articular manifestations are seen slightly more among the males.

Majority of the patients in the present study had pain and swelling of the joints as the presenting symptom followed by morning stiffness and fever. Some of them had all the above presenting symptoms, which is similar to the study of J. C. Banergia.

In the present study, the commonest extra-articular manifestation was anaemia followed by cardiac involvement, pulmonary involvement, lymphadenopathy, vasculitis and subcutaneous nodule.

M. Cojocaru[6] reported in his study as the commonest extra-articular manifestation was subcutaneous nodule followed by anaemia, vasculitis and pulmonary involvement. Different studies have studied only single system involvement separately and published. This could probably explain the different extra-articular manifestations as being commonly manifested among RA patients.

Anaemia was normocytic, normochromic type in our study similar to that Wanchu et al.[7]

Cardiac manifestations included pericardial effusion, followed by mitral regurgitation and aortic regurgitation, which is in concordance with study by Guedes et al[8] and B C Sinha et al.[9]

The respiratory system involvement was noted in the form of interstitial lung disease, which revealed a restrictive pattern. M. Cojocaru reported that interstitial pulmonary fibrosis is seen in RA factor positive male patients with longstanding disease.

Subcutaneous nodule was seen in only one patient in our study in comparison with M. Cojocaru who reported upto 30% incidence in their study.

RA factor was positive in 33 patients in our study. All patients who had extra-articular manifestation were RA factor positive. Similar findings were noted in Wanchu et al study.

CONCLUSION

Although, the rheumatoid arthritis was common among females, the extra-articular manifestations were commonly seen in males. Longer duration of disease, positive RA factor and severe degree of anaemia were associated with higher incidence of extra-articular manifestations. Currently, there are no reliable predictors for these features in early RA, although they are associated with men, more severe joint disease and worse function. Early recognition and appropriate treatment might limit the morbidity and lead to better outcomes.

REFERENCES

[1] Harris ED. Clinical features and differential diagnosis. In: Rheumatoid arthritis. Philadelphia: WB Sanders 1997:215-229.

[2] Shah A, Claire W. Rheumatoid arthritis. Chapter 380. In: Kasper DL, Fauci AS, Hauser SL, et al, eds. Harrison's principle of internal medicine. 19th edn. 2015:2137-2148.

[3] Turesson C, O'Fallon W, Crowson CS, et al. Extra-articular disease manifestations in rheumatoid arthritis: incidence trends and risk factors over 46 years. Ann Rheum Dis 2003;62(8):722-727.

[4] Vela P. Extra-articular manifestations of rheumatoid arthritis, now. EMJ Rheumatol 2014;1:103-112.

[5] Banergia JC. Some observations in rheumatoid arthritis with special reference to cardiovascular manifestations. JAPI 1965;13:251-260.

[6] Cojocaru M, Cojocaru IM, Silosi I, et al. Extra-articular manifestations in rheumatoid arthritis. A Journal of Clinical Medicine 2010;5(4):286-291.

[7] Wanchu A, Suri L, Deodar SD. Extra-articular manifestations among north Indian patients with rheumatoid arthritis. JIRA1997;5(3):75-78.

[8] Guedes C, Bianchi-Fior P, Cormier B, et al. Cardiac manifestations of rheumatoid arthritis: A case-controlled transesophageal echocardiography study in 30 patients. Arthritis & Rheum 2001;45(2)129-135.

[9] Sinha BC. Cardiovascular manifestations in rheumatoid arthritis. JAPI 1965;13:261-264.