ORIGINAL ARTICLE

Joint Deformities in Patients of Rheumatoid Arthritis Report of 112 cases from Lahore, Pakistan

MANAAL AFZAAL[1], ASMA MUNIR[2], ATIYA MAHBOOB[3], AFLAK RASHEED[4], MUHAMMAD ONEEB SALEEMI[5]

[1]Senior Registrar, Dept of Dermatology, Shaikh Zayed FPGMI Lahore, [2]Consultant hematologist, [3]Professor, Dept of Dermatology, Shaikh Zayed FPGMI Lahore, [4]Asst Professor, Dept of Rheumatology, Shaikh Zayed FPGMI Lahore, [5]Demonstrator, Dept of Anatomy, Shaikh Zayed FPGMI

Address for Correspondence: Dr. Manaal Afzaal, Senior Registrar Deptt of Dermatology, Shaikh Zayed FPGMI. Lahore. E-mail: manaal_afzaal@yahoo.com

ABSTRACT

Background : Rheumatoid arthritis is a chronic systemic inflammatory autoimmune disease typically involving joints causing symmetric polyarthritis leading to progressive joint destruction and functional impairment .

Objectives: To determine the frequency and pattern of joint deformities in patients with rheumatoid arthritis**.**

Study Design: Descriptive case series.

Place and duration of study: Department of Medicine Shaikh Zayed Medical Institute, Lahore from 01-01- 13 to 30-06-13.

Subjects and Methods: Hundred and twelve patients with rheumatoid arthritis of both sexes above fifteen years of age fulfilling the ACR 2010 criteria were evaluated for age, gender and pattern of joint involvement.

Results: There were 13 (11.68%) males and 99 (88.4%) female patients, male to female ratio was 1:7.6. 13.4% of the patients were below and 86.6% of the patients were above 30 years of age. Mean age of the patients was 42.38 ±10.7 years. Thirty-nine patients (34.8%) presented with various joint deformities. Small joints of hands were most commonly involved.

Conclusion: The joint involvement in rheumatoid arthritis is quite extensive. The disease should be diagnosed at an early stage for proper management and to prevent complications.

Key Words: Rheumatoid arthritis**,** joint deformity.

INTRODUCTION

Rheumatoid arthritis is a chronic systemic inflammatory autoimmune disease typically involving joints with symmetric polyarthritis leading to work disability, functional impairment and radiographic evidence of joint damage. [1,2] Its prevalence in Pakistan is 0.9-1.98% and 0.5-1% in US. It affects women twice as often as men and incidence rises with increasing age.[3]

The etiology of RA, remains largely unknown, although microbiological, immune, genetic, hormonal, and dietary factors have been implicated.[4] The risk factors includes pregnancy, smoking, obesity and recent infections.[5] RA causes irreversible destruction of cartilage, tendons, and bones, and shortens the life expectancy of patients by affecting major organ systems.[6] The diagnosis of RA is based primarily on the 2010 revised criteria of the American College of Rheumatology (ACR), including clinical, biologic and radiologic findings.[7]

Although any diarthrodial joint may be affected, proximal interphalangeal joints of the fingers, metacarpophalyngeal joints, wrists, knees, ankles, and metatarsophalyngeal joints are most often involved. [8] Among the hand deformities, boutonniere and swan neck deformity are commonly found [9]. Foot deformities especially hallux rigidus and calcaneal valgus may affect function of foot[10]. RA can affect the neck but spares the other components of the spine and does not involve the sacroiliac joints. In advanced disease, atlantoaxial (C1–C2) subluxation can lead to myelopathy. [8]

RA has significant social, economical and psychological impact on patients and their families. There is ignorance among the local population and they usually seek treatment when they develop complications including various deformities. Earlier

treatment with disease-modifying anti-rheumatic drugs and biological agents improves long-term outcomes. [11] The present study is conducted to document joint deformities in the local population. It is essential that the patients are diagnosed at an early stage and managed aptly so that articular complications can be prevented.

MATERIAL AND METHODS

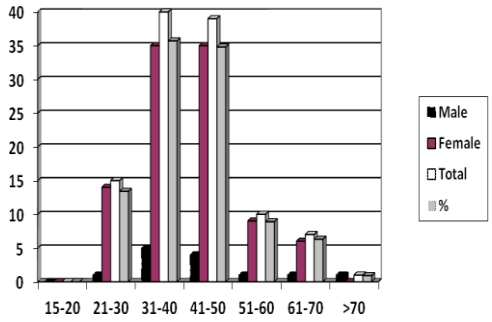
Hundred and twelve patients with rheumatoid arthritis of both sexes above fifteen years of age fulfilling the ARA criteria were evaluated for age, gender and pattern of joint involvement. Detailed clinical history and examination were performed and recorded on a predesigned performa after taking their written informed consent. On physical examination different joint deformities such as swan neck and boutonniere deformities of fingers, ulnar deviation of wrist, fixed flexion at elbows, superior subluxation of shoulders, valgus deformity of knees, ankles, toes, cockup and hammer toes and fixed flexion of hips were listed.

All data were entered and analysed by using SPSS-17.0. Demographic variables were reported as frequency and percentages. Numerical data was reported as Mean ± SD.

RESULTS

One hundred and twelve diagnosed cases of rheumatoid arthritis from Medical in- and out-patient departments of Shaikh Zayed Medical complex, Lahore, were included in the study. 99 (88.4%) were females and 13 (11.6%) were males. Female to male ratio was 7.6:1. Age ranged from 20 to 74 years. Mean age for the case series was 42.38±10.71 years. Mean age for females was 42.22±10.49 years and for males was 43.54±12.73years. Most of the patients were in the age group of 31-50 years (Figure -1).

Figure-1: Age and gender distribution of patients with RA (n= 112)



Thirty nine out of one hundred and twelve patients (34.82%) were found to have various joint deformities. 33 (84.6%) were females and 6 (15.4%) were males. Female to male ratio was 5.5:1. Age ranged from 28 to 74 years. Mean age for these patients was 44.69±9.77 years. Mean age for females was 44.09±8.9 years and for males was 48±14.1years. The maximum number (43.59%) of patients were in 41-50 years age group followed by 31-40 years age group (35.89%) (Table 1).

Table 1: Age and gender distribution of RA patients with joint deformities (n=39)

Age(yr)	Male	Female	Total	%
15-20	0	0	0	0
21-30	0	2	2	5.1
31-40	2	12	14	35.89
41-50	2	15	17	43.59
51-60	0	3	3	7.69
61-70	1	1	2	5.1
>70	1	0	1	2.56
Total	6	33	39	100

Mean age of patients at onset of disease was 42.38± 10.71 years. It was 39.385±13.7years in males (range 24-73 years) and 35.4 ± 11.26years in females (range 15-66 years). The duration of disease in patients with RA varied from 2 months to 30 years (mean 6.58±5.5 years). Duration of disease in those with deformities varied from 1-30 years. Most of the patients developed deformities during the first 10 years of the disease course. (Table 2)

Table 2: Duration of disease in RA patients with joint deformities (n=39)

Duration (years)	Pts with deformities	%
<1	0	0
1-5	15	38.46
6-10	12	30.77
11-15	7	17.95
16-20	4	10.25
21-25	0	0
26-30	1	2.56

In the current study, 39 (34.8%) patients presented with various joint deformities. Uni-, bi- and triarticular involvement was found in

31(79.5%), 6(15.4%) and 2 (5.1%) patients respectively. 25(64.1%) patients had one type of deformity while 9 (23.1%), 4(10.3%) and 1(2.6%) patient had two, three and four different deformities respectively at time of presentation. The joints of hands were involved in 33 patients (84.6 %). (Table 3)

Table 3: Joint involvement of patients with rheumatoid arthritis (n= 39)

Deformity	Males	Females	Total	%
Hand	6	27	33	84.6
Wrist	1	5	6	15.4
Elbow	0	2	2	5.1
Shoulder	0	0	0	0
Hip	0	0	0	0
Knee	0	1	1	2.56
Ankle	0	0	0	0
Foot	1	4	5	12.82

Among the hand deformities, the Z deformity was the commonest, seen in 18 (46.2%) patients while the valgus deformity of toes was the only deformity affecting joints of the foot. (Table 4)

Table 4: Pattern of joint deformities in RA patients at presentation (n=39)

Joint deformities	Male	Female	Total	%
Swan neck	4	9	13	33.3
Boutonniere	2	15	17	43.6
Z deformity	3	15	18	46.2
Ulnar deviation	1	5	6	15.4
Radial deviation	0	0	0	0
Fixed flexion of elbow	0	2	2	5.1
Superior subluxation of shoulder	0	0	0	0
Fixed flexion of hips	0	0	0	0
Valgus deformity of knee	0	1	1	2.6
Flexion contracture of knee	0	0	0	0
Valgus deformity of Ankle	0	0	0	0
Valgus deformity of toes	1	4	5	12.8
Cockup toes	0	0	0	0
Hammer toes	0	0	0	0

DISCUSSION

RA is a common chronic autoimmune inflammatory disease that affects the synovial joints and causes significant functional disability due to destruction of bone and cartilage and systemic involvement.[8] The prevalence of RA varies from 0.5-1% in US, Nigeria, Indonesia, Africa and India[3]. The prevalence of RA in Pakistan is 0.9-1.98 %.[9] while in urban population of southern and northern Pakistan it is 0.142% and 0.55% respectively.[3]

In the present study female gender predominance (Male: female ratio 1:7.6) was found. It is consistent with other studies [3,9,12,13,14]. However in a study conducted in 2 districts of Karachi equal male to female ratio was reported. [15].

In present study age of patients at initial visit varied from 20-74years with a mean of 42.38±10.71 years. In other studies [13,14] mean age of patients was 51.4±12.4years and 28 years which are quite different from that of our patients. The mean age of our female patients was 42.22±10.49 years which is almost similar to the age reported by Safeer M et al[16], but different from that reported by Johnson PM et al[14]. Mean age of our male patients was 43.54±12.73 years which is quite different from that 39 years reported by Safeer M et al.[16]

70.5% patients in current series of RA patients and 79.5% of RA patients with deformities belonged to third and fourth decade of life. It is very similar to reported age groups of other studies. [3,9,13]

The mean age of patients at onset of disease in present study was 42.38± 10.71. It was 35.4±11.26 years and 39.39±13.7 years in females and males respectively. In one of the studies it was 38.5 years in females and 44.8 years in males [3]. In another study comprising of two groups, the mean of female and male patients was 36.5years and 41.3years of group 1 and 45.3years and 54 years of group 2 patients respectively. [17]

The duration of the disease in our RA patients varied from two months to thirty years (mean 6.58±5.5 years) which is quite high from that reported by Johnson PM[14] in which the mean duration of symptoms before inclusion was 12±7 months. Similarly the mean duration of disease of two groups studied by Imanaka et al does not match with that of present case series.

38.46% of our patients developed various articular deformities in first five years of their disease while 30.77% developed deformities in next five years, i.e 69.23% of our patients had joint deformities in first ten years of disease. In one study[14] sixteen (14.18%) patients had hand deformities at the time of presentation. 46 (43%) out of those 183 patients developed deformities within one while 62 (56%) patients within two years. In another study [13] only 10 (7.9%) out of 124 patients had deformities. 31(79.5%) of our patients had monoarticular involvement whereas in a study by Qayum A et al [9] monoarticular involvement was seen in 1(2%) case.

Small joints of the hand were affected in 33 (84.6%) cases with deformities in the present study. Among various deformities of hand, Z-deformity was the most common (46.2%) followed by boutonneire (43.6%) and swan neck deformity (33.3%). In a study [13] at the end of 10 years 59% of patients had developed one or more deformities and prevalence data for ulnar deviation, boutonneire and swan neck deformities was 44%, 24% and 23.5% respectively. In another study[9] boutonneire, swan neck deformity and Z-deformity were found in 80%, 72% and 68% respectively.

In our study valgus deformity of toes and knee was found in 5(12.8%) and 1(2.6%) patients respectively. Valgus deformity of ankle was not seen in any patient. In a study[9] the valgus deformity of ankle, toes and knee was present in 42%, 40% and 34% of cases.

CONCLUSION

RA is a progressive and destructive disease of joints resulting in physical disability and affects daily life function. Due to ignorance and illiteracy in our population patients usually present with acute exacerbation or any joint deformity. It is necessary to diagnose and manage RA at an early stage to reduce the associated morbidity and mortality.

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