Original Article

Rheumatoid Arthritis

Seropositivity of Rheumatoid Factor in Patients with Rheumatoid Arthritis

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ABSTRACT

Objective: To determine the frequency of positive rheumatoid factor and its association with demographic and clinical characteristics in rheumatoid arthritis patients.

Study Design:

Place and Duration of Study: This study was conducted at the Department of Rheumatology, Ziauddin Hospital, Karachi from June 2018 to May 2019.

Materials and Methods: Patients who fulfill American College of Rheumatology (ACR) classification criteria 2010 were included in the study. The rheumatoid factor status of patients was acquired by qualitative latex agglutination test. The appearance of a detectable agglutination was considered to be a positive indicator of RF. Increased levels of ESR defined as ≥ 15 mm/hr in male and ≥ 20 mm/hr in female patients was also studied. All data were analyzed by SPSS v23.0. As the data was qualitative in nature, chi-square test was used to detect significant difference. The p-value ≤0.05 was statistically taken as significant.

Results: RF was moderately higher as positive 66(75.0%). The most important result of our study was the significant correlation of RF sero-positivity with severity of symptoms specifically early morning stiffness (p=0.000) and Joint swelling (p=0.005).

Conclusion: Positive Rheumatoid factor with high serum values can be correlated with early morning stiffness and joint swelling.

Key Words: Autoimmune Disease, Rheumatoid Arthritis, Erythrocyte Sedimentation Rate Rheumatoid Factor.

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INTRODUCTION

Rheumatoid joint pain is a constant immune system illness wherein the articular side effects is the most prominent symptom. The condition influences a huge number of individuals around the world, with an incidence going from 0.5%-1% among general individuals.[1-3] Hazard factors for rheumatoid joint pain incorporate hereditary factors, sex, age, smoking, hormonal variables and ethnic elements.[4-5] It has been proposed that HLA-DRB1 shared epitope alleles are associated with anti-citrullinated protein antibodies (ACPA) in three Asian populations, namely the Malay, Chinese and Indian ethnicities from Malaysia,[6] which suggests that in the pathogenesis of RA genetic susceptibility factors play a vital role.[7]

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RA manifestations can involve any of the proximal inter-phalangeal (PIP) joints, meta-carpophalangeal (MCP) joints and meta-tarsophalangeal (MTP) joints, and the joints in the wrist and knee as well.[8] The long joints incorporate as shoulder, elbow, knee and lower legs, and the little joints incorporate the MCP, PIP, MTP, thumb inter-phalangeal joints and wrist.[9] An introduction as clinically of rheumatoid arthritis differs, in spite of the fact that a guileful beginning of pain joined by swelling symmetrically of the little joint is the most well-known indication.[10]

Rheumatoid factor (RF) are the primary auto-antibodies to be found in the serum of patients of Rheumatoid Arthritis.[11] RF is a specific autoantibody directed towards the IgG molecule.[12] The RF related to IgM are the major rheumatoid factor species found in Rheumatoid Joint pain in the beginning periods of the disease.[13-14] Moreover, Rheumatoid Factor could be recognized in healthy individuals quite a while before the beginning of Rheumatoid Arthritis clinically.[15-16]

Rheumatoid Factor has additionally been found in a few different ailments, like systemic lupus erythematosus, blended connective tissues illness and essential Sjögren's disorder, just as in non-immune system conditions, for example, incessant contaminations and older age, [13, 17] that demonstrates, Rheumatoid Factor can be a result of non-explicit resistant actuation.[18]

MATERIALS AND METHODS

This study was conducted at Rheumatology Department, Ziauddin Hospital, Karachi from June 2018 to May 2019. Patients who fulfill American College of Rheumatology (ACR) classification criteria 2010 were included in the study.[9]

The basic demographic data was recorded as, age of Rheumatoid Arthritis, sex, serologically biomarkers, like (ESR), CRP and clinical side effects like stiffness at morning, swelling in joints and patterns of joint effected by Rheumatoid Arthritis. Joint association here involves as swollen painful joints distinguished through the examinations by rheumatologists.

The rheumatoid factor status of patients was acquired by qualitative latex agglutination. The appearance of a detectable agglutination was considered to be a positive indicator of RF. Increased ESR levels were defined as ≥ 15 mm/hr in male and ≥ 20 mm/hr in female patients.

Data were analysed by SPSS v23.0. To detect significant difference, chi-square test was used as the data was qualitative in nature. . The p-value ≤0.05 was statistically taken as significant. Relative descriptive statistics were also presented in the tables.

RESULTS

The average age of patients was 35.5±3.6 years. Mean ESR was 42.6±4.7 mm/hr. There were 11(12.5%) male and 77(87.5%) females. The numbers of small joints were 74(84.0%) and large joints affected by RA were 69(78.0%).

Table No.1: Frequency distribution of Gender, Age

Gender(n=88)	Age	Frequency
Male(n=11)	>40	10
	<40	01
Female(n=77)	>40	47
	<40	30

Table No.2: Frequency distribution of ACR criteria

Characteristics	Male(11)	Female(77)
Morning Stifness	10	59
Joint Swelling	11	67
RF (+ve)	10	56

Table No.3: Frequency distribution of Pattern of joint involvement

Pattern of joint involvement	Frequency(88)	Percent%
Wrist	33	37.5
Elbow	10	11.4
Knee	11	12.5
Shoulder	10	11.4
Hand	69	78.4
Ankle	4	4.5
Small Joints	74	84.1
Large Joints	19	21.6

The clinical symptoms recorded were joint swelling 39(39.0%) and morning stiffness 56(56.0%). The most frequently involved joints were the hand 28(28.0%), knee 10(10.0%), wrist 14(14.0%), ankle 5(5.0%), shoulder 9(9.0%) and elbow 12(12.0%). In terms of the immunological investigation, RF was moderately higher as positive 66(75.0%).

No significant differences founded between the RF sero-positivity in terms of the correlation with gender. The most important result of our study was the significant correlation of RF sero-positivity with morning stiffness (p=0.000) and Joint swelling (p=0.005).

Table No.4: Stratification of Rheumatoid Factor with respect to Morning stiffness, Joint swelling and ESR

Characteristics	Rheumatoid Factor		p-value
	Positive	Negative	
Morning Stiffness	64	05	0.000
Joint Swelling	62	04	0.005
ESR	66	22	0.668

DISCUSSION

Data concerning the demographic and clinical characteristics were presented In current study, as well as their association with RF, among RA patients. In this study female patients were in majority, which is similar to findings from other parts of the world, including the China, Japan, USA, United Kingdom, Malaysia and India. [19- 24]

The deregulation of hormone estrogen may defines why females are most affected in RA than men, however androgens might have suppressive role in the progression of the disease.[25]

In current study, (87.5%) RA patients were female, which is similar with other Malaysian cohorts of RA patients[26-28] that showed an identical percentage of female patients (83.8–91.3%). In current study, 66(75.0%) tested positive for RF using the latex agglutination methodology, while another study involving Malaysian RA patients reported a higher proportion of patients (85.0%) testing positive for RF using the ELISA kit methodology.[27]

This indicates that methods employing distinct principles (e.g. agglutination versus ELISA) to assay RF could, at least partially, contribute to differential RF detection. In terms of the ESR values, our study demonstrated mean ESR: 47.6±4.7 mm/hr, which is similar to the ESR value obtained from other local RA patients with a mean of 51.6±5.2 mm/hour[29].

It has been seen that the majority of cases experiences agony, swelling and tightness in various joints. The clinical findings of synovitis were more severe at morning in and around the joints was a typical feature of Rheumatoid Arthritis.[8] In spite of the fact that there is no single research center test used for diagnosis of

Rheumatoid Arthritis, the most common finding of RA is the increased level of systemic inflammatory marker, like ESR that is most frequently advised test to monitor disease activity in patients with rheumatoid Arthritis.[4]

CONCLUSION

A positive Rheumatoid factor seems to be associated with presence symptoms. However other sensitive diagnostic techniques may produce better outcome of the above findings.

Author's Contribution:

Concept & Design of Study:	Shabana Qabulio
Drafting:	Fouzia Shaikh
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Revisiting Critically:	Shabana Qabulio
Final Approval of version:	Shabana Qabulio

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