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Original Research

Assessment of prevalence of haematological abnormalities among rheumatoid arthritis patients: An observational study

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***ABSTRACT*:**

Introduction: Rheumatoid arthritis (RA) is a disease, where multiple joints in the body are affected, mainly joints of hands and feet. Hence; under the light of above mentioned data, the present study was undertaken for assessing prevalence of haematological abnormalities among rheumatoid arthritis patients. **Materials & methods:** A total of 59 patients who were diagnosed with RA were enrolled in the present study. A self-framed questionnaire was made and was given to all the patients for obtaining the complete demographic details and medical history of all the patients. Blood samples were obtained from all the patients and were sent to haematology department for assessment of haematological profile. Prevalence of various blood related disorders was analysed. **Results**: Anaemia was found to be present in 64.41 percent of the patients, while leucocytosis was found to be present in 20.33 percent of the patients, thrombocytosis was found to be present in 30.51 percent of the patients. **Conclusion:** Significant proportion of patients with RA is affected with haematological abnormalities; clinicians should have thorough knowledge of all of these so that prompt treatment could be started.

Key words: Rheumatoid arthritis, Haematological.

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INTRODUCTION

Rheumatoid arthritis (RA) is a disease, where multiple joints in the body are affected, mainly joints of hands and feet. This leads to joint swelling, pain, stiffness, and possible loss of function.[1- 3] The small joints in the hands and feet are most often affected, but any joint lined by a synovial membrane may be involved. Extraarticular involvement includes skin, respiratory, cardiac, ocular, neurological, and hematological manifestations.[4]

Identification of RA at initial presentation and treatment at earlier stage can affect disease course, prevent the development of joint erosions or retard progression of erosive disease. Early diagnosis and treatment may affect disease outcomes even to a remission state. Recognizing early RA from non-RA at the onset of disease is not straightforward but there is limitation in the use of the American College of Rheumatology revised criteria (ACR criteria) for early diagnosis. Since due to inadequate clinical or laboratory evidences at onset of arthritis, this criteria is not sensitive enough to identify early RA.[5, 6]

Presence of some clinical features such as polyarthritis, symmetric arthritis,hand arthritis, pain upon squeezing the metcarpophalangeal or metatasophalangeal joints, and morning stiffness greater than 30 minutes can be helpful not only in estimating the future course of arthritis but also in limiting the spectrum of differential diagnosis. Identification of all involved joints by precise clinical examination is essential. Counting the tender and swollen joints, and calculation of disease activity score are logical methods for the determination of disease severity and response to treatment.[7]

Hence; under the light of above mentioned data, the present study was undertaken for assessing prevalence of haematological abnormalities among rheumatoid arthritis patients.

MATERIALS & METHODS

The present study was conducted in the department of medicine and it included assessment of prevalence of haematological abnormalities among rheumatoid arthritis patients. Ethical approval was obtained from institutional ethical committee and written consent was obtained from all the patients after explaining in detail the entire research protocol. A total of 59 patients who were diagnosed with RA were enrolled in the present study. A self-framed questionnaire was made and was given to all the patients for obtaining the complete demographic details and medical history of all the patients. Exclusion criteria for the present study were as follows:

- Patients with presence of any other metabolic disorder,
- Patients with presence of any other systemic illness,
- Patients who didn't gave informed consent
- Patients beyond the age group of 18 to 65 years

Blood samples were obtained from all the patients and were sent to haematology department for assessment of haematological profile. Prevalence of various blood related disorders was analysed. All the results were recorded in Microsoft excel sheet and was subjected to statistical analysis by SPSS software. Univariate regression curve was used for assessment of level of significance. P- value of less than 0.05 was taken as significant.

RESULTS

In the present study, assessment of a total of 59 RA patients was done. After analysing the data, it was observed that mean age of the patients with RA was 37.9 years. 32.20 percent of the patients belonged to the age group of 31 to 40 years. 20.34 percent of the patients belonged to the age group of 40 to 50 years. 13.56 percent of the patients belonged to the age group of more than 60 years. 50.85 percent of the patients were females while 49.15 percent of the patients were males. 64.41 percent of the patients had urban residence while the remaining 35.59 percent of the patients had rural residence.

In the present study, mean Hb among the RA patients was found to be 9.76%, while mean ESR was found to be 42.35 mm/hr. Anaemia was found to be present in 64.41 percent of the patients, while leucocytosis was found to be present in 20.33 percent of the patients, thrombocytosis was found to be present in 30.51 percent of the patients.

Table 1: Demographic data

Parameter		Number of patients	Percentage of patients
Age group (years)	18 to 30	10	16.95
	31 to 40	19	32.20
	41 to 50	12	20.34
	51 to 60	10	16.95
	More than 60	8	13.56
Gender	Males	29	49.15
	Females	30	50.85
Residence	Rural	21	35.59
	Urban	38	64.41

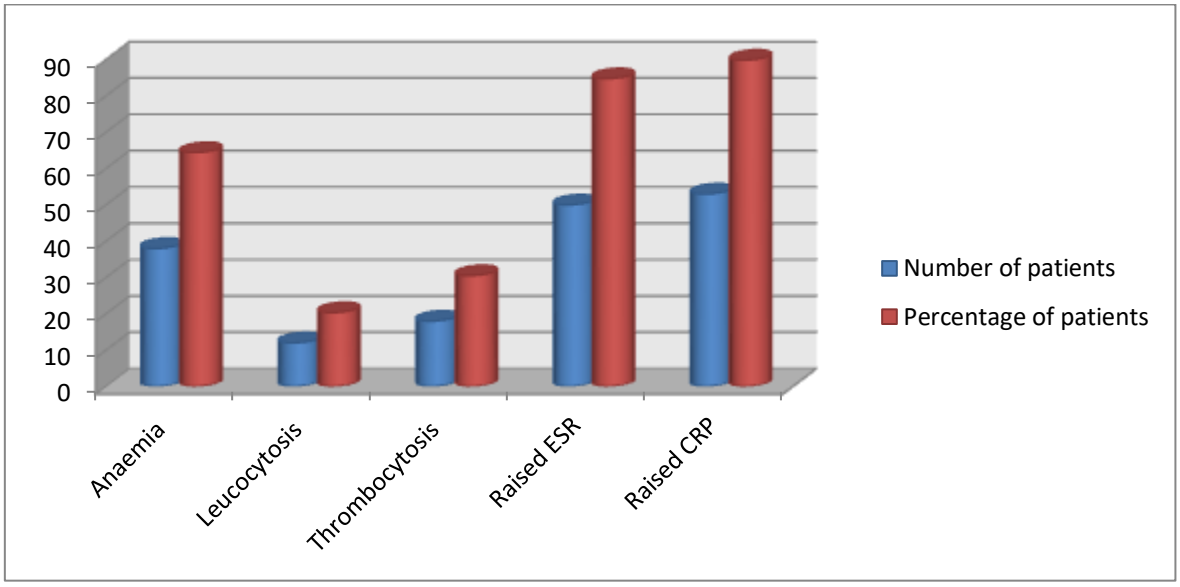
Table 2: Hematologic profile

Parameter	Number
Mean Hb (gm %)	9.76
Mean ESR (mm/hr)	42.35
Mean CRP (mg/L)	20.91

Table 3: Prevalence of haematological abnormalities

Haematological abnormalities	Number of patients	Percentage of patients
Anaemia	38	64.41
Leucocytosis	12	20.33
Thrombocytosis	18	30.51
Raised ESR	50	84.75
Raised CRP	53	89.83

Graph 1: Prevalence of haematological abnormalities



DISCUSSION

RA synovitis is characterized by leukocytic infiltrate, proliferative synovial membrane, and a neo vascularization that give rise to synovial hypertrophy. Early identification of synovitis is of importance as it represents the location of the rheumatoid joint inflammatory process and a target for therapeutic intervention. Prevalence of RA varies from region to region but the overall reported trends in the change in incidence and sex distribution are nearly the same in most populations. Most epidemiological studies have been done in Western countries, showing prevalence in the range of 0.5–1.0% in white individuals.[6- 8] Hence; under the light of above mentioned data, the present study was undertaken for assessing prevalence of haematological abnormalities among rheumatoid arthritis patients.

In the present study, assessment of a total of 59 RA patients was done. After analysing the data, it was observed that mean age of the patients with RA was 37.9 years. 32.20 percent of the patients belonged to the age group of 31 to 40 years. 20.34 percent of the patients belonged to the age group of 40 to 50 years. 13.56 percent of the patients belonged to the age group of more than 60 years. 50.85 percent of the patients were females while 49.15 percent of the patients were males. 64.41 percent of the patients had urban residence while the remaining 35.59 percent of the patients had rural residence. Bowman SJ et al conducted a study to inform clinical rheumatologists about the common and rarer hematological manifestations of rheumatoid arthritis with an emphasis on diagnosis and therapy and a particular reference to Felty's syndrome. The hematological manifestations can be conveniently categorized into the broad areas of; anemia, particularly NSAID induced iron deficiency anemia and the anemia of chronic disease, neutropenia, particularly Felty's syndrome and the large granular lymphocyte syndrome and drug induced neutropenia; thrombocytopenia, particularly autoimmune and drug induced thrombocytopenia; and hematological malignancy. Hematological manifestations of rheumatoid arthritis are very common. A logical approach using easily available tests should allow straightforward decisions about diagnosis and therapy to be made, even in patients with some of the rarer manifestations.[9]

In the present study, mean Hb among the RA patients was found to be 9.76%, while mean ESR was found to be 42.35 mm/hr. Anaemia was found to be present in 64.41 percent of the patients, while leucocytosis was found to be present in 20.33 percent of the patients, thrombocytosis was found to be present in 30.51 percent of the patients. Talukdar M et al assessed the association of disease activity of Rheumatoid Arthritis (RA) with platelet count, Mean Platelet Volume (MPV) and Haemoglobin (Hb) level so that these cost-effective haematological parameters can be used as additional factors to assess disease activity. Patients suffering from malignancies, renal failure, diabetes mellitus or RA patients on drug therapy were excluded. Clinically, disease activity of RA was measured using DAS 28-3 Score (Modified Disease Activity Score using three variables- tender joint count, swollen joint count and ESR). Haematological parameters were measured by automated cell counter. Total 80 cases were selected (60 female and 20 male). 48 patients with high disease activity (DAS 28-3>5.1) were labelled as Group-A and 32 with low to moderate disease activity (DAS 28-3 ≤5.1) as Group-B. Mean platelet count of patients of group A and group B were 4.53 lac/cmm and 2.17 lac/cmm respectively ($p < 0.001$). MPV mean in group A and B were 11.86 fl and 10.19 fl respectively ($p < 0.001$). Mean Hb (g/dl) was 10.05 and 12.25 for group A and

B respectively (p=0.001) for male patients while in females it was 10.12 and 11.91 for group A and B, respectively (p=0.003). Mean platelet count and MPV in control population were 2.07 lac/cmm and 9.4 fl, respectively while mean Hb (g/dl) was 13.31 (male) and 12.01 (female). In their study it was observed that Hb is significantly lower in patients with high disease activity whereas platelet count and MPV are significantly higher with high disease activity compared to patients with low to moderate disease activity.[10]

CONCLUSION

From the above results, the authors conclude that as significant proportion of patients with RA are affected with haematological abnormalities, clinicians should have thorough knowledge of all of these so that prompt treatment could be started.

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