

ORIGINAL ARTICLE

Prevalence of haematological abnormalities among rheumatoid arthritis patients

Sunil Sobti

Associate Professor, Department of General Medicine, Saraswathi Institute of Medical Sciences, Hapur, Uttar Pradesh, India

ABSTRACT:

Background: Rheumatoid arthritis is a systemic inflammatory disorder with the potential to cause destructive joint disease, significant disability, and increase mortality. This study was undertaken for assessing the haematological abnormalities among rheumatoid arthritis patients. **Materials & methods:** A total of 100 patients having rheumatoid arthritis (RA) were enrolled. All the demographic details of all the subjects had been obtained. Blood samples had been gathered from all the subjects and were sent to pathology department. Haematological profile was assessed. All the findings had been noted in Microsoft excel sheet and were analysed by SPSS software. **Results:** Anaemia was found to be present in 57 percent of the patients, while leucocytosis was found to be present in 15 percent of the patients. Thrombocytosis was found to be present in 20 percent of the patients. **Conclusion:** Anaemia, thrombocytosis as well as leucocytosis are prevalent observations in rheumatoid arthritis subjects.

Key words: Haematological, Rheumatoid arthritis

Corresponding author: Sunil Sobti, Associate Professor, Department of General Medicine, Saraswathi Institute of Medical Sciences, Hapur, Uttar Pradesh, India

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INTRODUCTION

Rheumatoid arthritis is an autoimmune disease affecting approximately 1% of people in the developed world.¹ It is characterized by synovial inflammation and joint destruction, eventually inducing severe disability, if left untreated.² An increase in the incidence of RA in the late 1990s to early 2000s, particularly in females, has been reported in Olmsted County, MN and in Denmark.^{3,4} More recent trends in RA occurrence, particularly, recent trends in RA incidence by serologic status, have not been widely studied. A decline in the incidence of rheumatoid factor (RF) positive RA has been reported in Finland in 1980–2000, primarily among patients born after the mid-1940s compared to earlier birth cohorts.⁵

MATERIALS & METHODS

The current investigation, which examined individuals with rheumatoid arthritis who had haematological abnormalities, was carried out by the department of medicine. After thoroughly outlining the full research methodology, the institutional ethical committee granted ethical approval, and all patients provided written consent. The study excluded those who were less than 18 years of age and those who had arthritis as part of an established disease, such as, TB arthritis, gonococcal arthritis and with complaints of arthralgia. Overall 100 RA subjects had been recruited. All patients' complete demographic information was

gathered. All patients had blood drawn, which was then delivered to the pathology section. Assessment of the haematological profile was made. The SPSS software was used to assess all the results, which were recorded in a Microsoft Excel spreadsheet.

RESULTS

In the present study, a total of 100 patients with RA were enrolled. Mean age of the patients of the present study was 55.2 years. 49 percent of the patients of the present study belonged to the age group of more than 50 years. 37 percent of the patients belonged to the age group of 31 to 50 years. 65 percent of the patients were females while the remaining 45 percent were males. In the present study, mean weight and mean BMI of the patients was 92.32 Kg and 31.47 Kg/m² respectively. Mean Hb was found to be 10.31 gm%. Mean TLC count was found to be 11.13 per mm³.

In the present study proximal inter-pharyngeal joint involvement occurred in 89 percent of the patients. Meta-carp-pharyngeal joint involvement occurred in 72 percent of the patients. Wrist involvement and elbow involvement occurred in 60 percent and 48 percent of the patients. Anaemia was found to be present in 57 percent of the patients, while leucocytosis was found to be present in 18 percent of the patients. Thrombocytosis was found to be present in 20 percent of the patients.

Table 1: Age-wise distribution of patients

Age group (years)	Number of patients	Percentage of patients
18 to 30	14	14
31 to 50	37	37
More than 50	49	49
Total	100	100

Table 2: Gender-wise distribution

Gender	Number of patients	Percentage of patients
Male	35	35
Females	65	65
Total	100	100

Table 3: Descriptive parameters

Parameter	Number
Mean weight (Kg)	92.32
Mean BMI (Kg/m ²)	31.47
Mean Hb (gm %)	10.31
Mean TLC (per mm ³)	11.13
Mean ESR (mm/hr)	43.4

Table 4: Frequency of joint involvement

Joint involvement	Number of patients	Percentage of patients
Proximal interphalangeal	89	89
Metacarpophalangeal	72	72
Wrist	60	60
Elbow	48	48
Shoulder	37	37
Ankle	25	25
Subtalar	16	16
Knee	20	20
Cervical spine	14	14

Table 5: Blood investigations

Blood investigations	Number of patients	Percentage of patients
Anaemia	57	57
Leucocytosis	18	18
Thrombocytosis	20	20

DISCUSSION

A moderate anemia due chiefly to reduction of red blood cell count with a modest reduction in MCHC is common in rheumatoid arthritis and contributes to the disability and morbidity produced by the disease. This anemia has features in common with that found in other chronic disease states, and its cause is multifactorial. Mild degrees of hemodilution and hemolysis occur, and there is some impairment of iron absorption from the gastrointestinal tract. Blood loss from the gastrointestinal tract is probably not important in most cases. More important causes are the abnormal storage of iron in the reticuloendothelial system and synovial tissue and the failure of bone marrow to respond to anemia. Most of these abnormalities are related to the activity of the disease and return to normal when this is controlled.⁶Hence, this study was conducted to assess the prevalence of haematological abnormalities among rheumatoid arthritis patients

In our study, a total of 100 patients with RA were enrolled. Mean age of the patients of the present study was 55.2 years. 49 percent of the patients of the present study belonged to the age group of more than 50 years. 37 percent of the patients belonged to the age group of 31 to 50 years. 65 percent of the patients were females while the remaining 35 percent were males. In the present study, mean weight and mean BMI of the patients was 92.32 Kg and 31.47 Kg/m² respectively. Mean Hb was found to be 10.31 gm%. Mean TLC count was found to be 11.13 per mm³. In our study proximal inter-pharyngeal joint involvement occurred in 89 percent of the patients. Meta-carp-pharyngeal joint involvement occurred in 72 percent of the patients. Wrist involvement and elbow involvement occurred in 60 percent and 48 percent of the patients. Anaemia was found to be present in 57 percent of the patients, while leucocytosis was found to be present in 18 percent of the patients. Thrombocytosis was found to be present in 20 percent

of the patients. In a study conducted by Wilson A et al⁷, it was observed the prevalence of anemia in subjects with RA. ranged between 33% and 60%. As anemia in RA patients may result in severe symptoms and aggravation of other disease manifestations (e.g. arteriosclerosis), the influence on the course of RA is profound. However, the importance of anemia in RA patients is frequently underestimated. The etiology of anemia in RA is complex. Anemia of inflammation (AI) and iron deficiency anemia, alone or in combination are the most frequent forms of anemia in RA. Changes in iron metabolism are the leading causes of anemia in RA patients and mainly induced by the altered synthesis and function of hepcidin and ferroportin. Hepcidin, a peptide produced in the liver and immunocompetent cells, impairs the expression of ferroportin on iron-secreting cells, thus reducing iron bioavailability. The typical changes of iron metabolism and hepcidin synthesis in RA are induced by proinflammatory cytokines, primarily interleukin-6. Hence, the treatment of RA with cytokine antagonists has significant therapeutic implications on anemia in the context of inflammation and impaired iron metabolism.⁸⁻¹⁰

evaluated the prevalence of anaemia in rheumatoid arthritis (RA). 89 patients who fulfilled American College of Rheumatology (ACR) criteria for RA were included in this study. The mean disease duration was 10.9±8.8 years. All patients received methotrexate (10.5±5.5 mg/week) in combination with folic acid. Steroid hormones were prescribed to 92% (19.3±3.8 mg/day) of patients. Erythrocyte sedimentation rate (ESR) and levels of hemoglobin, C-reactive protein (CRP), tumour necrosis factor-alpha (TNF α) and interleukin-1 beta (IL-1 β) were evaluated in all patients. The World Health Organization (WHO) criteria for anaemia uses a hemoglobin threshold of <120 g/L for women and <130 g/L for men. Anaemia was observed in 57 (64%) of the patients (1st group), the other patients (2nd group) had normal levels of hemoglobin (135.5±10.7 g/L). Duration and activity of RA were significantly higher (p<0.05) in the 1st group compared with the 2nd. ESR, CRP, TNF α , and IL-1 β mean levels were significantly increased (p<0.05) in the 1st group when compared with the 2nd group. Negative correlations between hemoglobin level and ESR, CRP, TNF α , and IL-1 β concentrations were observed. Their study showed for the first time in

Ukraine that in 46% of patients with RA, anaemia was diagnosed.¹¹

CONCLUSION

It was concluded that anaemia, thrombocytosis as well as leucocytosis are prevalent observations in rheumatoid arthritis subjects.

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