Original Research

Anaemia in Rheumatoid Arthritis

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ABSTRACT:
Background: Rheumatoid arthritis is a systemic inflammatory disorder with the potential to cause destructive joint disease, significant disability, and increase mortality. Hence; under the light of above mentioned data, the present study was undertaken for assessing the prevalence of anaemia among patients with rheumatoid arthritis. **Materials & methods:** 100 consecutive rheumatoid arthritis patients who presented in OPD or admitted in the medical ward of D.Y. Patil Hospital, Nerul, Navi Mumbai fitting the inclusion criteria during the entire duration of study Informed consent was taken from the patients who satisfy the inclusion criteria. An information sheet was given to all the participating patients. Blood investigations were carried out in all the patients and prevalence of anaemia was assessed. **Results:** Anaemia was found to be present in 65 percent of the patients. Leucocytosis and thrombocytosis were found to be present in 19 percent and 31 percent of the patients respectively. Raised ESR and raised CRP were found to be present in 92 and 93 percent of the patients. Anti-CPP was found to be present in 100 percent of the patients. **Conclusion:** Anaemia, thrombocytosis and extrarticular manifestations are common.
Key words: Anaemia, Rheumatoid arthritis

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INTRODUCTION

Rheumatoid arthritis is a systemic inflammatory disorder with the potential to cause destructive joint disease, significant disability, and increase mortality. It 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] When RA is left uncontrolled, the RA patient may experience joint deterioration, severe disability, decreased quality of life, the onset of comorbidities and premature mortality. The potential comorbidities include but are not limited to cardiovascular disease (CVD), cancer (specifically lymphoma and lymphoproliferative diseases, lung cancer and melanoma), infections, depression and gastrointestinal disease. In particular, CVD disproportionately affects RA patients.[4] The cardiovascular (CV) risk score calculated in a recent study of traditional CV risk factors in Indian patients suggests that RA patients have a four-fold increase in CV risk compared to the general population from the same geographic location. However, no mortality studies of CV events among Indian RA patients are available.[5-7] Hence; under the light of above mentioned data, the present study was undertaken for assessing the prevalence of anaemia among patients with rheumatoid arthritis.

MATERIALS & METHODS

This observational study was conducted in Department of General Medicine, D.Y Patil Hospital, Nerul, Navi Mumbai. Approval of Institutional Ethics Committee was taken before start of the study. A written signed informed consent was taken prior to enrolling the subjects in the study. 100 consecutive rheumatoid arthritis patients who presented in OPD or admitted in the medical ward of D.Y. Patil Hospital, Nerul, Navi Mumbai fitting the inclusion criteria during the entire duration of study Informed consent was taken from the patients who satisfy the inclusion criteria. An information sheet was given to all the participating patients. Blood investigations were carried out

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in all the patients and prevalence of anaemia was assessed. All the results were compiled in Microsoft excel sheet and were analysed by SPSS software. Chi- square test ad unpaired t test were used for assessment of level of significance.

RESULTS

A total of 100 patients were analysed. 44 percent of the patients belonged to the age group of 31 to 40 years. 18 percent of the patients belonged to the age group of 51 to 60 years. 17 and 15 percent of the patients belonged to the age group of 41 to 50 years and more than 60 years. Mean age ($\pm$SD) of the patients was 42.80 ($\pm$13.67) years.

Anaemia was found to be present in 65 percent of the patients. Leucocytosis and thrombocytosis were found to be present in 19 percent and 31 percent of the patients respectively. Raised ESR and raised CRP were found to be present in 92 and 93 percent of the patients. Anti-CPP was found to be present in 100 percent of the patients.

Table 1: Age-wise distribution of patients

Age group (years)	Number of patients	Percentage of patients
18 to 30	6	6
31 to 40	44	44
41 to 50	17	17
51 to 60	18	18
More than 60	15	15
Total	100	100

Table 2: Blood investigations

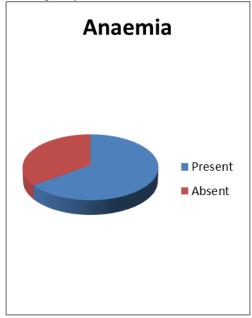| Blood investigations	Number of patients	Percentage of patients
Anaemia	65	65
Leucocytosis	19	19
Thrombocytosis	31	31
Raised ESR	92	92
Raised CRP	93	93
Anti-CPP	100	100

DISCUSSION

RA is a chronic disease with autoimmune origin and variable course mainly presenting with joint involvement leading to considerable morbidity and systemic complications. The clinical picture of RA is mainly related to the involvement of peripheral joints with symmetrical involvement of hands, wrist, knee and feet. Significant extra articular involvement of organs like skin, heart, lungs and eyes can be present. Prodromal symptoms such as fatigue, weight loss, transient pain in muscles and joints, sweating, paresthesia and migrant swelling are often present before the onset of symptoms and signs.[8, 9]

Involvement can be seen of any synovial joint. If the disease is uncontrolled, the associated co morbidities include cardiovascular disease (CVD), infections, depression and gastrointestinal disease. Pathologically 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.[7, 8]

Graph 1: Frequency of occurrence of anaemia

The most common haematological manifestation of RA is anaemia of chronic disease, manifesting as normocytic anaemia. This correlates with disease activity and acute-phase response. Patients can develop iron deficiency anaemia secondary to gastrointestinal blood loss from chronic non-steroidal antiinflammatory drug (NSAID) and glucocorticoid use. Vitamin B12 and folate deficiency can be a cause of anaemia in RA, especially with methotrexate. Thrombocytosis is part of the acute-phase response.

In a study conducted by Kumar AAVS et al, anaemia was found in 69% of the population and 91.6% in the subset of patients of high disease activity, which is also similar to observational study carried out by Goyal et al. on patients of RA in India which showed 67.8% of the patients had anaemia and 90% in the subset of patients of high disease activity. The cause of anemia in RA is mainly due to anemia of chronic disease caused by the inflammatory mediators effecting hematopoesis. However in our country deficiency disorders also compound it.[10, 11] Ganna S 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 (TNFα) and interleukin-1 beta (IL-1β) 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, TNFα, and IL-1β 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, TNFα, and IL-1β concentrations were observed. This study showed that in 46% of patients with RA, anaemia was diagnosed. A reduction of hemoglobin level was associated with a high activity of disease.[12]

CONCLUSION

Anaemia, thrombocytosis and extrarticular manifestations are common. Therefore; specific results may help to target patient education, increase physician awareness of the profile of the disease and suggest the need for social and rehabilitative services, and help monitor responses to therapy.

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