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Prevalence of Anaemia in Patients of Rheumatoid Arthritis

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ABSTRACT

Introduction and background: Rheumatoid arthritis is a chronic inflammatory systemic disease of unknown aetiology. It exhibits variety of extra-articular manifestations like subcutaneous nodules, fatigue, pericarditis, peripheral neuropathy, pulmonary involvement, vasculitis and anaemia. Anaemia in rheumatoid arthritis is very common and has got multifactorial aetiology. We studied the prevalence, type of anaemia and its correlation with disease activity in Amravati (Maharashtra State, India).

Aims: To diagnose the type of anaemia in patients with rheumatoid arthritis and to correlate the anaemia with disease activity of rheumatoid arthritis.

Materials and method: 60 patients with rheumatoid arthritis were studied and the anaemic patients were evaluated for the type of anaemia.

Results: Out of 60 patients, 30% were males (18) and 70% were females (42). 36 patients (60%) out of 60 patients had anaemia. 16 patients (44.4%) were having iron deficiency anaemia and 20 patients (55.5%) had anaemia of chronic disease.

Conclusion: Anaemia is a common extra-articular manifestation of rheumatoid arthritis and anaemia of chronic disease was the common type of anaemia found in these patients.

Keywords: rheumatoid arthritis, anaemia, serum ferritin.

INTRODUCTION

Rheumatoid arthritis (RA) is a chronic inflammatory disease of unknown etiology marked by a symmetric, peripheral polyarthritis. It is the most common form of chronic inflammatory arthritis and often results in joint damage and physical disability. The disease is characterized by hyperplasia of synoviocytes, mainly the synovial fibroblasts, resulting in bone and joint destruction [(1)]. RA is a systemic disease which may result in a variety of extra-articular manifestations, including fatigue, subcutaneous nodules, lung involvement, pericarditis, peripheral neuropathy, vasculitis, and hematologic abnormalities including anaemia [(2)]. It is possible for someone to have a combination of anaemia of chronic disease (ACD) and iron-deficiency anaemia (IDA). According to some estimates, 30-70 % of people with rheumatoid arthritis develop anaemia. There are several different ways in which rheumatoid arthritis might cause anaemia. One potential cause is the medications that people use to treat rheumatoid arthritis, which can include steroids or methotrexate. These medications can cause lesions in the membranes of the gut. This damage can make the body less able to digest iron, which can lead to anaemia. Some people with rheumatoid arthritis may take medications to suppress the immune system, such as azathioprine or cyclophosphamide. A side effect of this type of medication is reduced bone marrow production, and it is the bone marrow that produces red blood cells. Rheumatoid arthritis may result in the reduced lifespan of red blood cells. This could lead to anaemia if the body is unable to produce new red blood cells at a sufficient rate. Rheumatoid arthritis has worldwide prevalence of approximately

0.5% to 1% among adults [3,4]. About 30% or nearly one third of world's population is suffering from anaemia due to various causes [5-7]. The estimated lifetime prevalence of anaemia in general population is 13.7%. The prevalence of anaemia in the adult population in India is 47.5% (anaemia defined as per WHO) with higher prevalence in females (20%) than in males (44.3%) [8,9]. The severity of anaemia parallels the degree of inflammation, correlating with the levels of erythrocyte sedimentation rate (ESR) and serum C-reactive protein (CRP). Also the platelet counts may be elevated in RA as an acute phase reactant.RBS indices, serum ferritin, serum transferrin receptors and bone marrow staining for iron helps to differentiate between anaemia of chronic disease, iron deficiency anaemia and other types of anaemia. Serum ferritin levels <20µg/dl is suggestive of iron deficiency anaemia and higher level of it will exclude it.

MATERIAL AND METHODS

The study was carried out at Epione Hospital Amravati (M.S.) India. 60 patients who were diagnosed with rheumatoid arthritis were included in the study. Patients with known co morbid conditions like tuberculosis, diabetes mellitus, pregnancy, arthropathies other than RA, patients on haematinics or with chronic bleeding (piles, menorrhagia, oesophageal varices) were excluded from the study. Complete blood counts, serum iron profile, serum ferritin, serum vitamin B12 and folate levels were performed. Anaemia was defined as haemoglobin <12 g/dl in females and <13 g/dl in males. The anaemic patients were evaluated for the type of anaemia and serum ferritin ≤20µg/l was taken as cut off for defining iron deficiency anaemia.

RESULTS

Out of 60 patients, 30% were males (18) and 70% were females (42) (figure1). 36 patients (60%) out of 60 patients had anaemia (figure2). 16 patients (44.4%) were having iron deficiency anaemia and 20 patients (55.5%) had anaemia of chronic disease. Serum ferritin levels were <20 µg/l in 16 patients and were >20 µg/l in 20 patients (figure 3). There were no patients of megaloblastic anaemia. Comparison was done between anaemic and non anaemic patients which showed significantly higher prevalence of tender, swollen joint counts and erythrocyte sedimentation rate.

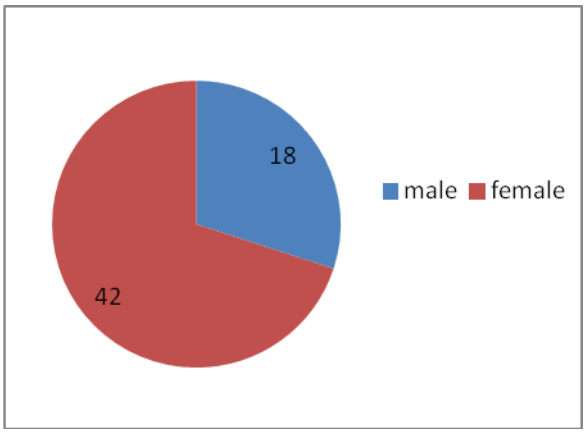

Figure 1: Gender distribution

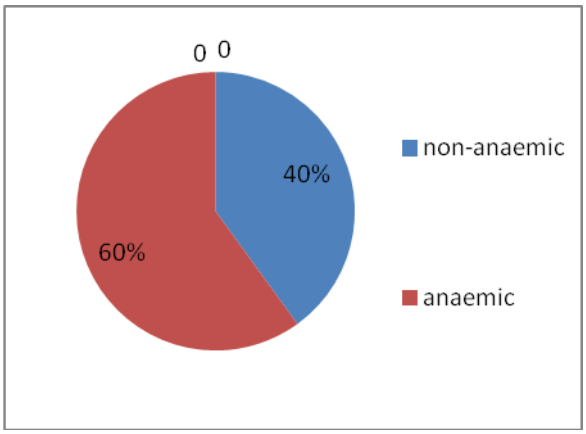

Figure2: percentage of anaemic vs. non anaemic patients

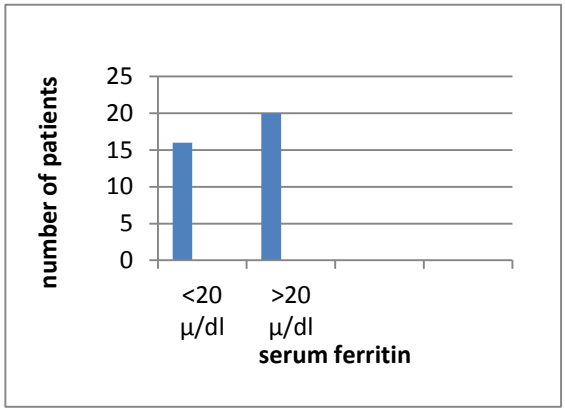

Figure 3: Comparison of serum ferritin levels in anaemic patients

DISCUSSION

According to the literature [(10)], anemia develops in 30%-70% of patients with RA. There are different types of anemia, including iron deficiency anemia (IDA), anemia of chronic disease (ACD), megaloblastic anemia, hemolytic anemia and COMBI anemia that could occur in patients with RA. Some causes of anemia include changes in iron metabolism due to lesions of the mucous membrane of the gastrointestinal tract by steroid drugs, methotrexate; shortening of red blood cells' life or its inadequate production by bone marrow [(11)]. In this study, we assessed the correlation of anaemia with rheumatoid arthritis and the type of anaemia found in patients of rheumatoid arthritis. The age group of the patients was 40-60 years. All the patients in this study had active disease. In this study, anaemia was defined as a haemoglobin level < 13 g/dl in men and < 12 g/dl in women. 36 patients (60%) of the patients were found anaemic. Serum ferritin was done in all patients. Serum ferritin was <20µ/dl in 16 patients and >20 µ/dl in 20 patients. Patients with serum ferritin levels >20 µ/dl were categorised as anaemia of chronic disease and those with serum ferritin levels <20 µ/dl were categorised as iron deficiency anaemia. Thus on the basis of serum ferritin levels, patients were categorised into anaemia of chronic disease and iron deficiency anaemia.

CONCLUSION

It is thus concluded that anaemia is correlated with rheumatoid arthritis and is a common extra-articular manifestation. Anaemia of chronic disease is the most common type of anaemia associated with rheumatoid arthritis. Hence, it is important to do anaemia screening as a routine management in patients with rheumatoid arthritis and reduce the disease associated morbidity and provide appropriate treatment for these patients.

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