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Research Article

## DIFFERENT TYPES OF MANIFESTATIONS OF ANEMIA IN RHEUMATOID ARTHRITIS PATIENTS

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**Abstract:**

**Objectives:** The basic aim of this study was assessment of anemia in rheumatoid arthritis patients, differentiated between the types of anemia and correlation between anemia and duration of rheumatoid arthritis. **Material and method:** This cross-sectional study was conducted in Ibne Sina hospital, Multan during January 2019 to November 2019. A total of 100 samples were obtained, among them 50 patients diagnosed with rheumatoid arthritis 50 samples were collected from healthy subjects as control. Fifty informed male and female consented patients diagnosed with Rheumatoid arthritis were recruited for the study. Rheumatoid arthritis patients with chronic disease and such (renal failure, heart disease, liver disease, malignant diseases) were also excluded. **Result:** (60%) of rheumatoid arthritis are anemic and (40%) non-anemic the result demonstrated that the Hb level, RBCs and PCV are significantly reduced in anemic rheumatoid arthritis patients in comparison with non-anemic rheumatoid arthritis patients with P value (0.000) for Hb, RBCs and PCV. The result demonstrated also that MCH significantly reduced in anemic rheumatoid arthritis patients in comparison with non-anemic rheumatoid arthritis patients with P value (0.003) while MCV & MCHC are within normal range. In anemic rheumatoid arthritis patients, serum ferritin was significantly reduced in 7 while 23 patients have normal level of serum ferritin. Based on cutoff of 15µg/L for ferritin, 23% of anemic rheumatoid arthritis patients have IDA and 77% have ACD. **Conclusion:** There are two types of anemia in rheumatoid arthritis patients, IDA and ACD. ACD is more common in rheumatoid arthritis patients.

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**INTRODUCTION:**

Rheumatoid arthritis (RA) is chronic autoimmune disease that affected small joint in the hand and feet causing swelling that can result in bone erosion and joint deformity. RA may occur at any age but the prevalence increases until age of 70 [1]. The disease affects 1% to 2% of the adult population and its incidence is greater in women than in men (3:1). Anaemia is the most common and serious blood abnormality seen in rheumatoid arthritis either anaemia of chronic disorder (ACD) or iron deficiency anemia. The main problem in differential diagnosis of ACD in RA is the presence of concomitant iron deficiency [2]. ACD affects between one-half and two-thirds of all people with rheumatoid arthritis. The pathogenesis of the anemia of chronic disease including abnormal release of iron from transferrin to early erythroblast, iron accumulated in reticulo-endothelial cell this failure to release iron from to the erythroblast and that lead to decrease number of red cell blood and erythropoietin deficiency [3]. Iron deficiency may be resulting from non-steroidal anti-inflammatory drug which cause stomach bleeding leading to iron deficiency. Rheumatoid arthritis is one of the most common diseases in Pakistan. Most of the patient can develop anaemia as complication of Rheumatoid arthritis so we want to study this problem to look for the types of anaemia which is important in planning, diagnostic, testing, and in guiding therapy [4].

**Aims and objectives**

The basic aim of the study is to analyze the different types of manifestations of anemia in rheumatoid arthritis patients.

**MATERIALS AND METHOD:**

This cross-sectional study was conducted in ibne Sina hospital, Multan during January 2019 to November 2019. A total of 100 samples were obtained, among them 50 patients diagnosed with rheumatoid arthritis. 50 samples were collected from healthy subjects as control. Fifty informed male and female consented patients diagnosed with Rheumatoid arthritis were recruited for the study. Rheumatoid arthritis Patients with chronic disease and such (renal failure, heart disease, liver disease, malignant diseases) were also excluded.

Under a septic condition 5 milliliters of venous blood will be collected. Then Two milliliters of these were placed in ethylene diethyl tetra acetic acid (EDTA) bottles for hematological analysis. The remaining 3 milliliters were taken into universal bottle and centrifuged at 3000rpm for 5 minutes to obtain the serum for Quantitative serum ferritin.

**Statistical analysis**

Results obtained were analyzed using SPSS software (version 20) for both the descriptive and inferential analysis. Results were expressed as mean and standard deviation. One-way analysis of variance (ANOVA) was used to determine the level of significance.

**RESULTS:**

The result reflects that, 30(60%) out of 50 patients are anaemic and 20(40%) are non anaemic (Table 1). The Hb level ranged from 7g/dl to 11g/dl in anemic rheumatoid arthritis patient with mean  $\pm$  SD of 8.7g/dl $\pm$ 1.5. For non-anemic patients the Hb level range from 12 g/dl to 17 g/dl with a mean  $\pm$  SD of 14.1g/dl  $\pm$  1.3, this difference was found to be highly statistically significant with (*p value*=0.000) (table 2).

**Table 1: Prevalence of anemia in rheumatoid arthritis.**

Status	N	Percentage
Non anemic	20	40%
Anemic	30	60%
Total	50	100%

**Table 2: Mean of Hb in anemic and non-anemic patients.**

Hb (g/dl)	N	Mean	Std. Deviation
Non anemic	20	14.1	1.3
Anemic	30	8.7	1.5
T-test p value = 0.000			

**Table 3: Mean of RBCs in anemic and non-anemic patients.**

T-test			
RBCs 10 <sup>12</sup> /L	N	Mean	Std. Deviation
Non anemic	20	4.8	0.5
Anemic	30	3.1	0.4
T-test p value = 0.000			

**DISCUSSION:**

Serum ferritin level in anemic rheumatoid patient Out of anemic patients ACD was found (77%) and IDA (23%) This study reflect that, the Prevalence of anemia in our Our result is similar with previous studies. Our result is study was 60%. This finding were correlated with the similar with previous studies [5].

The results also demonstrate there was significant decrease in this study concludes that, there is correlation between anemia and rheumatoid arthritis. The Hb, RBCs, PCV, MCH, was low in rheumatoid arthritis patients. The types of anemia in rheumatoid arthritis patients are IDA or and ACD and Prevalence of ACD greater than IDA [6,7].

**CONCLUSION:**

It is concluded that CBC and serum ferritin levels must be investigated routinely to avoid the risk of anemia and guiding therapy. However, future research on a larger scale is needed.

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