

DIFFERENT TYPES OF MANIFESTATIONS OF ANEMIA IN RHEUMATOID  
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## ABSTRACT

**Objectives:** This study's basic aim was the 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 Sheikh Zayed Hospital Rahim Yar Khan, from 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 (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 than non-anemic rheumatoid arthritis patients with P value (0.000) Hb, RBCs, and PCV. The result also demonstrated that MCH significantly reduced in anemic rheumatoid arthritis patients of compared to non -anemic rheumatoid arthritis patients with P value (0.003) while MCV & MCHC are within a normal range. In anemic rheumatoid arthritis patients, serum ferritin was significantly reduced in 7, while 23 patients have a normal serum ferritin level. Based on a 15µg/L cutoff 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. Anemia of chronic disease is more common as compared to IDA in rheumatoid arthritis patients.

## INTRODUCTION

Rheumatoid arthritis (RA) is a chronic autoimmune disease that affected small joints in 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 70.<sup>[1]</sup> The disease affects 1% to 2% of the adult population, and its incidence is greater in women than in men (3:1). Anemia is the most common and serious blood abnormality seen in rheumatoid arthritis, either anemia or chronic disorder (ACD) or iron deficiency anemia. The main problem in the differential diagnosis of ACD in RA is concomitant iron deficiency.<sup>[2]</sup> ACD affects between one-half and two-thirds of all people with rheumatoid arthritis. The pathogenesis of the anemia of chronic disease including the abnormal release of iron from transferrin to early erythroblast, iron accumulated in the reticuloendothelial cell. This failure to release iron from the erythroblast leads to a decreased number of red cell blood and erythropoietin deficiency.<sup>[3]</sup> Iron deficiency may be resulting from the non-steroidal anti-inflammatory drug, which causes stomach bleeding leading to iron deficiency. Rheumatoid arthritis is one of the most common diseases in Pakistan. Most patients can develop anemia as complications of Rheumatoid arthritis, so we

want to study this problem to look for the types of anemia, which is important in planning, diagnostic, testing, and guiding therapy.<sup>[4]</sup>

## 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 Sheikh Zayed Hospital Rahim Yar Khan from January 2019 to November 2019. A total of 100 samples were obtained, among them 50 patients diagnosed with rheumatoid arthritis. Fifty samples were collected from healthy subjects as control. Fifty informed male and female consented patients diagnosed with Rheumatoid arthritis was recruited for the study. Rheumatoid arthritis patients with chronic disease (renal failure, heart disease, liver disease, malignant diseases) were also excluded.

Under aseptic conditions, 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 a 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. A 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 anemic, and 20(40%) are non-anemic (Table 1). The Hb level ranged from 7g/dl to 11g/dl in anemic rheumatoid arthritis patients with a 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 reflects that the Prevalence of anemia in our Our result is similar with previous studies. Our result is the study was 60%. This finding was correlated with the similar to previous studies.<sup>[5]</sup>

The results also demonstrate a significant decrease in this study concludes that there is a 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 ACD, and the Prevalence of ACD greater than IDA.<sup>[6,7]</sup>

### 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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