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Research Article

**ANALYSIS OF MANIFESTATIONS OF ANEMIA IN  
RHEUMATOID ARTHRITIS PATIENTS**<sup>1</sup>Dr. Noreena Saba, <sup>2</sup>Dr. Quratul Ain Akber, <sup>3</sup>Dr. Muhammad Usman Mazhar<sup>1</sup>WMO at THQ Hospital, Yazman<sup>2</sup>Quaid e Azam Medical College, Bahawalpur<sup>3</sup>MO at RHC Bamabala**Abstract:**

**Introduction:** Rheumatoid arthritis (RA) is an autoimmune disorder that causes chronic inflammation of the joints, as well as joint pain. But you may be surprised to hear that anemia is also one of the most common symptoms of RA.

**Aims and objectives:** The basic aim of the study is to analyze the manifestations of anemia in rheumatoid arthritis patients. **Materials and method:** This study was conducted at THQ Hospital, Yazman during 2018. The study was carried out among patients diagnosed with Rheumatoid arthritis. Before commencement of the study, ethical clearance was obtained from the hospital. A total of 100 samples were obtained, among them 50 patients diagnosed with rheumatoid arthritis 50 samples were collected from healthy subjects as control. **Results:** The result reflect that, 30(60%) out of 50 patients are anaemic and 20(40%) are non anaemic. 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). **Conclusion:** It is concluded that CBC and serum ferritin levels must be investigated routinely to avoid the risk of anemia and guiding therapy.

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**INTRODUCTION:**

Rheumatoid arthritis (RA) is an autoimmune disorder that causes chronic inflammation of the joints, as well as joint pain. But you may be surprised to hear that anemia is also one of the most common symptoms of RA. 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 [1]. RA may occur at any age but the prevalence increases until age of 70. The disease infects 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 [2]. The main problem in differential diagnosis of ACD in RA is the presence of concomitant iron deficiency. 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 Sudan. 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. Anemia develops when your body doesn't produce enough red blood cells. Red blood cells are made up of hemoglobin, an iron-rich protein that transports oxygen from the lungs to the rest of your body [4]. In some cases, people with anemia actually have enough red blood cells, but these cells contain abnormal or insufficient hemoglobin or are destroyed too early [5].

**Aims and objectives**

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

**MATERIALS AND METHOD:**

This study was conducted at THQ Hospital, Yazman during 2018. The study was carried out among patients diagnosed with Rheumatoid arthritis. Before commencement of the study, ethical clearance was obtained from the hospital. 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.

**Collection of Blood Samples**

Under a septic condition 5 milliliters of venous blood will be collected. Then Two milliliters of these were placed in ethylenedihydrate 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 reflect that, 30(60%) out of 50 patients are anaemic and 20(40%) are non anaemic. 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 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			

**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. 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 [6]. The types of anemia in rheumatoid arthritis patients are IDA or and ACD and Prevalence of ACD greater than IDA. A relatively impaired Epo response to the anaemia was found in a number of studies although in others serum Epo level was the same as in other types of anaemia [7]. Some arguments are found in favor of a reduced bone marrow-Epo sensitivity although these reflect results mainly from in vitro experiments. It is not yet established whether bone marrow macrophage Epo production is impaired in ACD [8]. In two cases Epo administration to RA patients resulted in increased erythropoiesis. It was concluded that impaired Epo production or reduced bone marrow Epo sensitivity might be associated with ACD but it is not certain whether these factors are causally linked with ACD or side phenomena of RA disease activity [9].

**CONCLUSION:**

It is concluded that CBC and serum ferritin levels must be investigated routinely to avoid the risk of anemia and guiding therapy.

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