

Role of RBC parameters in discriminating between iron deficiency anaemia and anaemia of chronic diseases

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Introduction: In the present study, we evaluated and compared RBC parameters, iron status and ferritin for discriminating between patients with iron deficiency anaemia and anaemia of chronic disease. Anaemia that accompanies infection, inflammation, and cancer, commonly termed anaemia of chronic disease (ACD). **Methods:** We compared the ability of serum ferritin concentration, using the microplate immunoenzymometric assay method with other, more traditional indicators of iron status like total iron binding capacity [TIBC], mean corpuscular volume [MCV], percent transferrin saturation [%TS], RBC distribution width [RDW], and serum iron concentration [SIC]. The ferritin concentration was determined in 80 serum samples selected from men and women above the age of 18 years. The patients were assigned to IDA and ACD group based on serum ferritin concentration.

Observation: By studying the ROC curve for various red cell parameters for the diagnosis for IDA and ACD, we found that diagnostic accuracy of various indicators were as follow TIBC>TS%>MCV>MCH>SI>MCHC for anaemia of chronic diseases, and TIBC>MCH>MCV>MCHC>TS%>SI for iron deficiency anaemia. When both the ROC curve was compared, it is apparent that TIBC, TS%, MCV and MCH are important discriminating factor between IDA and ACD. **Conclusion:** Conventional laboratory parameters play important role in distinguishing overt cause of IDA and ACD. MCV, MCH and

TIBC were found to be (p value<.05) significantly discriminated IDA and ACD. Serum ferritin is an important diagnostic tool with reasonable accuracy for detection and differentiation of iron deficiency anaemia and anaemia of chronic diseases. Anaemia is the most common haematological disorder affecting humanity and is usually observed in chronic disease states such as non-specific anaemia, which may cause diagnostic difficulties. In chronically ill patients with anaemia, this has a negative impact on quality of life as well as survival. This paper aims at reviewing the pathogenesis of this form of anaemia with a view to suggesting future targets for therapeutic intervention. The ability to diagnose this disorder depends on the ability of the physician to correlate the possible clinical pathways of the underlying disease with the patients' ferrokinetic state. It is important to rule out iron deficiency and other causes of anaemia as misdiagnosis will in most cases lead to refractoriness to standard therapy. The cytokines and acute-phase proteins play important roles in the pathogenesis of anaemia of chronic disease. Alterations in the metabolism of iron via the molecule hepcidin and ferritin are largely responsible for the consequent anaemia. Concomitant iron deficiency might be present and could affect the diagnosis and therapeutic protocol. Treatment options involve the use of erythropoiesis-stimulating agents, blood transfusion, and iron supplementation, in addition to treating the underlying disease.