Normocytic anemia: Unraveling the challenges of balanced blood cells.

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Introduction

Normocytic anemia is a type of anemia characterized by a decrease in the number of red blood cells (RBCs) along with a normal Mean Corpuscular Volume (MCV), which measures the average size of RBCs. This unique form of anemia poses diagnostic challenges, as the underlying causes can be diverse and multifactorial. In this mini-review article, we delve into the intricacies of normocytic anemia, exploring its etiology, clinical manifestations, and diagnostic approach [1].

Normocytic anemia stands in contrast to microcytic anemia (small RBCs) and macrocytic anemia (large RBCs). The MCV measurement in normocytic anemia falls within the normal reference range, typically between 80-100 femtoliters. This anemia type can be caused by a range of factors, making it essential to perform a thorough evaluation to identify the underlying condition [2].

Chronic Diseases: Chronic inflammatory conditions like chronic kidney disease, rheumatoid arthritis, and systemic lupus erythematosus can lead to normocytic anemia due to the body's increased demand for RBCs to combat inflammation. Haemolysis: Conditions that cause premature destruction of RBCs, such as autoimmune haemolytic anemia, can result in normocytic anemia. Hematological Disorders: Some bone marrow disorders, including aplastic anemia and myelodysplastic syndromes, can lead to normocytic anemia due to impaired RBC production. Haemorrhage: Acute bleeding, such as gastrointestinal bleeding or trauma, can cause normocytic anemia when the body's compensatory mechanisms are unable to replace lost RBCs quickly [3].

The clinical presentation of normocytic anemia is often nonspecific and can include symptoms such as fatigue, weakness, pallor, and shortness of breath. The underlying cause of the anemia may manifest with additional symptoms, such as joint pain in rheumatoid arthritis or kidney dysfunction in chronic kidney disease. Complete Blood Count (CBC): The initial step in diagnosing normocytic anemia involves a CBC to confirm a decrease in RBC count with a normal MCV. This establishes the presence of normocytic anemia [4].

Peripheral Blood Smear: Examination of a peripheral blood smear can provide insights into RBC morphology, helping to identify any abnormalities or signs of hemolysis. Further Testing: Additional laboratory tests and clinical evaluations are necessary to pinpoint the underlying cause. These may include measurement of reticulocyte count, iron studies, kidney function tests, inflammatory markers, and bone marrow aspiration. Patient History: A comprehensive patient history is vital, as it may provide clues to underlying chronic diseases, medications, recent illnesses, or bleeding events [5].

Treatment of normocytic anemia hinges on addressing the underlying condition. This may involve managing chronic diseases, addressing haemolysis, or initiating therapies to stimulate RBC production in cases of bone marrow disorders. Treatment strategies are personalized to each patient's unique circumstances.

Conclusion

Normocytic anemia presents a diagnostic puzzle that demands a systematic and thorough approach. Understanding the underlying etiology and addressing the root cause is paramount for effective management. With advances in medical research and diagnostics, clinicians are better equipped to unravel the complexities of normocytic anemia, offering hope for improved outcomes and quality of life for affected individuals

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***Received:** 26-Sept-2023, Manuscript No. AACPLM-23-115532; **Editor assigned:** 28-Sept-2023, PreQC No.AACPLM-23-115532(PQ); **Reviewed:** 11-Oct-2023, QC No. AACPLM-23-115532; Revised: 16-Oct-2023, Manuscript No. AACPLM-23-115532(R); Published: 23-Oct-2023, DOI:10.35841/aacplm-5.5.173*

***Citation:** James H. Normocytic anemia: Unraveling the challenges of balanced blood cells. J Clin Path Lab Med. 2023;5(5):173*