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Iron deficiency and thalassemia trait in vitamin B12 deficient patients with normal or low mean corpuscular volume

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Statement of the Problem: Vitamin B12 is one of the most important vitamins of the B-complex group. Its deficiency is not always accompanied by macrocytic picture refracted in the form of raised MCV. This rise in MCV can be blunted by concomitant iron deficiency or thalassemia trait. Due to these coexisting conditions, B12 deficiency can be missed on routine CBC leading to development of severe complications and few of them can be irreversible like neuropathy. The purpose of this research is to study the importance of normal or low MCV in vitamin B12 deficiency due to co-existence of iron deficiency or beta thalassemia trait masking a rise in mean corpuscular volume.

Methodology & Theoretical Orientation: Clinical records of 105 vitamin B12 deficient cases (vitamin B12 less than 200 ng/l) who had presented with normal or low mean corpuscular volume (MCV less than 95 fl) on complete blood count were determined from Dow diagnostic research and reference laboratory. Serum ferritin, red blood cell folate level and Hb electrophoresis for beta thalassemia trait were analyzed in these patients.

Findings: A total of 105 vitamin B12 deficient patients who fulfilled the inclusion criteria were enrolled in this study from which 39 (37.14%) were male and 66 (62.85%) were females. Among them, 36.19% were microcytic with the mean age of 37±16.2 years and 63.8% were normocytic with the mean age of 41.58±15.65 years. In microcytic group, the percent value of iron deficient, beta thalassemia trait, combined deficiency of B12, iron and beta thalassemia trait and RBC folate deficient were 52.6%, 34.21%, 7.8% and 2.63%, respectively. In normocytic group, the percent value of iron deficient, beta thalassemia trait and RBC folate deficient were 13.4%, 00% and 11.9%, respectively.

Conclusion: It was concluded that frequency of iron deficiency and beta thalassemia trait are significant in vitamin B12 deficient cases with normal or low mean corpuscular volume. It is more common in females having age group of 20-40 years. Index of suspicion should be kept high and serum ferritin and Hb electrophoresis should be done in all such patients who present with B12 deficiency anemia with normal or low MCV.

Biography

Asma Asif has completed her MPhil in Hematology from Dow University of Health Sciences in 2016. Currently, she is working at the Jinnah Sindh Medical University Karachi Pakistan. She has her publications in many reputed journals.

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