The Etiology of Anemia Among Pregnant Women in the Hill State of Himachal Pradesh in North India: A Cross-Sectional Study





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* Comments

Abstract

**Background and objective**

Anemia during pregnancy is a major cause of maternal and fetal complications including mortality. A study of the etiology of anemia is required to formulate guidelines for the prevention and treatment of the condition. To this end, we conducted a study among anemic women in northern India.

**Materials and methods**

A cross-sectional study was conducted among anemic antenatal women attending the outpatient department at a tertiary care hospital in Himachal Pradesh, India, involving 172 participants. Complete blood count, serum ferritin level, serum B12, serum folate levels, high-performance liquid chromatography (HPLC), liver function tests, and renal function tests were performed.

**Results**

The mean hemoglobin level among the subjects was 8.87 g/dl with a standard deviation of 0.79; 50% of women had serum ferritin levels of less than 15 ng/ml, 48.8% had serum B12 levels of less than 150 pg/ml. and 33.72% of women had serum folate levels of less than 3 ng/ml. Of note, 13.37% of women had either low or deficient levels for all three parameters; 14 women had abnormal results on HPLC. All nutrient deficiencies (ferritin, folate, and vitamin B12) were found in all morphological types of anemia. Significantly, 73.26% of iron-deficient anemic women had additional folate or vitamin B12 deficiencies, suggesting that additional methods would be required to decrease the prevalence of anemia. Two-thirds of the women in our study were vegetarians, a contributing factor towards a high percentage of vitamin B12 deficiency among women. ß-thalassemia trait was the most common abnormality found, consistent with the high prevalence of ß-thalassemia in north India.

**Conclusion**

Multiple deficiencies should be treated simultaneously in anemic women. Vitamin B12 deficiency is an important contributor to anemia, in addition to iron and folate deficiency.