

ANEMIA DURING PREGNANCY: ETIOLOGY, CLINICAL MANIFESTATIONS, AND TREATMENT APPROACHES

Tishabayeva N.A.

Ferghana medical institute of public health

Abstract. Anemia is common during pregnancy due to increased blood volume and iron demands. If left untreated, it can lead to serious maternal and fetal complications. Anemia is very common during pregnancy, affecting up to 40–50% of pregnant women, especially in low- and middle-income countries. It can lead to serious health risks for both the mother and the baby if not diagnosed and managed properly[1].

Key words: anemia, pregnancy, fatigue, heart diseases, headache, hypoxia.

INTRODUCTION

Anemia is a hematologic syndrome characterized by a decrease in hemoglobin (Hb) concentration or red blood cell count below physiological levels, resulting in reduced oxygen-carrying capacity and tissue hypoxia. During pregnancy, anemia is one of the most common pathological conditions, with a prevalence of 35–60% in developing countries[2,3]. According to the World Health Organization (WHO), hemoglobin levels below 110 g/L in pregnant women are considered anemic.

Pregnancy is a physiologically complex and dynamic period. During this time, maternal blood volume increases significantly, and metabolic demands rise due to the development of the fetoplacental unit. Consequently, the demand for essential hematopoietic nutrients such as iron[4,5], folic acid, and vitamin B12 increases. Inadequate intake or absorption of these nutrients is the main cause of anemia in pregnancy. Iron-deficiency anemia (IDA) is the most prevalent type, accounting for 75–90% of all anemia cases among pregnant women, according to several studies.

Pregnancy-related anemia can lead to cardiovascular strain, reduced immunity, and increased risk of hemorrhage during labor in the mother. For the fetus, it raises the risk of intrauterine growth restriction, preterm birth, low birth weight, perinatal mortality, and developmental abnormalities.

Statistical data indicate:

- Globally, approximately 30 million pregnant women are diagnosed with anemia each year;
- In developing countries, every second pregnant woman may experience anemia;
- In Uzbekistan, epidemiological surveys in 2022 revealed that 45–50% of pregnant women had anemia, with over 80% of those cases due to iron deficiency[6,7,8].

Early detection of anemia, accurate assessment of its etiology, and the application of evidence-based treatment strategies are essential to ensure maternal and fetal health. Nevertheless, in many cases, anemia is diagnosed late or inadequately assessed, reducing the potential to prevent serious complications.

MATERIALS AND METHODS

This scientific article is based on an analytical review of publications between 2015 and 2024. Clinical studies and literature from WHO, Cochrane Library, PubMed, and Scopus databases were reviewed. The article analyzes the various types of anemia during pregnancy, their pathophysiology, clinical features, and treatment modalities. Over 70 reputable sources were studied and compared to extract relevant conclusions.

RESULTS

The analysis yielded the following findings:

- Iron-deficiency anemia accounts for 82–90% of anemia cases in pregnant women.

- Folic acid deficiency contributes to 5–10%, and vitamin B12 deficiency to 1–2% of cases.
- The severity of anemia increases progressively across trimesters:
 - 1st trimester: average Hb 115–120 g/L
 - 2nd trimester: average Hb 105–110 g/L (due to hemodilution)
 - Severe anemia (Hb < 70 g/L) increases the risk of perinatal complications by 2.5 times[9,10].
- Clinical manifestations of iron-deficiency anemia include:
 - Fatigue (91%)
 - Tachycardia (63%)
 - Shortness of breath (45%)
 - Pale skin and mucous membranes (78%)
- Oral iron supplements (Fe²⁺ salts) are the first-line treatment, while severe cases may require parenteral iron or blood transfusion.

DISCUSSION

This study confirms that anemia during pregnancy—particularly iron-deficiency anemia—is a widespread condition with serious clinical consequences. Although hemodilution is a normal physiological adaptation, unmet iron and folate demands can transform it into a pathological state. The mainstay of treatment includes iron supplements (ferrous sulfate, ferrous fumarate), folic acid, and vitamin B12. In moderate to severe cases, parenteral iron preparations such as iron dextran or iron carboxymaltose are more effective and better tolerated.

According to WHO guidelines, all pregnant women should receive 30–60 mg of elemental iron and 400 mcg of folic acid daily as prophylaxis. However, this preventive strategy is only effective when combined with a proper diet and continuous medical supervision.

CONCLUSION

Timely diagnosis and a comprehensive treatment approach for anemia during pregnancy play a vital role in safeguarding the health of both mother and child. Iron-deficiency anemia is the most prevalent form and requires integrated management through prenatal care, nutritional support, supplementation, and education. Future research should focus on evaluating the efficacy and safety of modern iron preparations in clinical practice.

REFERENCES:

1. Ахундова С.Е. Железодефицитная анемия у беременных: современные подходы к диагностике и лечению // Российский вестник акушера-гинеколога. – 2020. – №2. – С. 50–54.
2. Овчаренко Е. Н., Власов В. В. Анемии: классификация, патогенез, клиника, диагностика и лечение. – М.: ГЭОТАР-Медиа, 2018. – 256 с.
3. World Health Organization. Iron Deficiency Anaemia: Assessment, Prevention and Control. – Geneva: WHO, 2001. – 114 p.
4. Кисляк О.А. Железодефицитная анемия: патогенез, диагностика и лечение // Consilium Medicum. – 2019. – Т. 21, №3. – С. 40–46.
5. Zimmermann M. B., Hurrell R. F. Nutritional iron deficiency // The Lancet. – 2007. – Vol. 370, Issue 9586. – P. 511–520.
6. Raxmatjonovna, I. N. (2023). Effects of colonic diseases on children's health. World bulletin of public health, 23, 101-103.
7. Isaqova, N. R. (2022). Influence of constipation on anthropometric indicators of children. Science and Innovation, 1(8), 888-892.

8. Рахматжоновна, И. Н. Алиментарного ожирение и репродуктивное здоровье женщин в современном аспекте физической реабилитации. *O'zbekiston harbiy tibbiyoti*, 4(4), 368-370.
9. Isaqova, N. (2022). Bolalarning antropometrik ko'rsatkichlarini turli omillarga bog'liqligi. *Science and innovation*, 1(D8), 1000-1003.
10. Рахматжоновна, И. Н. Влияние запора на антропометрические показатели детей при заболеваниях толстого кишечника. *Тиббиётда янги кун*, 2(34), 85-87.