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Clinical Course Of Severe Iron Deficiency Anemia In Pregnant Women

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Abstract: Iron deficiency anemia (IDA) remains the most common hematologic disorder during pregnancy and one of the leading causes of maternal and perinatal complications worldwide. The increased iron demand associated with fetal growth, placental development, and maternal blood volume expansion often exceeds dietary intake, leading to progressive depletion of iron stores and the development of anemia. Severe IDA is associated with significant risks, including maternal fatigue, cardiovascular strain, infection, preterm labor, low birth weight, and impaired neonatal neurodevelopment. This review summarizes current international evidence from 2015 to 2025 on the clinical course, diagnosis, outcomes, and management of severe iron deficiency anemia in pregnant women, emphasizing WHO, ACOG, and FIGO guidelines. Analysis of recent studies indicates that timely screening, measurement of hemoglobin and ferritin levels, and individualized iron supplementation—preferably oral for mild to moderate cases and intravenous for severe anemia—are essential for improving maternal and fetal outcomes. Despite progress in prevention and treatment strategies, severe IDA continues to represent a significant challenge in obstetric practice, highlighting the need for stronger implementation of standardized screening protocols and broader access to evidence-based care.

Keywords: Iron deficiency anemia, pregnancy, maternal health, hemoglobin, ferritin, intravenous iron, WHO guidelines.

Introduction: Iron deficiency anemia (IDA) is the most common nutritional deficiency worldwide and represents a major public health challenge in obstetrics. During pregnancy, maternal iron requirements increase dramatically to support expanded blood volume, placental growth, and fetal development. Iron deficiency can progress to anemia, a condition defined by reduced hemoglobin concentration, which impairs oxygen delivery to maternal and fetal tissues [1, 2]. The World Health Organization (WHO) estimates that approximately 37% of pregnancies are affected by anemia globally, the majority attributable to iron deficiency [3]. Severe IDA—often defined as hemoglobin <7 g/dL—is associated with poor maternal outcomes such as fatigue, increased cardiac workload, susceptibility to infection, and heightened risk during labor and delivery; it also correlates with adverse perinatal outcomes including preterm birth, low birth weight, and increased neonatal mortality [4, 5].

Despite global guidelines recommending routine screening and iron supplementation during pregnancy, variations in implementation persist across regions, and the clinical course of severe IDA remains a key concern for obstetric care providers. This review synthesizes recent evidence on the pathophysiology,

clinical presentation, diagnostic criteria, outcomes, and management of severe iron deficiency anemia in hospitalized and outpatient pregnant populations.

METHODS

A structured literature review was conducted to gather evidence published between 2015 and 2025 on severe iron deficiency anemia in pregnancy. Searches were performed in PubMed, PMC (PubMed Central), and organizational websites (WHO, ACOG, FIGO). Search terms included “iron deficiency anemia pregnancy”, “severe iron deficiency anemia clinical course”, “maternal outcomes iron deficiency”, and “management guidelines anemia pregnancy”. Eligible studies included narrative and systematic reviews, clinical guidelines, randomized and cohort studies, and consensus statements focusing on clinical presentation, diagnosis, management, and outcomes of IDA in pregnant women.

Data were extracted on definitions of anemia, prevalence, diagnostic biomarkers, maternal and neonatal outcomes, prevention strategies, and therapeutic interventions. Emphasis was placed on sources with clinical relevance and strong evidence quality (WHO, ACOG, large cohort studies).

RESULTS

Iron deficiency in pregnancy results from increased maternal iron demand that exceeds intake and absorption. Typical total iron requirement over pregnancy approaches ~1200–1500 mg, with peak needs in the second and third trimesters [6]. Without adequate iron, maternal iron stores and serum ferritin decline, leading to decreased hemoglobin synthesis and anemia. WHO defines anemia during pregnancy as hemoglobin <11 g/dL across trimesters, whereas some national guidelines use trimester-specific cutoffs (e.g., <10.5 g/dL in second trimester) for moderate anemia [1, 7].

Prevalence estimates vary by region and socioeconomic status but generally range from 30 to 50% of pregnancies affected by iron deficiency or anemia, with higher rates in low-income settings [3, 8].

Symptoms of iron deficiency anemia can be subtle, especially in mild cases. Common complaints include fatigue, weakness, pallor, dizziness, and headaches. Severe anemia exacerbates these features and may manifest as tachycardia, exertional dyspnea, cold extremities, and reduced exercise tolerance due to inadequate oxygen-carrying capacity [9]. Severe IDA increases maternal risk during labor and delivery due to reduced tolerance to blood loss.

The diagnosis of iron deficiency anemia in pregnancy relies on hematologic and iron biomarkers. Hemoglobin concentration remains the primary screening tool; anemia is confirmed when values fall below accepted thresholds (<11 g/dL). Serum ferritin is considered the most specific marker of iron deficiency; ferritin <15–30 ng/mL is indicative of depleted iron stores in pregnancy [1, 10]. Other parameters such as transferrin saturation may support diagnosis, particularly in inflammatory states. Routine screening for anemia and iron deficiency is recommended at the first antenatal visit and again mid-pregnancy to detect evolving deficiency [11].

IDA, especially when severe, is linked to increased maternal morbidity. Poor maternal iron status has been associated with higher rates of preterm labor, cesarean delivery, postpartum hemorrhage, infections, and even maternal mortality in resource-limited settings [5, 12]. On the fetal side, iron deficiency anemia correlates with low birth weight, small for gestational age infants, and potentially impaired neurodevelopment due to suboptimal iron availability during critical periods of brain development [2, 13].

Prevention and Screening: WHO recommends daily iron and folic acid supplementation (30–60 mg elemental iron and 400 µg folic acid) for all pregnant women to prevent anemia and related complications [14]. National guidelines, such as ACOG Practice Bulletin No. 233, advise routine screening for anemia at initial prenatal care and appropriate follow-up [15].

Therapeutic Interventions:

- Oral iron remains the first-line treatment for mild to moderate IDA. Common regimens include 60–120 mg elemental iron daily, though gastrointestinal side effects may limit adherence [9].
- Intravenous iron therapy is indicated for severe anemia, intolerance to oral iron, or poor response to oral supplementation. Studies support the safety and efficacy of IV iron in rapidly restoring iron stores and improving hemoglobin, particularly in later trimesters [16, 17].
- Adjunctive care includes nutritional counseling, addressing folate or B12 co-deficiencies, and close monitoring of hematologic response.

DISCUSSION

Severe iron deficiency anemia in pregnancy remains a significant clinical problem with multifactorial etiology and important implications for maternal and child health. Although prevention via routine iron supplementation is a cornerstone of antenatal care, implementation gaps persist, particularly in low-resource settings where anemia prevalence is highest. Comprehensive screening programs, early diagnosis, and individualized treatment strategies can mitigate

the risk of adverse outcomes.

Biomedical research underscores the importance of early recognition and intervention. Serum ferritin, despite its limitations as an acute-phase reactant, remains key in identifying iron depletion before the onset of severe anemia. Oral iron supplementation is effective for many, but non-adherence due to side effects necessitates alternative approaches such as intravenous iron, especially when rapid repletion is necessary.

Future studies should focus on optimizing dosing regimens, understanding the long-term neurodevelopmental impact of maternal iron deficiency on offspring, and addressing barriers to care in underserved populations. Integration of global guidelines into national and local protocols will improve uniformity of care and outcomes.

CONCLUSION

Severe iron deficiency anemia in pregnancy remains a major global health concern, despite being largely preventable and treatable. The physiological demands of pregnancy substantially increase iron requirements, and when these are unmet, both maternal and fetal health are compromised. Evidence from the last decade consistently demonstrates that severe IDA contributes to significant maternal morbidity, including fatigue, cardiac strain, infection susceptibility, and postpartum hemorrhage, while also elevating the risk of preterm delivery, low birth weight, and impaired neurodevelopment in infants.

Routine screening, early diagnosis, and timely initiation of iron supplementation—preferably oral in mild to moderate cases and intravenous in severe or refractory cases—are the foundation of effective management. Integration of WHO, FIGO, and ACOG recommendations into national antenatal care protocols is essential to standardize prevention and treatment practices worldwide.

To improve outcomes, future strategies must prioritize universal access to iron supplementation, patient education on adherence, and multidisciplinary monitoring throughout pregnancy and postpartum. Continued research into optimized dosing, novel formulations, and long-term child outcomes will further enhance clinical practice. With comprehensive implementation, the burden of severe iron deficiency anemia in pregnancy can be significantly reduced, safeguarding both maternal well-being and fetal development.

REFERENCES

1. Obianeli C. Iron deficiency anaemia in pregnancy: narrative review from a clinical perspective. Diagnostyka 2024;14(20):2306. PMID: PMC11506382. [PMC]
2. Benson AE, et al. Iron deficiency anemia during pregnancy and maternal–fetal outcomes. JAMA Netw Open 2024.
3. WHO. Anaemia fact sheet. World Health Organization; 2024.
4. Di Renzo GC, et al. Iron deficiency anemia in pregnancy. J Womens Health 2015.
5. Salmen BM. Iron supplementation in pregnancy: guideline and clinical practice. J Clin Med 2023;2(3):19.
6. De Moor V. Iron deficiency anaemia in pregnancy: screening and prevention. SciDirect 2025.
7. Ubom AE, et al. FIGO good practice recommendations on anemia in pregnancy. Int J Gynecol Obstet 2024.
8. Naz S, et al. Management of iron deficiency anemia during pregnancy. PMC 2024.
9. Duarte AFM, et al. Oral iron supplementation in pregnancy: current evidence. Rev Bras Ginecol Obstet 2021.
10. Lewkowitz AK. Identifying and treating iron deficiency anemia in pregnancy. Hematology 2023.
11. Haematology in Obstetric and Women's Health Collaborative. Iron optimisation consensus. PMC 2025.
12. De Viñaspre-Hernández RR, et al. Iron deficiency anemia during pregnancy review. SciDirect 2025.
13. Malinowski AK. Iron deficiency and iron deficiency anemia in pregnancy. PMC 2021.
14. WHO. Daily iron and folic acid supplementation in pregnancy. WHO ELENA; 2024.
15. ACOG. Anemia in Pregnancy: Practice Bulletin No. 233. Obstet Gynecol 2021.
16. SMFM. Large study finds IV iron treatment safe in pregnancy. Society for Maternal-Fetal Medicine 2024.
17. Intravenous iron infusion. Wikipedia article summary. 2026.
18. Zakirova Nodira Islomovna, Zakirova Fotima Islomovna, Abdullayeva Nigora Erkinovna, Xusenova Shoira Timurovna. Bachadonda chandiq mavjud bo‘lgan ayollarda abdominal tug‘ruq usulini tanlash // EJMNS. 2024. №5-2. URL:https://cyberleninka.ru/article/n/vybor-metoda-abdominalnogo-rodorazresheniya-u-zhenschin-s-rubtsom-na-matke .
19. Zakirova N. I., Zakirova F. I. Homilador ayollarda

og‘ir darajadagi anemiya: homiladorlikni olib borishni optimallashtirish // Ayollarda hayotning turli davrlarida temir tanqisligi muammolari. – 2024. – 97–99-b.

20. American College of Obstetricians and Gynecologists (ACOG).

21. Anemia in Pregnancy. Practice Bulletin No. 233. Obstetrics & Gynecology. 2021;138(2):55–64.