

Evaluation and management of anemia in pregnancy

1. Definition or Key Clinical Information: Anemia, a common nutritional deficiency in pregnancy with a prevalence of 35-56%. Anemia is defined as a hemoglobin less than 11g/dL and a hematocrit less than 33% in the first and third trimesters. In the second trimester a hemoglobin less than 10.5 g/dL and a hematocrit less than 32%. It is important to note that there are also adjustments to these levels for those living at a higher altitude, Black individuals, and individuals that smoke. (Varney 2019 p 826)

2. Assessment

i. Risk Factors: Risk factors associated with anemia are: smoking, living at a higher altitude, limited iron intake, sickle cell trait, sickle cell disease and thalassemias. Sickle cell and thalassemias are more often associated with microcytic anemia.

ii. Subjective Symptoms: Exhaustion, fatigue, dark bags under the eyes, shortness of breath, headaches and mental dullness that impacts daily function.

iii. Objective Signs: **Slow** Capillary refill, brittle nails, spoon shaped nails, tachycardia, pale mucous membranes, peripheral edema, jaundice, splenomegaly.

iv. Clinical Test Considerations:

Initial evaluation:

-CBC labs when establishing care

-Screening is recommended at 28-30 weeks gestation using a hemoglobin and/or hematocrit test.

After anemia has been diagnosed:

-Serum ferritin (ng/dL) normal levels 100-150, iron deficiency w/o anemia <40, iron deficiency with anemia <20, iron deficiency with severe anemia <10

-Hemoglobin (Hgb), g/dL normal values 12-13, iron deficiency without anemia >12, iron deficiency with anemia 9-12, iron deficiency with severe anemia.

*adjust as needed for high altitude, Black, and/or smoking factor.

3. Management plan

i. Therapeutic measures to consider Depending on the severity of anemia, consider simple lifestyle changes such as: cooking with cast iron, increasing leafy green vegetables, increasing red meat and other iron rich foods. If anemia is more significant, supplementing with an iron supplement is recommended. Note: This can be daily or intermittent (1-3 times per week)

ii. Complementary measures to consider Yellow dock tinctures, plant based-liquid iron supplementation.

iii. Considerations for pregnancy, delivery and lactation Anemia in pregnancy can lead to preterm birth, low birth weight, IUGR, infection, and in worst cases infant mortality. In the postpartum period, anemia itself doesn't always mean there will be a higher risk of a postpartum hemorrhage—however the birthing person does not have the stores to recover from post birth bleeding as effectively, resulting in heightened fatigue. Delaney, S. (2022 March 9)

iv. Client and family education Provide client with additional resources including a handout on "Anemia in Pregnancy". Additional information on anemia can be found on:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7477519/>

-Anemia prevention handout: Lifestyle changes for boosting iron levels.

-Council all clients on the increased need for iron during pregnancy.

v. Follow-up A CBC is recommended for all clients at the initial visit. For clients that are exhibiting signs and symptoms of anemia additional testing is recommended. For clients experiencing anemia, basic testing methods such as a CBC, H&H, Hemoglobin Meter can be done at follow-up visits in the office. If concerns about iron levels persist, retesting with a CBC at the end of the second trimester, and again mid third trimester is recommended.

4. Indications for Consult, Collaboration or Referral: When anemia is discovered, discuss results with the client. Referral for an iron transfusion may be considered if the client is unable to tolerate oral iron supplementation. If anemia persists at significant levels a transfer to OB care might be warranted prior to the birth.

5. References

Delaney, S. (2022 March 9). Participation 9: CONFERENCE: Anemia in pregnancy [Webinar]. MDWF 2010, Midwives College of Utah.

King, T. L., Brucker, M. C., Jevitt, C., & Osborne, K. (2019). Medical Complications in Pregnancy. *Varney's midwifery sixth edition*, Jones & Bartlett Learning.