Treatment of Iron Deficiency Anemia in Pregnancy

Anemia is the most common medical disorder in pregnancy. There is evidence for the association between maternal anemia with increased pregnancy and neonatal complications. Adequate screening, diagnosis and treatment is essential to improve outcomes.

Iron deficiency anemia (IDA) is a type of microcytic anemia (mean cell volume below 80fL) and is suspected when hemoglobin is below 11g/dL with other findings such as low mean cell hemoglobin (MCH), microcytosis, hypochromia and elevated red cell distribution width (RDW). Diagnosis is made when ferritin levels are below 15 ng/dL, however treatment should be considered when ferritin is below 30 ng/dL. Ferritin levels between 30ng/dL-40ng/dL should follow evaluation of transferrin saturation (TSAT).

The goal of this document is to review the treatment approach for IDA in pregnancy.

Management:

Prevention

- Dietary advice: iron rich foods such as shrimp, turkey, enriched cereals, beans, lentils, liver, oysters and clams. Review foods that impair iron absorption such as dairy and soy products, spinach, coffee or tea.
- Provide supplemental oral iron to all pregnant women to compensate for the increased iron demands during pregnancy, delivery and 3 months postpartum = 30mg/day of elemental iron (corresponds to the amount of iron in most prenatal vitamins)
- For women who are intolerant to the iron in prenatal vitamins, consider prenatal vitamins without iron and to supplement with oral iron supplements on an every-other-day basis (60mg every other day)

Treatment

1. Dietary review (see above)
2. Oral supplements
    - Higher doses are requirement for treatment (up to 200mg/day)
    - There are several formulations. Ferrous sulfate is the most used due to wide availability and low cost. Other options include ferrous fumarate and ferrous gluconate.
    - Avoid enteric coated formulations because they are poorly absorbed (absorption is increased by intake of iron on an empty stomach and with vitamin C or orange juice)
    - **Increasing the dose does not improve efficacy. For this reason, some experts have begun recommending alternate-day dosing (every other day rather than daily) because it appears to result in equivalent or better iron absorption with fewer adverse effects.**
    - Serum reticulocyte count should be elevated within 7-10 days after treatment initiation (Hb deficit will halve in 1 month and normalize 6-8 weeks after treatment initiation).
3. IV formulation

- Bypasses the limited intestinal absorption of oral formulations
- Increases iron stores more quickly than oral iron but remains underutilized due to cost and misperceptions of risks. Risks of anaphylaxis was highest with high molecular weight iron dextran but this formulation is no longer available.
- Dose calculation: Total body iron deficit = (body weight in kg x [target Hb level – actual Hb level in g/dL] x 2.45 (formula is available online).
- Prior to IV Iron: always rule out hemoglobinopathy (Hb electrophoresis, folate or B12 deficiency).
- Assess response in 2-3 weeks after end of treatment
- Treatment target: > 10g/dL by delivery to reduce the risk for PP hemorrhage and blood transfusion. Consider target > 11g/dL in Jehova's witness (or objection to blood products) or high risk for bleeding (placenta previa / accreta, multiple prior cesarean deliveries, etc).
- Contraindications to IV Iron include: first trimester of pregnancy, previous sensitivity to IV iron, anemia not attributable to iron deficiency, iron overload, acute infection, clinical or laboratory evidence of liver damage, asthma, acute renal failure.

Gestational Age based treatment approach

- < 14 weeks: Oral iron trial (daily or every other day) and recheck CBC in 4-6 weeks
- 14-28 weeks
    - Hb 9-11 g/dL: Oral iron trial and recheck BC in 4-6 weeks. Consider IV iron if persistent anemia after oral iron trial
    - Hb < 9 g/dL or high-risk factors*: recommend IV Iron
- 28 weeks: Recommend IV iron to replete iron deficit, usually at least 1000mg for moderate-severe anemia

*High-risk factors: bleeding disorders, chronic placental abruption, history of gastric bypass, Jehova's witness, multifetal gestation, placenta previa or accrete, at physician discretion.