

Bloodless Medicine and Surgery Program (BMSP)

Anemia Management for Non-Bleeding Bloodless Patient

I. General non-blood management principles

- A. Evaluate for critical anemia: address signs and symptoms of hypoperfusion.
- B. Formulate plan of care to minimize blood loss and treat anemia.
- C. Discuss with the patient concerning non-blood alternatives (i.e. albumin, clotting factors, etc.).

III. Selective laboratory assessments

- A. CBC
- B. Retic panel: includes retic hemoglobin, retic count auto, retic absolute and immature retic percentage. The retic hemoglobin provides a more accurate diagnostic test to assess iron deficiency, and it is better at predicting response to iron treatment. The other retic values provide an indication of the bone marrow response to the anemic state of the patient.
- C. Iron panel: includes iron, total iron binding capacity, and iron saturation. These values are helpful if a retic panel is not readily accessible.
- D. IV iron dosing should be based on the level of iron deficiency as related to retic hemoglobin.
- E. Serum ferritin remains the best test in routine use to insure iron overdosing does not occur. Since serum ferritin is an acute phase reactant, elevated levels are measured in patients with chronic inflammatory conditions or infectious conditions and will not reflect true iron stores.
- F. CRP level may be warranted to determine the inflammatory state of the patient.

II. Management of anemia

- A. Determine possible causes of anemia
- B. Address Iron Deficiency
 - 1. Iron therapy may be enough to correct the anemia without the use of other adjunct therapies
 - 2. If iron stores are low use IV iron. It will replenish iron stores more quickly and efficiently.
 - 3. Oral iron is sufficient for mild cases of anemia. Bioavailability of iron is diminished in the presence of inflammation, malignancy and/or infection.
 - 4. Add retic hemoglobin level to the CBC every third day to measure response to therapy.
- C. Optimization of red blood cell production
 - 1. Use erythropoietin stimulating agents in addition to IV iron in patients with severe anemia (Hb<5gm/dl).
 - 2. Administer supplementary iron to enhance ESAs even in patients with normal iron stores.
 - 3. Response to ESAs is dose dependent, time dependent and subject to variability among patients.
 - 4. Higher doses of ESAs may be necessary in the presence of infectious, inflammatory or malignant process.
 - 5. The retic panel can provide important data corresponding to the bone marrow response to the patient's anemic state.
 - 6. Follow algorithm for specific dosing of ESAs and iron therapy.

NEED ASSISTANCE?

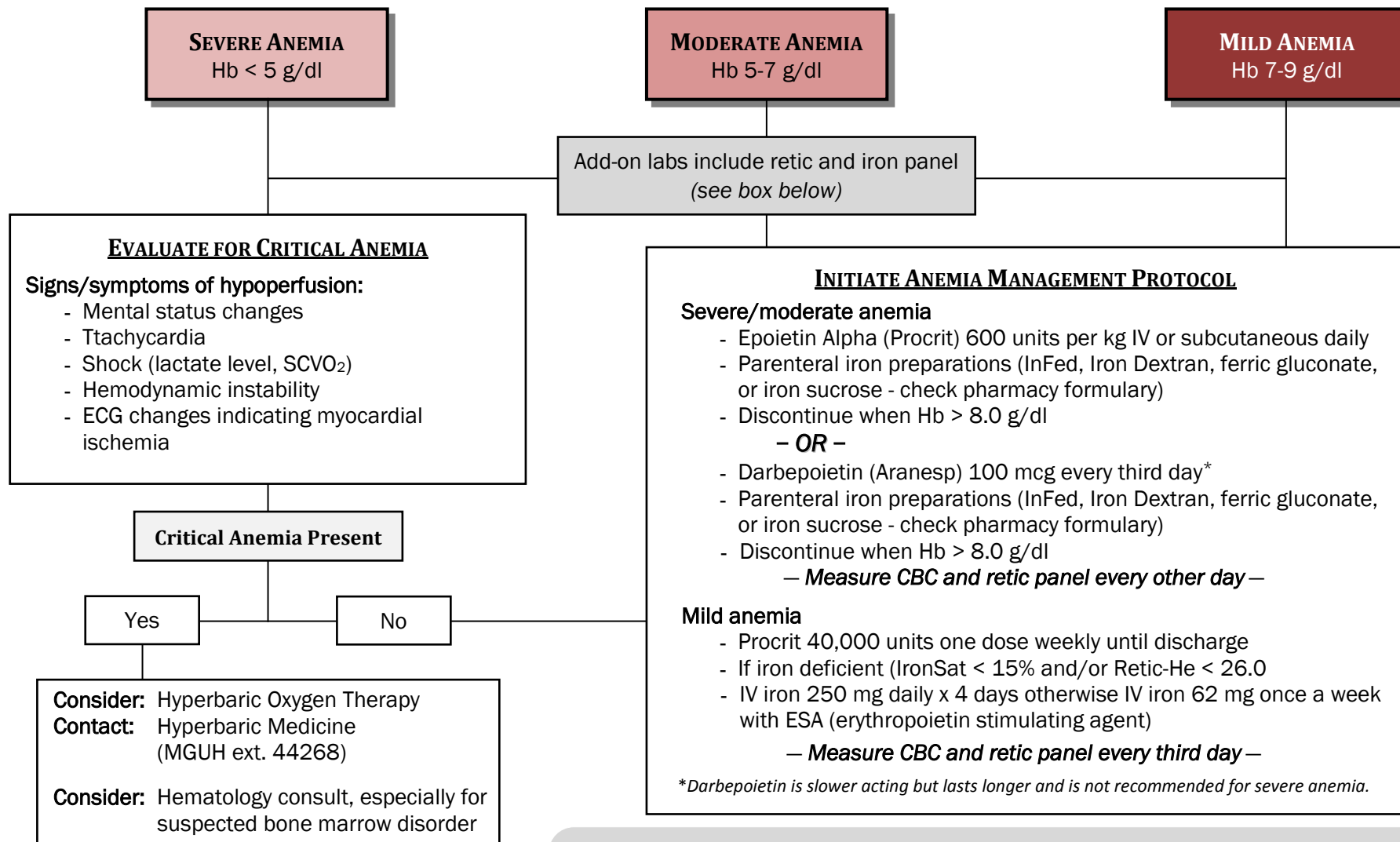
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IV. Minimize blood loss

- A. Restrict diagnostic phlebotomy
 - 1. Limit phlebotomy to necessary diagnostic testing.
 - 2. Use pediatric blood tubes to decrease volume of blood drawn.

ANEMIA MANAGEMENT ALGORITHM BLOODLESS PATIENTS



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Retic panel includes: retic hemoglobin*, retic count auto, retic absolute and immature retic %
Iron panel includes: iron, total iron binding capacity and iron saturation

**Retic hemoglobin (retic-He) provides an indirect measure of the functional iron available for new red blood cell production. It is useful for the diagnosis of iron deficiency in adults, and it also provides an early measure of the response to treatment increasing within 2-4 days of the initiation of iron replacement.*