

Bloodless Medicine and Surgery Program (BMSP)

Pre-operative Anemia Management

I. Pre-operative Timing

- A. For elective surgeries, a three-to-four week lead time is ideal to initiate hemoglobin optimization.
- B. Once a week treatments begin three weeks out from surgery.
- C. First dose is given 21 days prior to surgery, 14 days, and 7 days. This allows optimal time for each regimen to take effect.
- D. An additional treatment may be scheduled for the day before surgery, which will provide coverage up to four days post-operatively.
- E. For more urgent surgeries (14 days or less) a more intense optimization regimen is initiated. In such cases daily treatments up to 10 days before surgery can be initiated.

II. Classification of Anemia

- A. The WHO classification of anemia is based upon gender:
 - Male** Hb < 13.0 g/dl
 - Female** Hb < 12.0 g/dl
- B. For surgical patients a more appropriate concept is defining the patient's hemoglobin as either optimal or suboptimal based upon the complexity of the surgery and degree of blood loss expected.
- C. Regardless of gender, a Hb > 13.0 g/dl should be considered optimal.

III. Iron Therapy: Oral vs. Intravenous (IV)

- A. Oral iron provides a low-cost treatment for anemia. Absorption, tolerance, and time are major issues in many patients.
- B. IV iron is safe, cost-effective, and more efficient than oral iron. A visit to the infusion clinic is required and may be inconvenient for certain patients.
- C. IV iron allows for rapid replenish of iron stores especially for patients non-responsive to oral iron and those with severe iron deficiency.
- D. Dosing is based on total iron deficit (**see box below *Calculating Iron Deficit***).
- E. For some, optimization can be achieved with IV iron alone.

VI. Erythropoietin Stimulating Agents (ESA)

- A. In the U.S. rHuEPO use has been approved for patients undergoing elective orthopedic surgery and has been extended for use to other elective, noncardiac, nonvascular surgeries.
- B. Off-label use of rHuEPO has been suggested for cardiac or gastrointestinal cancer resection.
- C. Dosing for epoetin alfa has not been standardized. Two common dosing regimens are 300 IU kg⁻¹ day⁻¹ for daily use and 600 IU kg⁻¹ for weekly use.

NEED ASSISTANCE?

MedStar Franklin Square Medical Center
Office (443) 777-8893 | Nurse Coordinator pager (410) 932-8241

MedStar Georgetown University Hospital
Office (855) 546-0625 | Nurse Coordinator pager (202) 405-0353

Calculating Iron Deficit

Body weight (kg) x (150-Hb g.l⁻¹) x 0.24 + 500 mg = **Total iron deficit**

Simple formula based upon Hb and patient's body weight:

Hb	Iron Dosing - Body Wt<70kg	Iron Dosing - Body Wt>70kg
<7 g.dl ⁻¹	1200 mg	1500 mg
7-10 g.dl ⁻¹	1000 mg	1200 mg

DATE: _____	TIME: _____	PROCEDURE DATE: _____
PATIENT NAME: _____		DOB: _____
MRN: _____	CURRENT WEIGHT: _____ kg (lb ÷ 2.2)	
DRUG ALLERGIES: _____		ICD10 Code: _____

Baseline Lab Orders

- Hemoglobin: _____ g/dL (Date: ___ / ___ / ___)
- Ferritin: _____ ng/mL (Date: ___ / ___ / ___)
- Transferrin Saturation (TSat): _____ % (Date: ___ / ___ / ___)

Justification

- Iron Deficiency Anemia
(ICD 64.9; 50.9)
- Anemia of Chronic Disease
- Bloodless Patient

Indication

Hemoglobin <13 mg/dL AND ONE OF THE BELOW:

- Serum ferritin <30 ng/mL **OR** TSat <20% (then treat with Iron IV)
- Ferritin 30 to 500 ng/mL **AND** TSat <20% (then treat with Iron IV and EPO)
- Hemoglobin <10 mg/dL **AND** Ferritin 30-500 ng/mL **AND** TSat >20% (then treat with EPO only)

Erythropoetic Stimulating Agent (ESA)

- Erythropoietin 600 Int. Units/kg subcutaneously x1 dose weekly
- Dose = _____ Int. Units SQ x 1 (Maximum 80,000 Units)

Iron Therapy

- Iron sucrose 100 mg over 15 minute normal infusion; given with each dose of erythropoietin
- Iron sucrose 200 mg to infuse over one (1) hour
- Infed 1,000 mg to infuse over two (2) hours
- Feraheme 510 mg IV x 1 dose, then repeat after 24 hours

Administration Dates

____ / ____ / ____ ____ / ____ / ____ ____ / ____ / ____ ____ / ____ / ____ ____ / ____ / ____ ____ / ____ / ____

Pretreatment for Iron Infusion (for history greater than one drug allergy, RAD, IBD, rheumatoid arthritis or other inflammatory conditions)

- Famotidine 20 mg IV x 1 dose
- SELECT ONE: Methylprednisolone 40 mg IV x 1 dose 125 mg IV x 1 dose if RAD

Follow standard infusion center reaction protocol for infusion related reactions

If hypersensitivity reaction to iron occurs, initiate hypersensitivity protocol

Ordering MD: _____ Signature: _____