Preoperative Hemoglobin Optimization and Anemia Management

Goal: Transfusion avoidance in adult surgical patients

Risk Factors for Transfusion: Hemoglobin (HGB) less than (<) 130 g/L, weight less than 65 Kg, elderly, female, complex or repeat surgical procedure, renal insufficiency (creatinine clearance <40 ml/min), antiplatelet agents, anticoagulants, some supplements

Transfusion Avoidance Strategies: Early assessment (28 days before surgery) and evidence based, coordinated interventions as required.

Interventions must take into consideration age, gender, anticipated surgical blood loss and pre-existing medical conditions.

### Microcytic (MCV <80)
- Consider: iron deficiency, thalassemia, anemia of chronic disease, sideroblastic anemia.
- Refer to appropriate physician for investigation.

#### Consider:
- Iron deficiency
- Probable iron deficiency

#### Start Iron Therapy
1. Oral Iron: 100 – 200 mg elemental iron by mouth per day e.g. Ferrous Fumarate 300 mg, 1-2 tabs; Feramax® 150 mg per day or 2.Proferrin @11 mg , 1–3 tabs per day
2. IV Iron infusion (E.g.iron sucrose**) if oral iron therapy is contraindicated or not tolerated or short time to surgery. Note: New preparations are safer than older formulations

### Normocytic (MCV 80-100)
- Consider: anemia of chronic disease, renal insufficiency, nutritional deficiency, hemolysis, primary bone marrow disorder.
- Refer to appropriate physician for investigation.

#### Consider:
- Anemia of chronic disease

### Macrocytic (MCV >100 <110 mild; > 110 marked)
- Consider: B12 deficiency, hepatic disease, thyroid disease, folate deficiency, alcoholism, medications (HIV antiviral, Hydrea®, Septra®, Methotrexate®) myelodysplasia, cytopenias, reticulocytosis.
- Refer to appropriate physician for investigation.

#### Consider:
- Iron deficiency
- Probable iron deficiency

### Erythropoietin (Erythropoietin)**
- HGB optimization using erythropoietin: USUAL target is HGB 130 g/L, MAXIMUM target in renal and oncology patients to less than 120g/L. Patients with pre-existing thrombotic events should be monitored closely.

#### Standard Dosing:
- Epoetin Alfa 20,000 – 40,000 units subcutaneously (600 units/kg) weekly to a maximum of 4 doses depending on presenting hemoglobin and time to surgery.

#### Short dosing schedule is available for urgent cases:
- Epoetin Alfa 300 IU/kg given for 10 consecutive days prior to surgery, on the day of surgery, and for four days immediately thereafter.

**May be Accessed in Ontario through Third party provider or Ontario Drug Benefits Plan (Exceptional Access Program, Trillium)

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