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), antplatelet 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.

HGB Less than (<) 100 g/L

Consider delaying procedure. Refer to appropriate physician for investigation.

Evaluate: for blood loss (GI, menstrual, recurrent epistaxis) anticoagulant status, renal/hepatic failure. Refer to appropriate physician for investigation to treat underlying cause if able.

Check: CBC, differential, reticulocyte count (retic), Ferritin, Iron indices, Creatinine, Serum B12. Folate testing may be helpful

*False elevations may occur with inflammation, Infection and chronic disease.

Microcytic (MCV <80)

Consider: Iron deficiency, thalassemia, anemia of chronic disease, Sideroblastic anemia. Refer to appropriate physician for investigation.

Iron deficient

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

Probable iron deficient

Normocytic (MCV 80-100)

Consider: anemia of chronic disease, renal insufficiency, nutritional deficiency, hemolysis, primary bone marrow disorder. Refer to appropriate physician for investigation.

Iron saturation (TSAT) < .20 (20%) retic low Ferritin 30-100 mcg/L

TSAT- low, retic -low

TIBC <45 mcmol/L Ferritin >100 mcg/L

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.

Folate low

B12 Low

Start Folic acid 5 mg po daily

HGB Greater than (> ) 130 g/L

Evaluate needs of surgical procedure. Consider Iron, B12, and folic acid

TSAT<.20, Retic low

TIBC >72 mcmol/L Ferritin <30 mcg/L

Start Vitamin B12 Therapy 1,000 to 2,000 mcg PO or SL daily OR IM 1000 mcg qweek x 4, then 500 mcg qmonth

HGB 100 – 130 g/L

Erythropoietin With Iron

HGB ≤ 130 g/L

Consider Erythropoietin

Epoetin Alfa (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)

www.ontracprogram.com

Developed by Ontario Transfusion Coordinators (ONTraC), the Patient Blood Management initiative funded by the Ministry of Health and Long Term Care of Ontario 2007, Revised 2012, 2013, 2016

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