HIGH RISK MEDICATION GUIDELINE

IRON – Intravenous Administration

AREAS APPLICABLE

All Areas.
Refer to Area Specific Guidelines for Use of Iron Infusions in Renal Patients.

INTRODUCTION[1,2]

Intravenous iron is available in a number of preparations with varying infusion rates. It is important to ensure the prescribed iron and iron being prepared is the same.

Intravenous (IV) iron products are indicated in the treatment of iron deficiency and anaemia when oral iron supplements cannot be given or have not worked.[1]

It is important that iron stores be replaced before prescribing Erythropoietic Stimulating Agents (ESA's) such as Epoetin alfa, Darbepoetin alfa, or Epoetin beta. Contact Haematology consultant for appropriate timing of ESA following iron administration.

If the patient has active infection, consult with clinical microbiologist or infectious disease specialist before prescribing. (Preferable to have infection under control before initiating intravenous iron)

If the patient has received over 4 units of packed red blood cells (RBC) prior to iron infusion, ensure iron studies have been done post transfusion and **look at transferrin saturation only** (goal 20-30% transferrin saturation). Ferritin levels will **not be of value** during this post transfusion period.

An IV iron product must be used cautiously in patients with history of reaction to any other parenteral iron products.

The prescribing, dosing, administration, and safety information differs between each IV iron product. Consult individual product information and accompanying SCGH guidelines before and during use.

INDICATIONS

1. Absolute* or functional** iron deficiency
2. Patients who are unable to tolerate oral iron
3. Patients who are non-compliant with oral iron
4. Oral iron is ineffective due to malabsorption, gastric surgery or other pre-existing medical conditions

* Absolute iron deficiency is defined as ferritin <15-30mcg/L, or ferritin <100mcg/L with transferrin saturation <20%

** Functional iron deficiency exists when, despite adequate stores, iron cannot be mobilised for erythropoeisis. It is commonly seen in patients with end stage renal failure whose response to erythropoietin stimulating agents (ESAs) may be optimised when ferritin is >200mcg/L.

CONTRAINDICATIONS

Absolute

1. Evidence of iron overload (transferrin saturation >45%)
2. Decompensated hepatic disease or infectious hepatitis
3. Pregnancy in the first trimester.
   Pregnancy Note: Iron POLYmaltose is first line –refer to the King Edward Memorial Hospital Guidelines. http://www.kemh.health.wa.gov.au/development/manuals/O&G_guidelines/sectiona/4/a4.13.2.pdf

Relative

1. Anaemia not attributed to iron deficiency
2. Severe infection or inflammation including inflammatory arthritis
3. History of significant allergy or asthma
4. Polycythemia vera
5. Suspected reactions to IM or IV iron

SAFETY RECOMMENDATIONS[2]

When possible, the patient should cease oral iron therapy one week prior to infusion.

Skin staining as a result of extravasation is irreversible. Ensure the cannula is in the largest vein possible and secured. Renal patients (dialysis and non-dialysis): no cannulation or blood sampling above the wrist. Flush with 50mL sodium chloride before and after iron to minimise the risk of skin staining.

Recommendations for safe administration are:

- **Wherever possible,** iron infusions in **clinically stable** patients should be avoided between 2100- - 0700hrs, unless urgently required and medical staff are available.
- The iron infusion must be used within 24 hours of preparation.
- An infusion pump must be used to administer iron infusions
- Do not add any other medications to infusion or mix in the same line.
- Follow the hospital guidelines for checking the preparation and patient before commencing the infusion.
- Resuscitation equipment, including oxygen, adrenaline, hydrocortisone and promethazine must be readily available
- Advise the patient to report adverse reactions or extravasation promptly

In case of a hypersensitivity reaction, treatment should be stopped immediately and appropriate management initiated.

ACE inhibitors may increase the incidence of adverse effects like erythema, hypotension, nausea and vomiting.

Prophylaxis against allergic reactions is unnecessary, except where there is a history of severe asthma/allergy or previous adverse reaction to parenteral iron. Consider a premedication of 10mg oral Promethazine 30 minutes prior to commencing infusion for these patients.

PRESENTATION[3]

Options	Drugs & Route	Dose	**Availability -** As per the SCGH Medication Formulary restrictions
Option 1	**Ferric CARBOXYmaltose (Ferinject®)**	500mg/10mL 100mg/2mL	1) Outpatient use in the IV Lounge and Cancer Centre. 2) Admitted inpatients under the care of MAU or ED and who are for urgent discharge (same day). 3) Patients with a known hypersensitivity to iron polymaltose. To be supplied via Pharmacy on a named patient basis only.
Option 2	**Iron POLYmaltose complex (Ferrosig®, Ferrum H®)**	100mg/2mL	All areas
Option 3	**Iron Sucrose (Venofer®)**	100mg/5mL	For use as per the Renal Area Specific Guideline

ADMINISTRATION[1]

The intravenous iron product should be given in accordance with the method of administration stated in the product information. IV iron should only be given in an environment where the patient can be adequately monitored, and where resuscitation facilities are available. See Dosage table below.

KEY RELATED DOCUMENTS

Intravenous Therapy. SCGH Nursing Practice Guideline 4. Last reviewed 2013.
Drug Administration. SCGH Nursing Practice Guideline 51. Last reviewed 2013.
Drug Administration. SCGH Hospital Policy 141. Last reviewed 2013.
Prescribing and Drug Supply for Inpatients. SCGH Hospital Policy 197. Last reviewed 2011.
Prescribing Restrictions. SCGH Hospital Policy 219. Last reviewed 2011.
Drugs – Administered by Injection. SCGH Medical Practice Guideline 006. Last reviewed 2011.
OD 0385/12. National Recommendations for User-Applied labelling of Injectable Medicines, fluids and Lines. Issued 2012.

KEY LEGISLATION, ACTS & STANDARDS

SCGH Prescribing Restrictions
Poison Act 1964 & Poison Regulations 1965

DOSAGE TABLE

*For overweight patients, an estimated healthy body weight should be used when considering doses

Iron CARBOXYmaltose (Ferinject®)	Iron POLYmaltose (Ferrosig®)
Available for: 1) Outpatient use in the IV Lounge and Cancer Centre. 2) Admitted inpatients under the care of MAU or ED and who are for urgent discharge (same day). 3) Patients with a known hypersensitivity to iron polymaltose. *To be supplied via Pharmacy on a named patient basis only.*	*Available all areas*
Single dose should not exceed 1000mg or 15mg/kg Recommended dose o ≤70kg is 500mg in 100mL normal saline over 15 mins o >70kg is 1000mg in 250mL normal saline over 15 mins **For patients with severe iron deficiency anaemia higher doses of iron may be required.** To calculate a total body iron infusion dose, please refer to the product information or contact your Clinical Pharmacist for advice. The maximum single dose is 1000mg (or 15mg/kg if patient's weight is < 70kg) in one week. For calculated doses >1000mg give remainder of dose 7 days after initial infusion. Two 500mg doses can be administered in one week, no closer than 48 hours apart.	**Single dose should not exceed 2500mg** Recommended dose o ≤70kg is 1000mg in 500mL normal saline o >70kg is 1500mg in 500mL normal saline **For patients with severe iron deficiency anaemia higher doses of iron may be required.** To calculate a total body iron infusion dose, please refer to the product information (MIMS) or contact your Clinical Pharmacist for advice.
PREPARATION	
• Prepared by Nursing Staff Dose is determined by patient's body weight: • <70kg 500mg in 100mL Sodium Chloride 0.9% • ≥ 70 kg 1000 mg in 250mL Sodium Chloride 0.9%	• Prepared by Nursing Staff. • A filter needle should be used. (see notes for aseptic manufacture) • The total dose of iron is added to 500mL Sodium Chloride (do not exceed 2500mg) • Protect from light.
ADMINISTRATION	
Infuse over 15 minutes	**First 30 minutes**: Commence infusion at 40mls/hr **After 30 minutes**: if there are no adverse reactions, the rate can be increased to 160mls/hr
REASSESS IRON STORES	
21-28 days after last infusion	14-21 days after last infusion
MONITORING REQUIREMENTS	
Baseline observations (Temp (T), Pulse (P), Resp Rate (R), Blood Pressure (BP) and Oxygen Saturation (SaO_2) prior to commencing infusion. Repeat vital signs on completion of the infusion.	Baseline observations (T,P,R, BP and SaO2) prior to commencing infusion, then every 15 minutes for 30 minutes then hourly for the duration of the infusion. An identified medical officer should be readily available but there is no need to remain with the patient.
POSSIBLE ADVERSE EFFECTS	
• Headache • Dizziness • Nausea, abdominal pain, constipation, diarrhoea Anaphylaxis and hypersensitivity reactions are rare	• Rash, urticaria, phlebitis • Flushing, sweating, chills, fever • Headache, dizziness, nausea, vomiting • Syncope, tachycardia, hypotension, circulatory collapse • Bronchospasm, angioneurotic oedema Anaphylaxis and hypersensitivity reactions are uncommon

REFERENCES

1. Department of Health Victoria Australia. Blood Matters Programme. Guiding Principles of Intravenous (IV) Iron Infusion Practice.27 Sept 2013.
2. MHRA. Intravenous iron and serious hypersensitivity reactions: new strengthened recommendations to manage and minimise risk. Drug Safety Update Vol 7, issue 1 August 2013.
3. TGA Approved Product Information. Accessed through eMIMS Online October 2013.

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