Iron Infusion

<table>
<thead>
<tr>
<th>Procedure code: OP-PS1.1.I3</th>
<th>Effective date: February 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last review date: May 2008</td>
<td>Next review date: February 2017</td>
</tr>
<tr>
<td>Section: Patient Safety</td>
<td></td>
</tr>
<tr>
<td>Sub-Section: Medication Management</td>
<td>Std 4: Medication Safety</td>
</tr>
</tbody>
</table>

1. **Overview**

   To provide the procedure for the preparation, administration and monitoring of intravenous iron infusions for adult patients.

   Intermittent intravenous iron injections for Haemodialysis patients are not covered in this procedure (see *OP-PS1.1.14 Intravenous Iron for Chronic Kidney Disease*).

2. **Applicability**

   All Western Health Medical, Nursing and Pharmacy staff.

3. **Responsibility**

   It is the responsibility of senior Medical, Nursing and Pharmacy staff to ensure the appropriate education and compliance with this procedure is undertaken within their area of responsibility.

4. **Authority**

   Exceptions to the clinical practices described in this procedure can only be authorised by a Clinical Services Director.

5. **Associated Documentation**

   In support of this procedure, the following Manuals, Policies, Instructions, Guidelines, and/or Forms apply:

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>OP-CC2.1.7</td>
<td>Intravenous Therapy Management</td>
</tr>
<tr>
<td>OP-PS1.1.14</td>
<td>Intravenous Iron for Chronic Kidney Disease</td>
</tr>
<tr>
<td>OP-PS1.2.6</td>
<td>Drug Prescription, Supply, Storage and Administration</td>
</tr>
</tbody>
</table>

6. **Credentialing Requirements**

   For details see *OP-PS1.2.6 Drug Prescription, Supply, Storage and Administration* procedure.

7. **Definitions and Abbreviations**

   7.1 **Abbreviations**

   For purposes of this procedure, unless otherwise stated, the following abbreviations shall apply:

<table>
<thead>
<tr>
<th>VTBI</th>
<th>Volume To Be Infused</th>
</tr>
</thead>
</table>

8. **Procedure Detail**

   8.1 **Key points**

   - Patients requiring an iron Infusion must be admitted by a Medical Officer.
   - A written intravenous order by a Medical Officer must be obtained.
   - The Medical Officer need not remain with the patient whilst the infusion is running, but should be readily available.
   - Iron infusions must only be given during normal working hours (Monday to Friday 8am to 5pm, excluding Public Holidays, and Saturday and Sunday 8am to 12 noon).
8.2 General

- Indication: Treatment of iron deficiency anaemia.
  i. when there is demonstrated intolerance, non-compliance or lack of efficacy with oral iron, despite modification of dose, timing and frequency.
  ii. in patients undergoing chronic haemodialysis and who are receiving supplemental erythropoietin therapy (refer to separate procedure OP-PS1.1.14 Intravenous Iron for Chronic Kidney Disease).

- For Contraindications and Precautions refer to the Product Information of each product.

- Oral iron preparations should not be administered at the same time as intravenous iron infusions as the absorption of oral iron is reduced.

- Oral iron therapy should not commence until at least one week after the iron infusion.

8.3 Iron Polymaltose

8.3.1 Dosage

- Doses up to 1 gram of Iron Polymaltose may be ordered by any unit. Doses greater than 1 gram require consultation with the Gastroenterology or Haematology units.
- Renal and fluid restricted patients: maximum of 1 gram of Iron Polymaltose in 100mL of sodium chloride 0.9%.
- Gastroenterology Unit patients: maximum of 2 grams of Iron Polymaltose. Doses greater than 1 gram must be administered in 500mL of sodium chloride 0.9%.
- Pregnant patients: maximum of 1 gram of Iron Polymaltose in 500mL of sodium chloride 0.9%.
- All other patients: 1 gram of Iron Polymaltose in 100mL of sodium chloride 0.9%.

Refer to the Product Information to determine the appropriate dose, the actual administered dosage will be at the discretion of the Medical Officer and will vary according to the clinical needs and condition of the patient.

8.3.2 Preparation

- Iron Polymaltose infusions may be prepared by nursing or pharmacy staff, where the total dose is less than or equal to 1 gram of Iron.
- Where the total dose is greater than 1 gram, the infusion is to be prepared by pharmacy staff and 24 hours notice is required.
- In clinical areas, two authorised personnel must undertake the preparation process, as detailed in OP-PS1.2.6 Drug Prescription, Supply, Storage and Administration Procedure.

- Process:
  o Attach a drawing up needle to a 20mL syringe.
  o Draw up the required volume of drug and check all ampoules.
  o Remove drawing up needle and attach 5 micron filter needle (supplied from pharmacy).
  o Inject the required volume of drug through the 5 micron filter needle into the required volume of sodium chloride 0.9% infusion bag to remove glass particles.
  o Place the infusion bag into a black block out bag (supplied from pharmacy) to protect it from light.
  o Attach an IV additive label to the infusion bag and the black blackout bag.

8.3.3 Administration

- An infusion pump must be used to administer iron infusions.
- Do not add any other medications to the infusion or mix in the same line.
- Two registered nurses must check the preparation before commencing the infusion as per OP-CC2.1.7 Intravenous Therapy (IVT) Management.
- Premedication is not necessary.
- An emergency tray containing the following must be available at the patient’s bedside at all times due to the possibility of adverse reactions:
  o Adrenaline ampoule (1:1000).
  o Hydrocortisone ampoule (100mg).
  o Promethazine ampoule (50mg).
  o Sodium Chloride 0.9% (10mL).
8.3.4 Infusion Rates

- 100 mL Iron Infusion:
  - 20 mL/h for first 5mL (VTBI = 5mL).
  - 40 mL/h for the next 10mL (VTBI = 10mL).
  - 120 mL/h for the next 30mL (VTBI = 30mL).
  - 220 mL/h for the last 55mL (VTBI = 55mL).
  - Estimate remaining volume to input VTBI and infuse at 220mL/h for remaining VTBI to complete the infusion.
  - Flush line with normal saline.
  - Total infusion time is 1 hour.

- 500 mL Iron Infusion:
  - 40 mL/hr for the first 90 minutes (VTBI = 60mL).
  - 120 mL/hr for the remainder of the infusion (VTBI = 440mL).
  - Estimate remaining volume to input VTBI and infuse at 120mL/h for remaining VTBI to complete the infusion.
  - Flush line with normal saline.
  - Total infusion time is approximately 6 hours.

If there are concerns at any time during the infusion or an adverse reaction appears likely - STOP THE INFUSION AND CALL THE MEDICAL OFFICER or a Code Blue if necessary.

8.3.5 Monitoring Requirements

- Observations should include:
  - Temperature, pulse rate, blood pressure, respiratory rate and general comfort of the patient.
  - These should be performed:
    - For the 100mL infusion at: baseline, 5 minutes, 10 minutes, 30 minutes, 60 minutes and 75 minutes;
    - For the 500mL infusion at: baseline, 5 minutes, 10 minutes, 30 minutes, 60 minutes and half-hourly intervals for the remainder of the infusion and at the completion of the infusion.

8.3.6 Adverse Reactions

- Adverse reactions do not occur commonly with contemporary infusions and, if so, are usually related to the effects of free iron within the plasma rather than anaphylaxis, which is rare. However possible reactions include:
  - Anaphylaxis, angioedema.
  - Flushing, sensations of warmth, tingling or itching, especially in axillae and groins.
  - Mild erythematous or urticarial rash.
  - Dizziness, faintness, loss of consciousness.
  - Chest pain, tachycardia, changes in blood pressure.
  - Dyspnoea, bronchospasm.
  - Nausea, vomiting, constipation or diarrhoea.
  - Headache, arthralgia/myalgia, back pain, muscle spasm.
  - Fever (usually hours/days post-infusion), sweats, chills.
  - Taste disturbance.
  - Delayed (most unusual).

Patients should be warned of possible delayed reactions (usually headache, mild fever, joint and muscle aches) which usually will resolve within a few days. If they experience chest pain, difficulty breathing, dizziness or neck/mouth swelling they need to seek urgent medical attention/call an ambulance (000).

8.4 Iron Carboxymaltose

- Iron Carboxymaltose can be ordered for patients who have previously experienced an adverse drug reaction to Iron Polymaltose.
- Refer to the Product Information to determine the appropriate dose, the actual administered dosage will be at the discretion of the Medical Officer and will vary according to the clinical needs and condition of the patient.
- The maximum dose via intravenous infusion is 1000mg in 250mL of sodium chloride 0.9%, over at least 15 minutes. The maximum dose per week is 1000mg.
- Preparation: Iron Carboxymaltose infusions are to be prepared by nursing staff, as detailed in the Product Information.
- Administration: refer to section 8.3.3
- Observations should include: Temperature, pulse rate, blood pressure, respiratory rate and general comfort of the patient.
- Possible Adverse Reactions: as detailed under 8.3.6
8.5 Iron Sucrose

- Iron Sucrose can be ordered for patients who have previously experienced an adverse drug reaction to Iron Polymaltose.
- Each 100mg must diluted in 100mL of sodium chloride 0.9%. The maximum dosage of iron sucrose via infusion is 500mg.
- The infusion should be infused at a rate of 100mg over at least 15 minutes (i.e. 500mg over at least 75 minutes).
- Preparation: Iron Sucrose infusions are to be prepared by nursing staff.
- Administration: refer to section 8.3.3
- Observations should include: Temperature, pulse rate, blood pressure, respiratory rate and general comfort of the patient.
- Possible Adverse Reactions: as detailed under 8.3.6
- See the product information for further information.

9. Document History

Number of revisions: 2
Issue dates: July 2005 and May 2008

10. References


General resources also used in the preparation of this procedure include: MIMS [On-Line] (last accessed 18/02/2014); Australian Medicines Handbook (AMH) [On-line] (last accessed 18/02/2014).

11. Sponsor

Director of Pharmacy

12. Authorisation Authority

Drug and Therapeutics Committee