Local Drug Prescribing Guideline

John Hunter Children's Hospital
CHILDREN, YOUNG PEOPLE AND FAMILIES

NSW GOVERNMENT Health
Hunter New England Local Health Network

Iron Sucrose

Title	Iron sucrose (Venofer) prescribing guideline
Keywords	iron sucrose, iron, Venofer, anaemia, paediatrics, children, pharmacy gastroenterology, haematology, JHCH
Areas where Guideline applicable	All clinical areas in JHCH , specifically paediatric haematology and gastroenterology
Areas where Guideline not applicable	NICU
Authorised Prescribers:	Registered Paediatric Medical Officers
Indication for use	For the treatment of iron deficiency anaemia in the following circumstances; • When iron deficiency persists despite oral supplementation • When oral therapy is contraindicated • When enteric absorption of iron is defective • When patient nonadherence or persistent gastrointestinal intolerance make oral therapy impractical [1,2]
Contraindications	Hypersensitivity to iron products, haemochromatosis, iron overload or anaemia not caused by iron deficiency. Intramuscular or subcutaneous injection not recommended due to the highly alkaline nature of the product [2].
Precautions	Intravenous iron preparations must be used cautiously in liver impairment, asthma and inflammatory conditions. Hypersensitivity or anaphylactic reactions have been reported rarely, however adrenaline (epinephrine) and cardiopulmonary resuscitation facilities must be available. Oral iron therapy should not be commenced for at least 5 days after iron infusion as it will not be absorbed. Care must be taken to avoid extravasation. Nursing staff should check IV site every 30 minutes until the end of infusion. Iron sucrose is a strongly alkaline solution (pH approx. 10). In the event of extravasation, infusion should be ceased. Ice may be applied to cause local vasoconstriction and decrease fluid absorption. Massage of the area should be avoided [2, 3].
Proposed Place in Therapy	Iron deficiency anaemia where oral therapy is ineffective or not tolerated
Presentation	5 mL ampoules containing elemental iron 20 mg/mL as iron sucrose (corresponding to 100 mg of iron (III) per ampoule) [3].
Reconstitution and Dilution	Dilute each 1 mL Venofer (20 mg) in 20 mL of sodium chloride 0.9% immediately prior to injection (1 mg/mL). This is equivalent to 5 mL (100 mg) in 100 mL of sodium chloride 0.9%. More dilute solutions are not stable [1,3]. Do not mix with any other drugs or infusion solutions. Do not use any vial with sediment [2,3].

<table>
<tr><td>Dosage and Administration</td><td>
Dose of 5 mg/kg [1, 4]. Maximum 300 mg [5]

<u>First IV infusion:</u>
Dilute dose to 1 mg/mL with sodium chloride 0.9% and infuse over 90 minutes[1]

<u>Second and subsequent IV infusions can be given over a shorter infusion time:[3]</u>
Dilute dose to 1 mg/mL with sodium chloride 0.9% and infuse;

<table>
<tr><th>Dose</th><th>IV Infusion time</th></tr>
<tr><td>1–100 mg</td><td>Over minimum of 15 minutes</td></tr>
<tr><td>101–200 mg</td><td>Over minimum of 30 minutes</td></tr>
<tr><td>201–300 mg</td><td>Over 90 minutes</td></tr>
</table>

Do not dilute solution further than 1 mg/mL as the solution may become unstable [2]

IV site should be checked every 30 minutes by nursing staff

Standard patient observations (i.e. respiratory rate, BP, temperature) should be monitored at commencement, at 15 minutes, at 30 minutes and/or then at completion.

SC: Not recommended
IM: Not recommended
</td></tr>
<tr><td>Duration of Therapy</td><td>Dose may be repeated at minimum duration of every two weeks, until iron stores and FBC have normalised [1].</td></tr>
<tr><td>Compatibility</td><td><u>Fluids & Solutions:</u> Sodium chloride 0.9% [2, 3]</td></tr>
<tr><td>Incompatibility</td><td><u>Fluids/Drugs:</u> No information. Do not use with any other infusion solutions or therapeutic agents, as there is potential for precipitation and/or interaction [2, 3].

Iron sucrose (Venofer) reduces the absorption of oral iron; therefore any oral iron therapy should be started at least five days after the last injection, (2) unless instructed otherwise by a paediatric haematologist".</td></tr>
<tr><td>Adverse Effects</td><td>Transient taste perversion (i.e. metallic taste), hypotension, fever and shivering, injection-site reactions and nausea. Some of these adverse effects may be delayed.
Hypersensitivity or anaphylactic reactions occur rarely [2, 6].</td></tr>
<tr><td>Antidote</td><td>Overdosage can cause acute iron overloading. Overdosage should be treated with supportive measures and, if required, an iron chelating agent (desferrioxamine) [7, 8].</td></tr>
</table>

Other comments	The diagnosis of iron deficiency must be based on appropriate laboratory tests (i.e. serum ferritin, serum iron, transferrin saturation and hypochromic red cells). Parenteral formulations available: 1. Iron sucrose (Venofer) contains 20 mg/mL elemental iron (100 mg/5 mL) 2. Iron polymaltose (Ferrosig/Ferrum H) contains 50 mg/mL elemental iron (100 mg/2 mL) 3. Ferric carboxymaltose (Ferinject) contains 50 mg/mL of elemental iron (500 mg/10 mL and 1,000 mg/20 mL) – not available through JHH Pharmacy for inpatients These products are NOT interchangeable [2, 3]. Monitor for potentially fatal hypersensitivity reaction with IV administration: Shock, loss of consciousness, hypotension, dyspnoea and convulsions [2, 4]. For the management of complications: • Adrenaline (epinephrine) and cardiopulmonary resuscitation (CPR) facilities must be available • Consider the use of antihistamines for mild dermal infusion reactions • Immediate review by a medical officer
Storage and Stability	Store at room temp (below 25°C). Do not freeze Use immediately after opening the container or immediately after preparation of the diluted solution for IV infusion [3].
References	1. (2007) Iron Intravenous (Venofer®) Drug use guideline – Pharmacy Department, Royal Children's Hospital Brisbane. 2. Venofer® product information. MIMS online Accessed 4/7/19 3. SHPA Australian Injectable Drugs Handbook, 7th Ed. 4. Crary SE, Hall K, and Buchanan GR (2011) Intravenous Iron sucrose for children with iron deficiency failing to respond to oral therapy. Pediatr Blood Cancer (56);615-619. 5. Chandler G, Harchowal J and Macdougall IC (2001) Intravenous iron sucrose: establishing a safe dose. Am J Kidney Dis 38(5); 988-91. 6. Anbu AT, Kemp T, O'Donnell K, Smith PA, and Bradbury MG (2005) Low incidence of adverse events following 90-minute and 3-minute infusions of intravenous iron sucrose in children on erythropoietin. *Acta Paediatrica* (94) 1738-1741. 7. Whyte I. WikiTox Iron (http://wikitox.org/doku.php?id=wikitox:2.1.9.6_iron) 8. Wood DM, Thomson AH, Lawes M, Jones AL and Dargan PI (2005) Hepatocellular damage following therapeutic intravenous iron sucrose infusion in a child. *Ther Drug Monit*: 27(4); 405-408.
Groups consulted in development of this guideline	Pharmacy, Gastroenterology, Haematology/Oncology

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#Note Guideline must be distributed in a format which prevents modification eg. PDF file	
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