

INTRAVENOUS IRON – SAFE PRESCRIBING - CALCULATE AND MEASURE

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- ▶ CALCULATE INDIVIDUAL DOSES CAREFULLY
- ▶ MAKE SURE FACILITIES FOR RESUSCITATION ARE AVAILABLE
- ▶ MONITOR FOR 30 MINUTES AFTER ADMINISTRATION
- ▶ TAKE CARE WITH PATIENTS WHO HAVE ALLERGIES, ASTHMA OR ECZEMA
- ▶ AVOID GIVING DURING PREGNANCY IF AT ALL POSSIBLE

Intravenous (IV) iron is a useful alternative if oral iron is either considered unsuitable or it has been unsuccessful. Reasons for this may include malabsorption or continuing blood loss, poor adherence or intolerance.^{1,2} Patients with chronic renal failure who are receiving haemodialysis also require IV iron.²

Note: If oral iron is taken regularly and is well absorbed, the haemoglobin response of oral and IV iron is expected to be similar.¹

CALCULATE INDIVIDUAL DOSES CAREFULLY

The appropriate dose of IV iron must be calculated for each patient individually, based on the target haemoglobin (Hb) required, the patient's actual Hb and their bodyweight.³ It is therefore essential that the target Hb has been established, recent baseline Hb is available, and the patient has been weighed.

Note: If the patient is overweight, a normal body weight should be assumed.⁴

It is important that the calculated dose is not exceeded. Iron requirements can be estimated using the Ganzoni Formula below. Doses are expressed as elemental iron. Please refer to the specific data sheets for recommended concentrations and infusion rates.

Dose Calculation³

Iron dose (mg) = Hb iron deficiency + iron stores

Iron dose (mg) = body weight (kg) x (target Hb – actual Hb (g/L)) x 0.24 + 500

Target Hb = 150g/L*

Iron stores = 500mg*

* For patients 35kg and over

Example:

Patient weight = 60kg Target Hb = 150g/L Actual Hb = 60g/L

Iron dose (mg) = 60kg x (150 – 60) x 0.24 + 500mg
= 1296mg + 500mg = 1800mg**

** Round to nearest 100mg

Note: Oral iron should not be given until at least 5 days after the last infusion has been given, otherwise the oral iron absorption will be reduced.³

Ferric carboxymaltose (Ferinject[®]) has an advantage over other intravenous iron complexes in that it can be given over 15minutes rather than several hours. It must not be administered by the subcutaneous or intramuscular route but can be given as a slow IV bolus or as an infusion in normal saline (0.9%). The maximum single IV dose is 1000mg of iron, with no more than 1000mg given per week. For the example above, 2 doses, 1 week apart will be required. For infusions of ferric carboxymaltose between 500-1000mg, the minimum administration time is 15minutes. Always infuse with normal saline, and do not mix with other medicines.³ A bolus may be given very slowly, over 15minutes or 100mg per minute for doses less than 500mg.³

MAKE SURE FACILITIES FOR RESUSCITATION ARE AVAILABLE

Anaphylactoid reactions are considered to be uncommon with IV iron,³ and usually occur within the first few minutes of administration. It is a requirement that resuscitative interventions and an anaphylaxis kit are immediately available on-site, and personnel who are trained to identify and manage anaphylactic reactions are available.³

Each patient should be monitored **closely** for signs of hypersensitivity especially in the first 5minutes of administration. Hypersensitivity reactions have been reported after previously uneventful doses, so each patient should be observed closely regardless of whether they have received IV iron before. Test doses are no longer required, because they are not considered to be a reliable measure of a reaction.⁵

If allergic reactions or signs of intolerance occur during administration, the treatment must be stopped immediately,³ and resuscitation commenced if required.³ Inform patients to report any breathing difficulties, dizziness or mouth swelling during and following administration. If symptoms such as dizziness, headache, rash or joint or muscle pain occur, administration should be stopped;⁵ if gastrointestinal adverse effects occur, the infusion or bolus should be slowed.⁵

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MONITOR FOR 30 MINUTES AFTER ADMINISTRATION

It is recommended to observe the patient for adverse effects for 30 - 60 minutes^{3,7} following administration. The 15 minute infusion of 1000mg ferric carboxymaltose (Ferinject[®]) is well-tolerated and associated with minimal risk of adverse reactions.⁶

The most commonly reported adverse effects include headache, dizziness, hypertension, nausea, abdominal pain, constipation and diarrhoea. Inform patients that some of these adverse effects may occur several hours or days following administration. Transient asymptomatic hyperphosphataemia can occur, especially in those with hyperparathyroidism or vitamin D deficiency.

Reports of injection site reactions such as burning, pain or bruising are uncommon.³ However, there is a risk of long-lasting brown discolouration and irritation of the skin if paravenous leakage occurs. To prevent this, a normal saline flush is recommended prior to administration to check the correct placement of the cannula in the vein.³ If leakage does occur, stop giving IV iron immediately. It is good practice to flush with normal saline after the infusion or bolus has finished.⁸

During the patient's first year of treatment, it is advisable to check the full blood count every 3 months to ensure that iron levels have been corrected and are maintained. Then check again at 2 years.^{5,9}

TAKE CARE WITH PATIENTS WHO HAVE ALLERGIES, ASTHMA OR ECZEMA

Patients with an immune or inflammatory condition such as asthma, eczema, rheumatoid arthritis or with known allergies may have a higher risk of an allergic or anaphylactoid reaction with IV iron.⁵ Patients with rheumatoid arthritis or lupus erythematosus may be at risk of delayed reactions, which may include fever and exacerbation of joint pain.³ Parenteral iron must be used with caution in cases of acute or chronic infection,³ and with patients who have impaired hepatic function.³

Note: There is evidence to suggest that ferric carboxymaltose is effective and well-tolerated in patients who have inflammatory bowel disease and iron deficiency anaemia,¹⁰ There is emerging evidence to support its use in patients with chronic heart failure and iron deficiency.¹¹

AVOID DURING PREGNANCY IF AT ALL POSSIBLE

There are no adequate, well-controlled studies of IV iron in pregnant women. Make sure pregnancy has been excluded before administering IV iron to women of child-bearing potential. Intravenous iron is contraindicated during the first trimester of pregnancy; oral iron is usually sufficient.^{1,3}

Administration of IV iron during the second and third trimester of pregnancy should only occur if the benefits of treatment outweigh the potential risk to the foetus.^{3,7} Take care to calculate the dose based on the patient's pre-pregnancy weight.⁴

The transfer of iron carboxymaltose (Ferinject[®]) to human milk is considered negligible.³ A study that included 229 breastfeeding mothers given iron carboxymaltose, concluded that there was no evidence of risk to their infants.¹²

There is no clinical data to support the use of IV iron carboxymaltose in children under 14 years, so it cannot be recommended for paediatric use.³

→ continued

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