Iron deficiency anaemia

Rationale for drug use | Before starting treatment | Treatment | Special cases | Duration of treatmen

Iron deficiency anaemia

Rationale for drug use

Prevent or reverse complications of anaemia and iron deficiency, including lethargy, dyspnoea and decreased effort capacity.

Before starting treatment

Establish that anaemia is due to iron deficiency. Serum ferritin is the most specific test for evaluating iron stores. Be aware that a normal serum ferritin concentration may occur with iron deficiency in infective, inflammatory, malignant or hepatic disease and in the elderly, requiring assessment of other parameters, eg serum transferrin saturation.

Assess for possible causes:

- blood loss (eg GI, heavy menstrual bleeding, drugs (eg NSAIDs, anticoagulants), blood donation, hookworm infection)
- increased requirements (eg infants, adolescents, pregnancy, breastfeeding)
- malabsorption (eg coeliac disease, gastric surgery)
- inadequate dietary iron.

Diet

Dietary changes alone will be insufficient for treatment of iron deficiency anaemia. Give dietary advice if diet is a contributing factor. Encourage increased intake of haem iron (red meat, chicken, fish) and non-haem iron (grains and cereals, legumes, eggs and vegetables) with vitamin C (citrus fruit, broccoli, capsicum) to promote the absorption of non-haem iron.

A patient information leaflet can be found at www.gesa.org.au/resources/patients/iron-deficiency.

Treatment

See also Table – Oral products for treatment of iron deficiency anaemia

Oral iron is first-line treatment for most patients. Consider parenteral iron for malabsorption, noncompliance, if rapid iron replacement is needed (eg <4–6 weeks before elective surgery) or when oral treatment is not possible, not tolerated or not effective (eg haemodialysis).

Blood transfusion may be necessary in severe anaemia (eg symptomatic despite iron treatment) or when it may destabilise cardiovascular disease. Iron treatment is still required to replenish iron stores.

Table – Oral products for treatment of iron deficiency anaemia

Brand® & form (PBS)	Iron salt (other active ingredient)	Elemental iron	Usual dose[1]
Fefol capsule	ferrous sulfate 270 mg (folic acid 300 mcg)	87.4 mg	1–2 daily
Ferro-F tablet (RPBS)	ferrous fumarate 310 mg (folic acid 350 mcg)	100 mg	1–2 daily
Ferro-tab tablet (RPBS)	ferrous fumarate 200 mg	65.7 mg	2–3 daily
Ferro-grad C, Ferrovance C, controlled release tablet	ferrous sulfate 325 mg (ascorbic acid 500 mg)	105 mg	1–2 daily
Ferro-grad, Ferrovance, controlled release tablet	ferrous sulfate 325 mg	105 mg	1–2 daily
Ferro-Liquid oral liquid (PBS)	ferrous sulfate 30 mg/mL	6 mg/mL	*adult*: 15–30 mL daily *child*: 0.5–1 mL/kg daily
FGF controlled release tablet	ferrous sulfate 250 mg (folic acid 300 mcg)	80 mg	1–2 daily
Maltofer tablet	iron polymaltose 370 mg	100 mg	1–2 daily
Maltofer oral liquid	iron polymaltose 37 mg/mL	10 mg/mL	*adult*: 10–20 mL daily *child*: 0.3–0.6 mL/kg daily

[1] see also Dosage in Iron

Special cases

Renal failure

Give iron supplementation when anaemic, according to iron saturation and serum ferritin, on advice of a renal physician.

Pregnancy

Routine iron supplementation is not recommended. Give supplementation only in women with low–normal haemoglobin where investigation shows iron deficiency.

Duration of treatment

Continue oral treatment for at least 3 months (2–3 months in children) after the haemoglobin level has returned to normal in order to replenish iron stores. Avoid unnecessary long-term use of iron.

Practice points

- do not wait for investigations before starting iron; if needed, iron can be temporarily stopped for investigations such as colonoscopy
- expect haemoglobin to rise 20 g/L over 3–4 weeks
- monitor haemoglobin for response to treatment; if no response detected after 3–4 weeks, review the diagnosis and consider noncompliance or coexisting problems, eg renal impairment, chronic inflammation, malabsorption, ongoing occult bleeding. Specialist advice may be required
- monitor complete blood count and serum ferritin 1–2 weeks after treatment is ceased, then every 3 months for 1 year
- iron absorption (from the diet or supplements) may be reduced by high intake of phytate (eg whole grain cereals), tea, coffee or calcium. However, evidence regarding foods reducing iron absorption is poor and confusing

Top of page

Last modified by AMH: January 2021

Iron

Iron

See also Iron deficiency anaemia
For drug interactions see Iron

Mode of action

Essential element required for the formation of haemoglobin and myoglobin.

Indications

Prevention and treatment of iron deficiency anaemia

Fixed-dose combination with folic acid

Prevention and treatment of iron and folate deficiency, particularly during pregnancy

Precautions

Anaemia not due to iron deficiency—contraindicated.

Allergy to a parenteral iron product, eg iron polymaltose—parenteral use generally contraindicated. However, in certain circumstances, eg chronic kidney disease, an alternative (eg iron sucrose) may be considered; seek specialist advice.

Haemochromatosis, haemosiderosis—contraindicated.

Transfusion-dependent anaemias—risk of iron overload; avoid iron supplementation.

Pregnancy

Safe to use. If possible, avoid parenteral iron products, particularly in the first trimester, due to risk of hypersensitivity reactions (some manufacturers of parenteral iron contraindicate use in the first trimester).

Breastfeeding

Safe to use; maternal supplements do not significantly change the breast milk concentration of iron.

Adverse effects

Oral

abdominal pain, nausea, vomiting, constipation, diarrhoea (all dose-related), black discolouration of faeces

Oral liquid: temporary black discolouration of teeth

Parenteral

taste disturbance, nausea, vomiting, headache, hypophosphataemia, arthralgia, myalgia, tachycardia, changes in BP, chest pain, fever, bronchospasm, rash, hypersensitivity (below)

Injection site: permanent skin staining (particularly IM), pain and inflammation (IM)

Iron overload (haemosiderosis) may occur with long-term use of parenteral iron.

Hypersensitivity reactions

Fatal anaphylactic and anaphylactoid reactions have occurred, including those with a negative test dose or who tolerated a previous dose. Risk is increased in patients with allergies (including drug allergies), autoimmune or inflammatory conditions (eg rheumatoid arthritis). Monitor closely for at least 30 minutes after completing infusion. If reaction occurs, stop infusion immediately.

Dosage – Iron

All doses below are expressed in terms of elemental iron.

1 mg elemental iron is approximately equivalent to:

- ferrous fumarate 3 mg
- ferrous sulfate (dried) 3 mg
- ferrous sulfate (as liquid) 5 mg
- iron polymaltose 3.7 mg.

Treatment of iron deficiency anaemia

See also Table – Oral products for treatment of iron deficiency anaemia, Duration of treatment

Oral

See also Practice points below.

Adult, oral 100–200 mg daily.

Child, oral 3–6 mg/kg (maximum 100–200 mg) daily.

Parenteral

Dose and administration according to local protocol or product information (note, for iron polymaltose, the preferred route is by slow IV infusion, see Parenteral in Practice points below).

Prevention of iron deficiency in children

Encouraging a diet rich in iron-containing foods is preferable to using supplements.

Child 4–12 months and breastfed, oral 1 mg/kg daily.

Child >12 months (at risk, eg poor or restricted diet), oral 1–2 mg/kg (up to 15–30 mg) daily.

Pregnancy, iron deficiency without anaemia

Adult, oral 60–120 mg daily. See Practice points below.

Fixed-dose combination with folic acid

For additional information see Folic acid

Oral, 1 or 2 tablets or capsules daily.

Counselling

Oral

Ferrous salts are absorbed best if taken on an empty stomach 1 hour before, or 2 hours after, food. If it upsets your stomach it can be taken with or shortly after food. Avoid taking with tea or coffee.

Iron polymaltose is absorbed best if taken during or immediately after a meal.

This medicine may cause your stools to turn black.

Tablets, capsules: swallow whole; do not crush or chew.

Liquid: dilute with water (can dilute Maltofer® with juice) and drink through a straw to prevent discolouration of your teeth and follow each dose with a drink of plain water.

Practice points

- oral and parenteral iron should not be used together

Oral

- all ferrous and ferric salts are effective; ferrous salts are better absorbed than ferric salts (iron polymaltose)
- small, short-term studies in iron-depleted women suggest:
  - compared to giving oral iron 120 mg once daily, dividing the dose (60 mg twice daily) does not increase total iron absorbed
  - a low dose (eg 60 mg) on alternate days may optimise absorption compared to dosing on consecutive days
- it is uncertain whether an alternate day regimen (similar to above) will be adequate to treat moderate-to-severe iron deficiency anaemia
- GI adverse effects may be reduced by:
  - starting at a low dose and gradually increasing after 2–4 weeks or by dosing less frequently (eg on alternate days)
  - taking with meals (but may reduce absorption)
- the iron content in multivitamin-mineral products is too low to treat iron deficiency
- it is claimed that controlled release products have fewer GI adverse effects, but they may also have lower bioavailability

Parenteral

- consider parenteral iron only if oral iron is inadequate or inappropriate
- for iron polymaltose, IM route is generally avoided (causes pain and permanent skin staining and is no safer than IV infusion); only consider if IV route impractical, eg in remote areas
- use IV iron in chronic kidney disease, including dialysis
- facilities for management of anaphylaxis should be available

Products

Search for Iron on the PBS

tab, iron 65.7 mg (as ferrous fumarate 200 mg), 60, *Ferro-tab*, PBS-R[1]/RPBS
tab, iron 100 mg (as iron polymaltose 370 mg), 30, *Maltofer*
tab, iron 105 mg (as dried ferrous sulfate 325 mg) (controlled release), 30, *Ferro-grad*, *Ferrovance*
oral liquid, iron 6 mg/mL (as ferrous sulfate 30 mg/mL), 250 mL, 1, *Ferro-Liquid*, PBS
oral liquid, iron 10 mg/mL (as iron polymaltose 37 mg/mL), 150 mL, 1, *Maltofer*
inj, iron 20 mg/mL (as iron sucrose), 5 mL, 5, *Venofer*, PBS/PBS-A[2]
inj, iron 50 mg/mL (as ferric carboxymaltose), 2 mL, 10 mL, 1, 5, *Ferinject*, PBS[2x10 mL]
inj, iron 50 mg/mL (as ferric carboxymaltose), 20 mL, 1, *Ferinject*, PBS
inj, iron 50 mg/mL (as iron polymaltose), 2 mL, 5, *Ferrosig*, PBS/PBS-A[2]
inj, iron 50 mg/mL (as iron polymaltose), 2 mL, 5, *Ferrum H*
inj, iron 100 mg/mL (as ferric derisomaltose), 5 mL, 1, *Monofer*, PBS[3x5 mL]
inj, iron 100 mg/mL (as ferric derisomaltose), 10 mL, 1, *Monofer*, PBS

Fixed-dose combinations

tab, iron 80 mg (as dried ferrous sulfate 250 mg), folic acid 300 mcg (controlled release), 30, *FGF*
cap, iron 87.4 mg (as dried ferrous sulfate 270 mg), folic acid 300 mcg, 30, *Fefol*
tab, iron 100 mg (as ferrous fumarate 310 mg), folic acid 350 mcg, 60, *Ferro-F*, PBS-R[1]/RPBS
tab, iron 105 mg (as dried ferrous sulfate 325 mg), ascorbic acid 500 mg (controlled release), 30, *Ferro-grad C*, *Ferrovance C*

[1] Aboriginal or Torres Strait Islander patients, see PBS

[2] iron deficiency anaemia in chronic haemodialysis patients, see PBS

Top of page