

IV IRON

Not just a quick fix: other reasons to use IV Iron formulations.



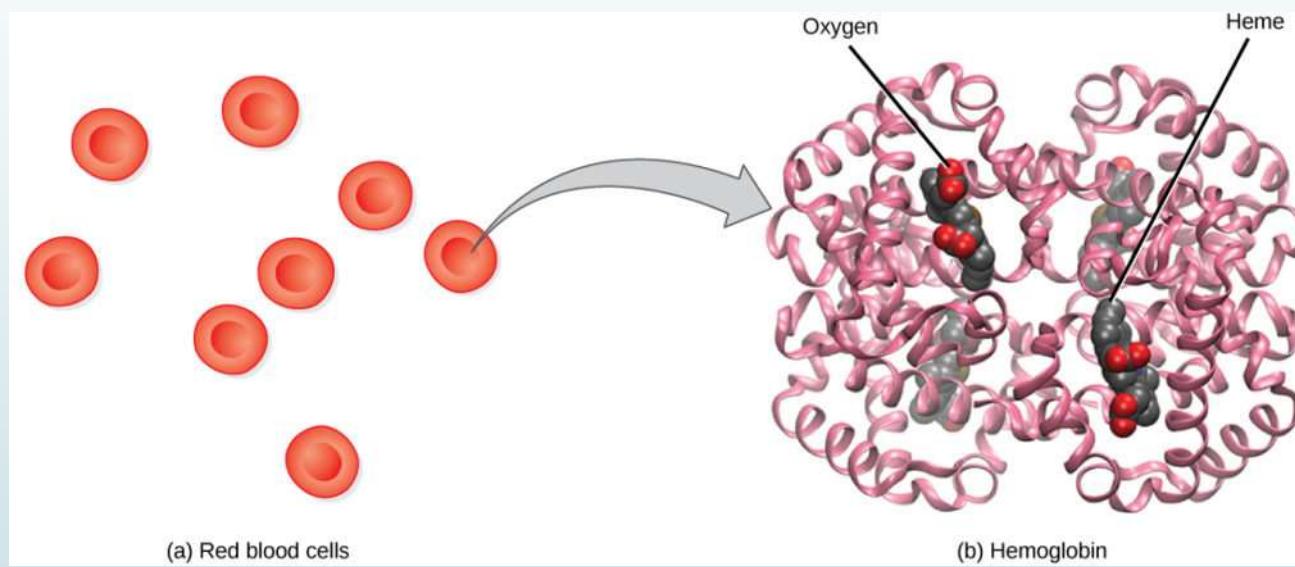
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Mandatory to tell you that I have no
disclosures. ☺

Pre Knowledge Question 3

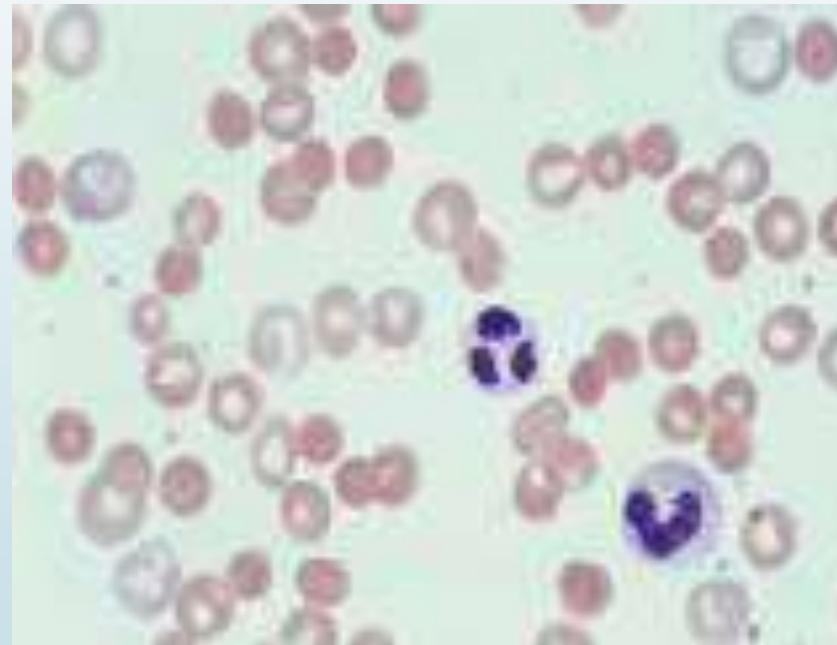
- ▶ **What is the standard routine dose and frequency of Monoferic and Venofer?**
- ▶ 1. Monoferic 1500mg can be broken into a first dose of 500mg then a second dose of 1000mg in that order. Venofer 1400mg total in 10 days.
- ▶ 2. Monoferic 1500mg, broken into 2 doses-1000mg first dose, then the second dose of 500mg. Venofer 1000mg in 14 days on 5 different occasions.
- ▶ 3. Monoferic 1500mg over 10 days, Venofer 1500mg broken into 2 doses of 1000mg first dose and 500mg second dose.
- ▶ 4. Monoferic once weekly over 3 weeks, Venofer 200mg every week over 5 weeks.

To Heme or Not to Heme



What does iron in the blood look like?

Iron Molecule in the Blood stream in a patient with anemia.



Heme

- Well absorbed.
- Best source is lean red meat.
- Other sources are chicken, turkey and fish.
- These contain less heme iron than red meat.



Nonheme

- ▶ Cereals, beans and some vegetables contain nonheme iron.
- ▶ These foods are poorly absorbed.
- ▶ As a side note-eating foods rich in Vitamin C(i.e. citrus fruits and fresh vegetables) with small amounts of heme rich iron MAY increase the amount of nonheme iron absorbed from cereals, beans and other vegetables.
- ▶ Coffee, tea, milk, and eggs MAY decrease the amount of nonheme iron absorbed from foods.
- ▶ Cooking in iron pots has also been shown to add an additional amount of iron into foods.
- ▶ Epidemiologist Christopher Charles, PhD. created the prototype for the Lucky Iron Fish, a metal trinket that when added to boiling lemon water can provide up to 90% of an adults recommended daily iron intake. (luckyironfish.com)

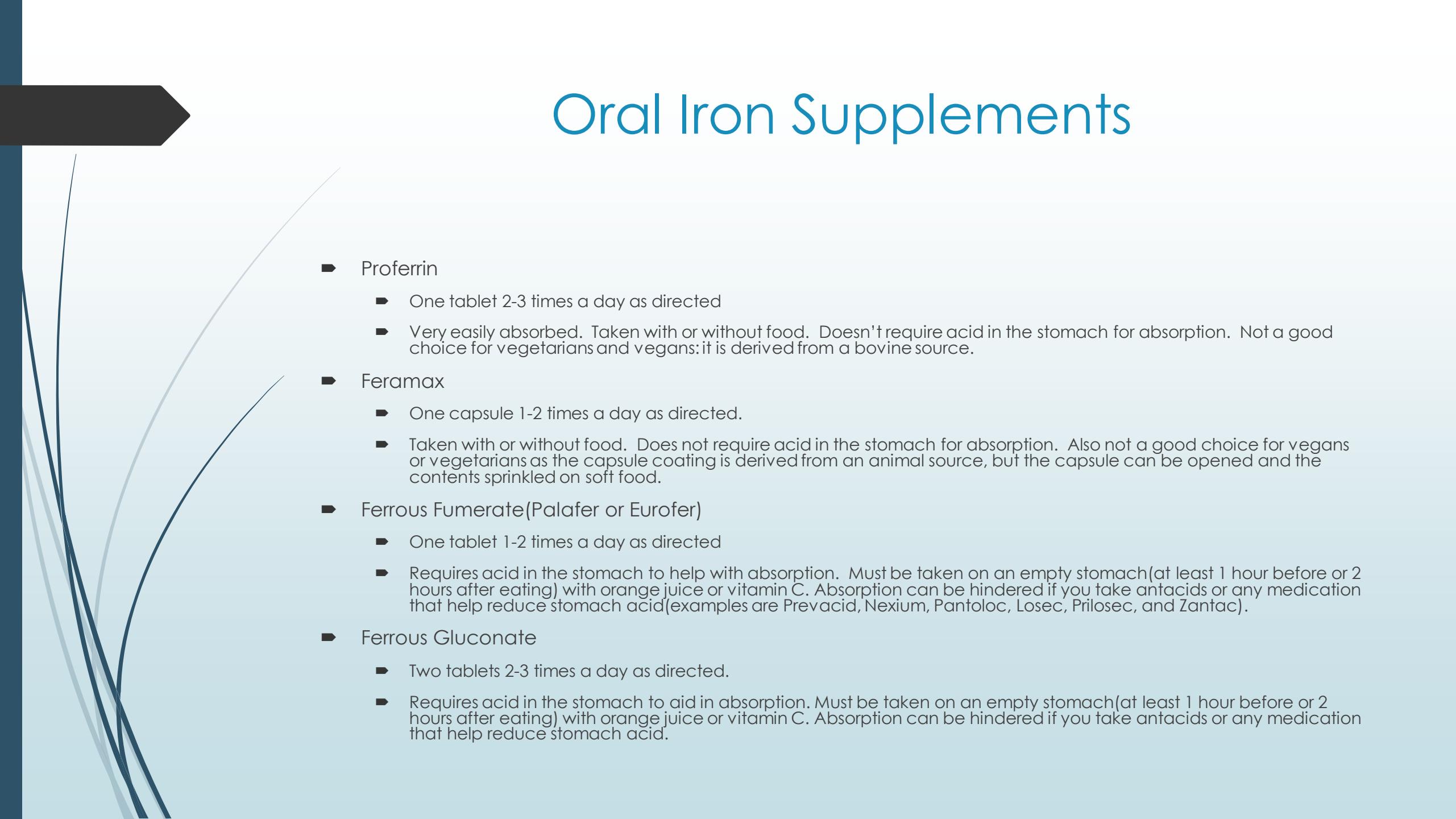


ORAL IRON

Types Available in Canada

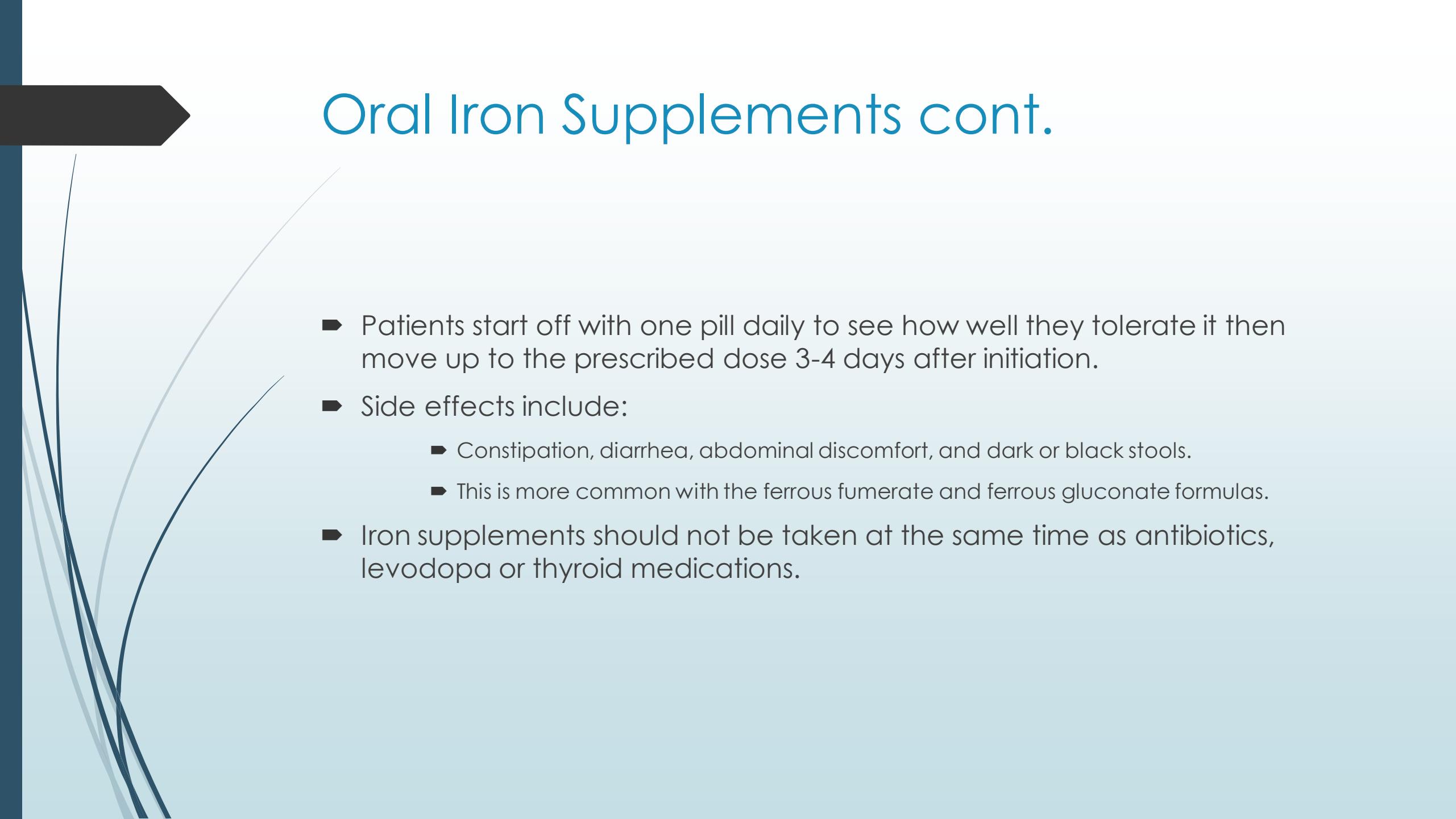
- ▶ These are just a few of the names you'll find available here in Canada:
Fer-In-Sol, Feramax, Proferrin, Palafer, Ferrous Fumerate and Gluconate.

Available in many forms: powder, caplet, liquid, suspension and capsules just to name a few.



Oral Iron Supplements

- ▶ Proferrin
 - ▶ One tablet 2-3 times a day as directed
 - ▶ Very easily absorbed. Taken with or without food. Doesn't require acid in the stomach for absorption. Not a good choice for vegetarians and vegans: it is derived from a bovine source.
- ▶ Feramax
 - ▶ One capsule 1-2 times a day as directed.
 - ▶ Taken with or without food. Does not require acid in the stomach for absorption. Also not a good choice for vegans or vegetarians as the capsule coating is derived from an animal source, but the capsule can be opened and the contents sprinkled on soft food.
- ▶ Ferrous Fumerate(Palafer or Eurofer)
 - ▶ One tablet 1-2 times a day as directed
 - ▶ Requires acid in the stomach to help with absorption. Must be taken on an empty stomach(at least 1 hour before or 2 hours after eating) with orange juice or vitamin C. Absorption can be hindered if you take antacids or any medication that help reduce stomach acid(examples are Prevacid, Nexium, Pantoloc, Losec, Prilosec, and Zantac).
- ▶ Ferrous Gluconate
 - ▶ Two tablets 2-3 times a day as directed.
 - ▶ Requires acid in the stomach to aid in absorption. Must be taken on an empty stomach(at least 1 hour before or 2 hours after eating) with orange juice or vitamin C. Absorption can be hindered if you take antacids or any medication that help reduce stomach acid.

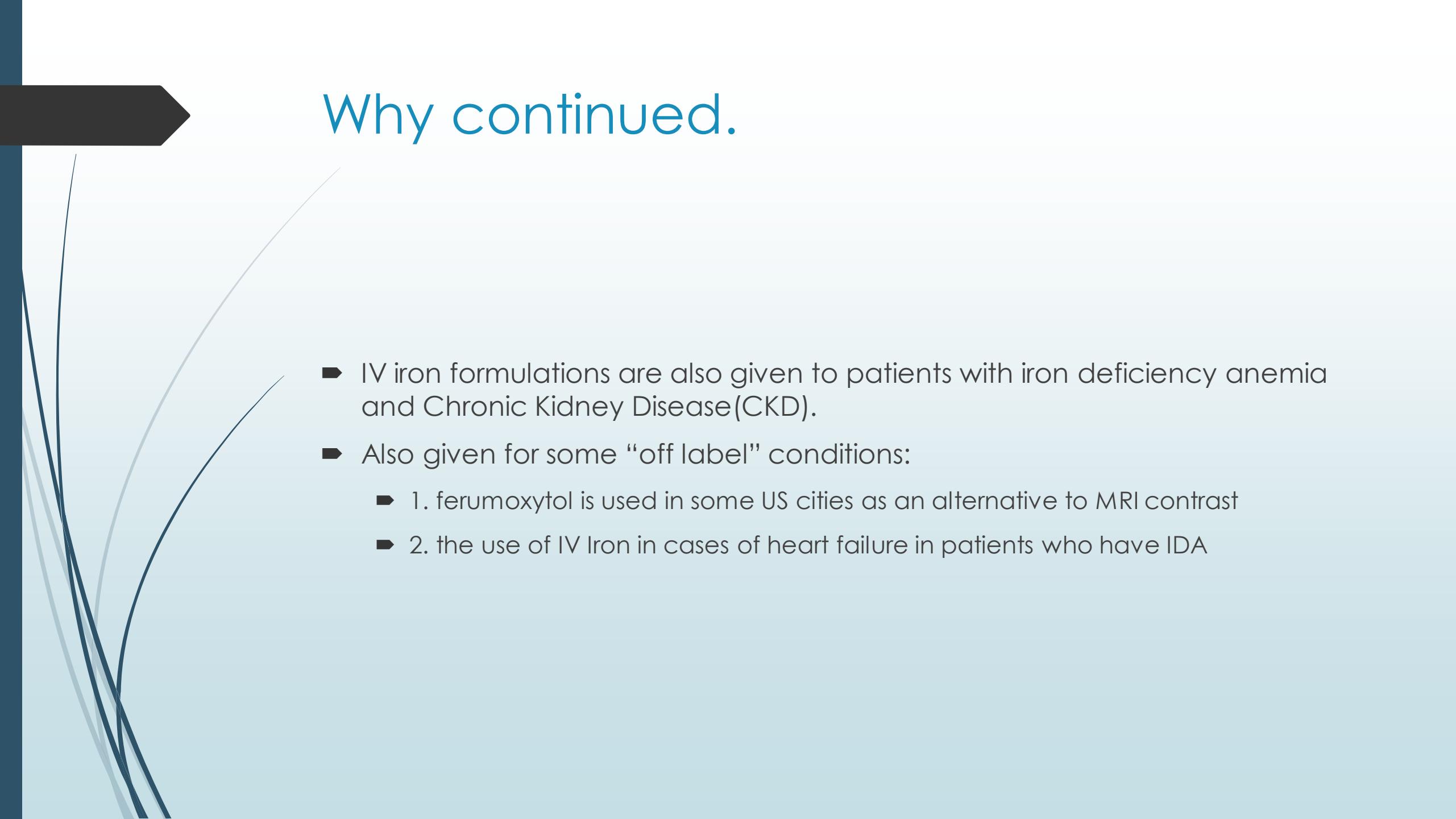


Oral Iron Supplements cont.

- ▶ Patients start off with one pill daily to see how well they tolerate it then move up to the prescribed dose 3-4 days after initiation.
- ▶ Side effects include:
 - ▶ Constipation, diarrhea, abdominal discomfort, and dark or black stools.
 - ▶ This is more common with the ferrous fumerate and ferrous gluconate formulas.
- ▶ Iron supplements should not be taken at the same time as antibiotics, levodopa or thyroid medications.

lv iron

- ▶ Why?
 - ▶ Can't take iron by mouth.
 - ▶ Can't absorb it in the gut(celiac or IBD).
 - ▶ Can't absorb enough due to blood loss.
 - ▶ Need to increase levels quickly to avoid complications or the need for a blood transfusion.



Why continued.

- ▶ IV iron formulations are also given to patients with iron deficiency anemia and Chronic Kidney Disease(CKD).
- ▶ Also given for some “off label” conditions:
 - ▶ 1. ferumoxytol is used in some US cities as an alternative to MRI contrast
 - ▶ 2. the use of IV Iron in cases of heart failure in patients who have IDA



When and How

- ▶ Low iron level=ferritin under 30ug/l
- ▶ Or under 200 ug/l with low iron saturation

Generally given 1 week apart and the dose will depend on how severe your patients anemia is and by what product is prescribed.

Here at Niagara Health we generally use Monoferric.

Ferrlecit is used for CKD patients.

Venofer is also used, but is slowly being phased out.



Monoferric(ferric derisomaltose)

- ▶ 500mg-1000mg is the standard dose.
- ▶ Maximum single dose is 1500mg or 20ug/kg depending on body weight.
- ▶ Larger amount given in first dose i.e. 1000mg then 500mg.
- ▶ Given over 50 minutes-longer for greater amounts.
- ▶ Maximum time here is 75 minutes for 1500mg.



Venofer(Iron Sucrose)

- ▶ Non CKD patients-200mg IV on 5 different occasions within a 14 day period.
Not to exceed 1000mg in a 14 day period.
- ▶ 100mg-200mg in 100mls Normal Saline is given over 40 minutes.
- ▶ 300mg in 250mls Normal Saline is 3 hours 15 minutes.

Ferrlecit

- ▶ Not used for the general population. This is used in treatment of iron deficiency anemia in patients undergoing chronic hemodialysis who are receiving supplemental erythropoietin therapy.
- ▶ Initial: 125 mg of elemental iron (10 mL) IV during the dialysis session, up to a cumulative dose of 1000 mg of elemental iron administered over 8 sequential dialysis sessions.

Cost

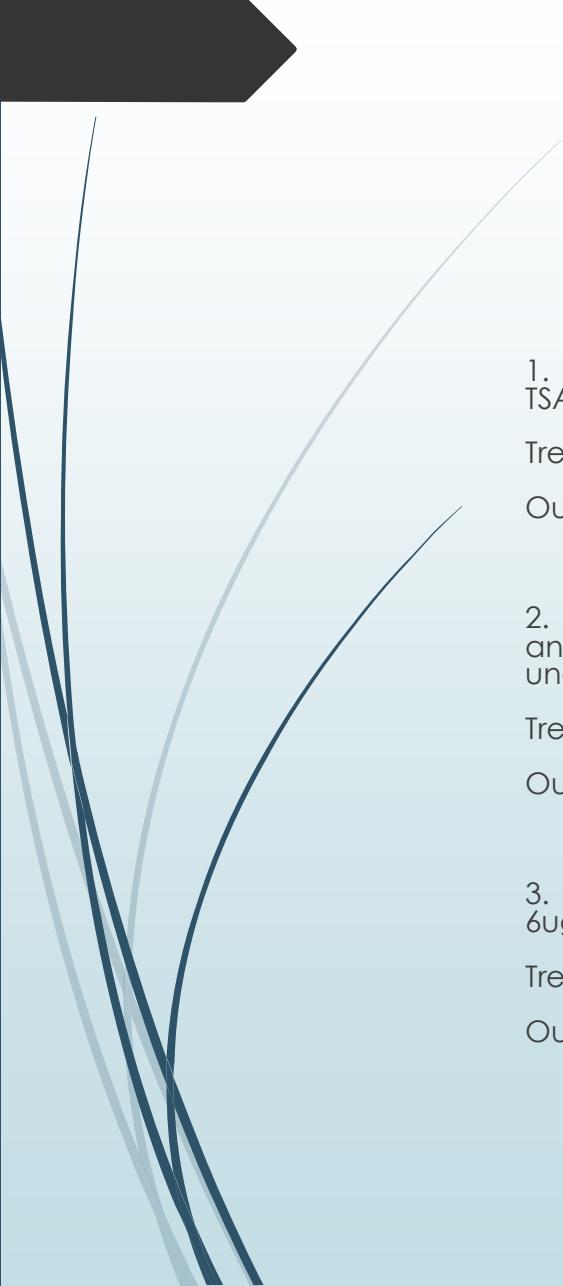
- ▶ Monoferric is \$321.87 per 500mg vial
- ▶ Venofer is \$120.00 per 300mg vial

- ▶ If a patient is covered by ODB, Ontario Works (Trillium or ODSP) ODB may cover the cost if you have already tried oral iron and your levels did not respond appropriately.
- ▶ Monoferric uses a Limited Use Code.
- ▶ For Venofer use EAP through SADIE.
- ▶ There are also compassionate means of obtaining these medications.
- ▶ Some health insurance companies cover the cost of these infusions.



B12 and Folic Acid

I encourage my patients to take B12 and folic acid along with the iron. B12 to help aide in the production of red blood cells and the folic acid to aid in the formation of healthy red blood cells.



Case Studies

1. 65 y/o female, undergoing total knee arthroplasty. Past medical history, HTN, CAD, ETOH. Pre-op Hgb. 107g/L, MCV 82fL, TSAT 9% and Ferritin 13ug/L. What do you think is going on here? Absolute iron deficiency.

Treatment: One Dose of Monoferic 1500mg given (weight based dose)

Outcome: Day of Surgery Hemoglobin 135g/L

2. 67 y/o male undergoing right hemicolectomy for newly diagnosed adenocarcinoma. Pre-op hgb. 86g/L, MCV 70, TSAT 3% and Ferritin 6ug/L. What do you think is going on here? Absolute iron deficiency, likely secondary to chronic blood losses from underlying colon cancer.

Treatment: Monoferic 1000mg x2 weekly doses (weight based)

Outcome: Day of Surgery Hgb. 143g/L.

3. 41 y/o female undergoing laparoscopic hysterectomy for menorrhagia. Pre-op hgb. 115g/L, MCV 76, TSAT 10% and Ferritin 6ug/L. What do you think is going on here? Absolute iron deficiency likely secondary to chronic blood losses from menorrhagia.

Treatment: Monoferic 1500mg (weight based) x1 dose pre-op

Outcome: Day of Surgery Hgb. 126g/L

Question 3

What is the routine dose and frequency of Monoferic and Venofer?

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ANSWER

The correct answer is B.

Monoferric 1500mg broken into 2 doses, 1000mg first then followed by 500mg.
Venofer is 1000mg in 14 days, 200 mg on 2 different occasions.



Thank you.