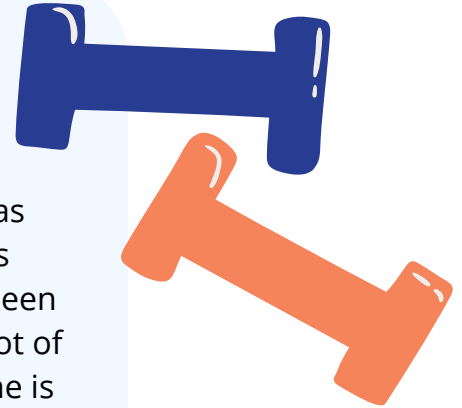


Bearing the load

Hepcidin and iron supplementation

CASE

A 38-year-old female diagnosed with iron deficiency anemia (IDA) was referred to discuss options for oral iron supplementation. She states that she tries to get iron from her diet but admits that this has not been effective for her. She has heard that iron supplements can cause a lot of bothersome side effects (e.g. bloating, constipation, and nausea). She is wondering if there is a supplement that may cause less side effects or what she can do to minimize the side effects.



Available oral iron supplements:

- i. Ferrous gluconate**
11% elemental Fe/tablet → 35 mg elem Fe/300 mg tablet
- ii. Ferrous Sulfate**
20% elemental Fe/tablet → 60 mg elem Fe/300 mg tablet
- iii. Ferrous fumarate**
33% elemental Fe/tablet → 100 mg elem Fe/300 mg tablet
- iv. iPolysaccharide iron complex (Triferexx, FeraMax)**
100% elemental Fe → 150 mg elem Fe/capsule
- v. Heme iron polypeptide (Proferrin)**
100% elemental Fe → 11 mg elem Fe/tablet

General rules of thumb

- Side effects (constipation, bloating, nausea, black/dark coloured stools) are mostly dose-related.
- Most side effects (with exception of black/dark stools) may subside with time/exposure.
- While concurrent administration of vitamin C can enhance increase absorption of iron, there is no evidence to support quicker repletion of iron stores (i.e. no evidence for its effectiveness in the treatment of IDA).

What is hepcidin and how does it relate to iron supplementation?

- Hepcidin is a hormone produced by the liver that regulates iron absorption.
- When iron levels are high (e.g. after administration of a higher dose iron supplement), it can lead to increased hepcidin production by the liver, which can then lead to decreased iron absorption.
- Hepcidin levels can be elevated for up to 24 hours after a dose of 60 mg elemental iron (Ferrous sulfate, ferrous fumarate, Triferrix, FeraMax).

So, what does this mean?

- Elevated hepcidin levels can lead to lower absorption of dietary iron for up to 24 hours (i.e. until the next day's dose).
- So, while we typically recommend 60 – 200 mg elemental Fe in the treatment of IDA, our patients may or may not be absorbing all of the iron ingested.
- Lower doses of elemental iron (ferrous gluconate, Proferrin), may not have the same effect on hepcidin as the higher doses.
- Can consider prescribing/recommending lower dose elemental iron products for daily administration or can consider every-other-day dosing of higher dose elemental iron products.
- Lower dose elemental iron or alternate day dosing can also help lower the risk of side effects mentioned above, which can lead to better overall compliance.