

Episode 26

In this week's episode of the CPSers, Dr.'s Madeline Eckenrode and Robert Centor present a fascinating clinical unknown to Rabih and Reza!

Problem Representation

A 61-year-old man with long-standing GERD on PPI treatment, HTN, and a 20-year history of iron-deficiency anemia (IDA) presented with subacute exertional chest and epigastric pain, found on evaluation to have an isolated severe microcytic anemia with iron studies consistent with iron deficiency.

Schemas

The CPSers' schema for IDA focuses first on sources of chronic blood loss before considering (relatively less common) causes of impaired iron absorption.

Diagnosis

Review of the patient's records demonstrated that he had previously undergone a thorough and ultimately negative work-up for GI bleeding. On further evaluation, it seemed that his IDA correlated with initiation of his PPI. This was held and his anemia resolved, confirming a dx of PPI-associated IDA.

Teaching points

- The clinical manifestations¹ of iron deficiency and IDA can be thought of as those related anemia in general (i.e. pallor, fatigue, dyspnea) and those specifically due to iron deficiency. Iron deficiency appears to affect tissues with a high degree of epithelial cell turnover, producing dry skin, brittle hair, characteristic nail findings (koilonychia, or spoon-shaped nails), and loss of tongue papillae. Rarer manifestations include restless leg syndrome and Plummer-Vinson syndrome (dysphagia, IDA, and esophageal webs).
- Establishing a diagnosis² of IDA can be difficult. Serum ferritin is the most specific test for iron deficiency but can be elevated in systemic inflammatory states. When the ferritin is non-diagnostic, a transferrin saturation less than 16% is highly suggestive of iron deficiency. Ultimately, bone marrow aspiration is the gold standard to evaluating body iron stores, although this is rarely performed.
- Proton pump inhibitors (PPIs) are among the most commonly prescribed medications in the US and effectively suppress gastric acid production. A growing body of literature, however, suggests the possibility of serious adverse effects³ associated with chronic use. These include increased susceptibility to certain infections, impaired micronutrient absorption and metabolism (check out this tweetorial from the amazing Dr. Tony Breu on the effects of PPIs on iron absorption), altered drug metabolism, and theoretical associations with gastrointestinal malignancies and dementia.

Clinical Reasoning Pearl

It can occasionally be helpful to note whether or not a patient responds to an empiric therapy, as this may provide fundamental clues to the underlying diagnosis.

For example:

The patient in this week's episode historically responded to IV iron but never to oral iron, suggesting an issue with absorption.

Check out this NEJM CPS case⁴ where response to antibiotics was a helpful clue!

References

1. Lopez A, Cacoub P, Macdougall IC, Peyrin-Biroulet L. Iron deficiency anaemia. *Lancet*. 2016 Feb 27;387(10021):907-16.
2. Short MW, Domagalski JE. Iron deficiency anemia: evaluation and management. *Am Fam Physician*. 2013 Jan 15;87(2):98-104.
3. Spechler SJ. Proton Pump Inhibitors: What the Internist Needs to Know. *Med Clin North Am*. 2019 Jan;103(1):1-14.
4. Kaul DR, Orringer MB, Saint S, Jones SR. Clinical problem-solving. The Drenched Doctor. *N Engl J Med*. 2007 May 3;356(18):1871-6.