Milk: It Does Not Always Do A Body Good

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Introduction

Anemia is a common cause of morbidity in the United States that crosses all age limits, ranging from mild (hemoglobin 10-11g/dL),to severe (7g/dL or less, the transfusion threshold). The age of the patient often determines the initial diagnostic work-up: pediatric anemia and nutritional deficiencies, adolescent females and heavy menstruation, and the elderly and malignancy.

This was exactly where clinical minds were when a 64-year-old male was admitted for worsening fatigue, paleness and chest pain.

Case Presentation

Case History

Patient was a 64-year-old Caucasian male with a past medical history of hypertension admitted for chest pain and fatigue. He had been getting progressively weaker over the last several months, with decreased appetite. He had pressure-like substernal chest pain that was worse with ambulation 2 weeks prior to presentation. Upon admission, his labs were significant with hemoglobin of 4.3g/dl. Cardiac biomarkers were negative with EKG consistent with sinus tachycardia. He was stabilized and transfused four units packed red blood cells. Further work-up identified low iron of 11g/dl and ferritin of 3.1ng/ml. CT abdomen and pelvis showed no masses, no evidence for bleed. Gastroenterology was consulted. An EGD and colonoscopy showed non-erosive gastropathy with erythema, and a non-bleeding duodenal bulb ulcer. Hematology/Oncology was consulted for bone marrow biopsy consideration to rule out myelofibrosis or leukemia. Throughout hospitalization, the patient received IV pantoprazole and iron sucrose.

Physical Exam

Gen: WNWD, NAD

ENT: moist mucous membranes

CV: Tachycardia, S1, S2 present, no m,r,g, cap refill 3-5 seconds

Resp: CTA b/l, no wheeze

Abd: normal BS, non-tender, no masses

Neuro: A&O X3, normal strength and tone, CN II-XII intact

Ext: no deformity, no edema.

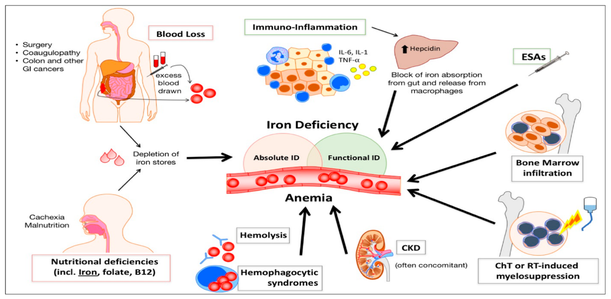
Case Description

Differential Diagnosis

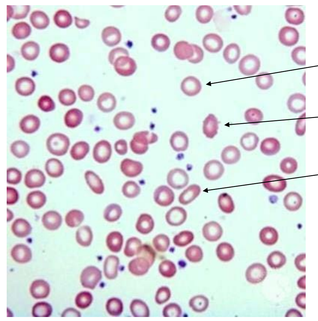
Malignancy, Vitamin deficiency, MDS, Aplastic anemia, Medication-induced

Initial Work Laboratory Values

Hemoglobin 4.3g/dl (normal 13.5-17.5g/dl), Iron 11mcg/dl (normal: 60-170mcg/dl) Ferritin 3.1ng/ml (normal: 12-300ng/ml)



Differential diagnosis of iron deficiency anemia[1]



Peripheral smear in severe iron deficiency anemia[2]

Final Diagnosis

Iron deficiency anemia due to excessive cow's milk consumption

Treatment

Decrease cow milk consumption, PO iron supplementation and Vitamin C

Discussion

Upon further questioning by the gastroenterologist, it was learned the patient's diet consisted of 1-2 gallons of cow's milk daily over the last 20 years. While consuming this quantity is not a common problem for adults, it can result in nutritional problems in children. The basic mechanism for iron deficiency anemia due to cow's milk includes, 1) Decreased iron levels in cow's milk, 2) Cow's milk leads to intestinal irritation, resulting in a. decreased iron absorption and b. chronic intestinal blood loss, and 3) Calcium and casein in cow's milk leads to inhibition of non-heme iron absorption from other food sources.

Conclusion

70-90% of medical diagnoses come from obtaining a comprehensive history from the patient. For this patient, the length of hospitalization, specialist consultations and cost burden may have been significantly decreased if a few more moments were spent obtaining a detailed history on the patient. However, the scope of our differentials would still be broad, and basic inpatient workup to exclude acute causes of severe anemia would still have been completed, but physician confidence in diagnosis would have been stronger.

References

1. Busti F, Marchi G, Ugolini S, Castagna A, Girelli D. Anemia and iron deficiency in cancer patients: role of iron replacement therapy. *Pharmaceuticals.* 2018;11(4):94. https://doi.org/10.3390/ph11040094.
2. American Society of Hematology. https://imagebank.hematology.org/reference-case/33/iron-deficiency-anemia

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