

Practice Guidelines

Iron Deficiency Anemia: Guidelines from the American Gastroenterological Association

Key Points for Practice

- In anemia, iron deficiency is best diagnosed using a ferritin threshold of less than 45 ng per mL.
- Patients with IDA should receive noninvasive testing for *H. pylori* and celiac disease.
- Bidirectional endoscopy is recommended in all adults with IDA.
- Video capsule endoscopy is not recommended in asymptomatic adults with IDA.

From the *AFP* Editors

Iron deficiency anemia (IDA) is the most common cause of anemia worldwide. It affects 3% of adults and is slightly more common in women younger than 50 years. The American Gastroenterological Association (AGA) developed guidelines for the evaluation of IDA in adults.

Diagnosing Iron Deficiency

The AGA defines anemia as a hemoglobin level of less than 13 g per dL (130 g per L) in men and less than 12 g per dL (120 g per L) in patients who are not pregnant. Serum ferritin testing is commonly used to diagnose iron deficiency in patients with anemia. Based on a systematic review, the AGA recommends using a ferritin threshold value of less than 45 ng per mL (45 mcg per L) for diagnosing iron deficiency in patients with anemia.

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This series is coordinated by Michael J. Arnold, MD, contributing editor.

A collection of Practice Guidelines published in *AFP* is available at <https://www.aafp.org/afp/practguide>.

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This threshold has 85% sensitivity and 92% specificity for iron deficiency. Without anemia, the ferritin threshold for iron deficiency is uncertain. Ferritin testing is less accurate in patients with chronic inflammatory conditions or chronic kidney disease, and additional tests including serum iron, transferrin saturation, soluble transferrin receptor, and C-reactive protein can help diagnose iron deficiency.

Noninvasive Testing

Several common conditions associated with IDA can be diagnosed noninvasively, before or after endoscopy. Frequent blood donation, nutritional deficiencies, or malabsorption syndromes may be suggested by initial evaluation.

Helicobacter pylori infection is associated with iron deficiency caused by atrophic gastritis and hypochlorhydria, which reduce iron absorption. Treating *H. pylori* infection improves the benefit of iron supplementation in anemia. After negative bidirectional endoscopy results, the AGA suggests noninvasive testing and treatment for *H. pylori* in IDA by urea breath testing, although stool antigen testing and serology can also be used.

Celiac disease is another common cause of iron deficiency. The AGA suggests serologic testing for celiac disease in patients with iron deficiency, especially those with a family history of the disease, a personal history of autoimmune diseases, or gastrointestinal symptoms. Small bowel biopsy during endoscopy is recommended only if celiac serology is positive.

Endoscopy

Bidirectional endoscopy (esophagogastroduodenoscopy and colonoscopy) is the primary means of evaluation for IDA, although evidence of patient-oriented benefit is lacking. In men and postmenopausal women with IDA, bidirectional endoscopy is recommended based on diagnosis of colonic malignancy in 9% and upper gastrointestinal malignancy in 2% of patients, more than

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10 times the rate of colorectal cancer found in routine screening. The AGA also suggests endoscopy in premenopausal women with IDA because malignancy is diagnosed in 1% of this population. In younger patients who might have a plausible nonmalignant cause of anemia, iron replacement can be offered without further exploration.

During esophagogastroduodenoscopy, routine gastric biopsies are not recommended. Although autoimmune atrophic gastritis can be diagnosed by gastric biopsy, it has not been shown to improve long-term outcomes. *H. pylori* can also cause atrophic gastritis, but it can be diagnosed noninvasively.

After normal bidirectional endoscopy, small bowel video capsule endoscopy is not recommended without symptoms because evidence of benefit is lacking.

Iron Supplementation

Oral iron supplementation should be provided for most patients with iron deficiency. Oral iron formulations appear to be similarly effective and tolerated. Although 150 mg or more of daily elemental iron was previously recommended, studies show improved absorption and tolerability with lower dosing or every-other-day dosing. The hemoglobin level should increase after one month of oral iron supplementation. Lack of hemoglobin change may be because of low adherence, malabsorption, or blood loss. Intravenous iron may be appropriate with malabsorption, inflammatory bowel disease, chronic kidney disease, or ongoing blood loss.

Guideline source: American Gastroenterological Association

Evidence rating system used? Yes

Systematic literature search described? Yes

Guideline developed by participants without relevant financial ties to industry? Yes

Recommendations based on patient-oriented outcomes? Yes

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Kento Sonoda, MD

UPMC Shadyside Family Medicine Residency Program
Pittsburgh, Pa.

Email: kento.sonoda.md@gmail.com

Editor's Note: Dr. Sonoda is the resident representative for *AFP*.

These guidelines from the AGA add specific recommendations for the workup of IDA. The recommendation to diagnose iron deficiency with a ferritin cutoff of 45 ng per mL is consistent with a previous *AFP* article (<https://www.aafp.org/afp/2018/1001/p437.html>). The recommendation for bilateral endoscopy in all people is interesting because the AGA does not appear to consider evaluation of menstrual bleeding before testing premenopausal women. Similarly, they specifically recommend checking for *H. pylori* noninvasively only after endoscopy without justifying why. From the primary care perspective, noninvasive testing for *H. pylori* and celiac disease before endoscopy offers the opportunity for more efficient care while reducing procedural risk. Yet, the recommendations against routine gastric biopsies and video capsule endoscopy are helpful for avoiding unnecessary tests.—Michael J. Arnold, MD, Contributing Editor ■