

Question 11 – Week of February 20

An 82 y/o female presented with vague progressive symptoms of weakness over the past 6 months. Her past medical history is significant only for hypertension, well controlled with hydrochlorothiazide, and constipation, for which she uses Miralax. ROS was notable for occasional tingling sensation of her hands and pain in her tongue. Physical exam shows a heart rate of 92 and a smooth tongue. Neurologic exam significant for loss of vibratory sensation and an unsteady gate. Labs reveal a hematocrit of 19, MCV 98, and normal MCHC. Total bilirubin is 1.8 with direct bilirubin 0.4. Her haptoglobin is low and LDH high. Ferritin is 58.

What is the best test to confirm that B12 deficiency and not folate deficiency is the cause of her anemia?

- A. Anti-intrinsic factor antibodies
- B. Methylmalonic acid
- C. Schilling test
- D. Homocysteine
- E. Anti-parietal cell antibodies

Answer: B

Methylmalonic acid is elevated in B12 deficiency, but not folate deficiency. Homocysteine is elevated in both. This woman has pernicious anemia. The best test (high sensitivity and specificity) to confirm this would be anti-IF antibodies. Anti-parietal cell antibody is less sensitive and specific. Schilling test is classic, but complicated and rarely used. Recent studies have shown that MMA and homocysteine may be more sensitive than the Schilling test.

References:

1. Lindgren A, et al. Serum methylmalonic acid and total homocysteine in patients with suspected cobalamin deficiency: a clinical study based on gastrointestinal histopathological findings. *Am J Hematol.* 1997;56(4):230.
2. Tweet, MS and KM POlga. 44-year-old man with shortness of breath, fatigue, and paresthesia. *Mayo Clin Proc.* 2010 Dec;85(12):1148-51.