If you’re preparing for the United States Medical Licensing Examination® (USMLE®) Step 2 exam, you might want to know which questions are most often missed by those taking the practice test. Check out this example from Kaplan Medical, and view an expert video explanation of the answer. Also view all posts in this series.

This month’s stumper

A 68-year-old man has been complaining of headache, dizziness, blurred vision and fatigue. On examination, he appears plethoric; ophthalmoscopic exam shows engorged retinal veins. His spleen is palpable 3 centimeters below the left costal margin. Complete blood count shows a hematocrit of 56 percent, normal red-cell morphology, increased red-cell mass, white blood cell count of 16,000/µL with increased basophils and eosinophils, and platelets at 700,000/µL.

Which of the following is the major cause of morbidity and death in this illness?

A. Bleeding
B. Heart failure
C. Opportunistic infection
D. Renal failure
E. Thrombosis
The correct answer is E.

Kaplan Medical explains why

The diagnosis in this question is polycythemia vera, an acquired myeloproliferative disorder that causes overproduction of all three blood cell lines, especially the red cells. The hematocrit at presentation is often greater than 60 percent. The red-cell mass should also be determined; if increased, it could be due to primary or secondary polycythemia vera. The erythroid production is independent of erythropoietin and the serum erythropoietin level is low. Secondary polycythemia is due to hypoxia, high carboxyhemoglobin (in smokers), renal lesions, erythropoietin-secreting tumors and abnormal hemoglobins.

The presenting symptoms (mostly in men over 60) in polycythemia vera are related to hyperviscosity: headache, dizziness, blurred vision, fatigue. Patients may also have epistaxis, due to engorgement of the mucosal vessels and also because of qualitative platelet abnormalities. The patient may have generalized pruritus due to increased histamine release because of the increased number of basophils present. On exam, one sees plethora and engorged retinal veins. In the majority of patients, the spleen is enlarged.

Thrombosis is the major complication and major reason for morbidity (increased viscosity and abnormal platelet function). Laboratory findings include polycythemia with normal morphology, an elevated red-cell mass, elevated white-cell count, variable increase in platelet count, basophilia, eosinophilia and hypercellular bone marrow with absent iron stores. The treatment of choice is phlebotomy.

Why the other answers are wrong

Bleeding (choice A) may occur due to vascular engorgement and qualitative abnormalities of the platelets, but is not the major cause of morbidity.
With time, the disease may convert to myelofibrosis or chronic myelogenous leukemia; the other answers (choices B, C and D) are not complications or morbidities of polycythemia vera.

One tip to remember

Polycythemia vera is a myeloproliferative disorder that causes overproduction of all three blood cell lines, especially the red cells. Hematocrit is usually greater than 60 percent. Hyperviscosity of the blood greatly predisposes to acute thrombosis.

For more prep questions on USMLE Steps 1 and 2, view other posts in this series.