**Question 1**

A 35 year-old woman comes to the emergency room complaining of exertional dyspnea over the past 2-3 days. Her past medical history is unremarkable. She takes no medications and denies any other systemic symptoms. She is afebrile and her vital signs are stable. Physical examination is only remarkable for a few small ecchymoses on the upper and lower extremities, mild scleral icterus, and a grade I/VI holosystolic murmur.

Laboratory studies reveal:

- White blood cell count 9,600/mm^3 (4,000-10,000)
- Hematocrit 23% (36-46)
- Platelets 36,000/mm^3 (150,000-450,000)
- PT 12 s (11-13)
- PTT 26 s (22-34)
- Fibrinogen 450 mg/dL (200-400)
- LDH 535 (107-231)

Peripheral blood smear reveals decreased platelets and moderate schistocytes.

Which one of the following is now most appropriate:

A) Send serum toxicology panel and stool studies for E. coli 0157:H7
B) Initiate plasmapheresis with plasma exchange as soon as possible
C) Observation for now, initiate plasmapheresis if the plt count < 20,000/mm^3
D) Observation for now, initiate plasmapheresis if the patient becomes febrile or the creatinine rises

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**Question 2**

A 54 year-old African-American male smoker is seen for follow-up 3 days after completing treatment for an upper respiratory tract infection with a course of trimethoprim/sulfamethoxazole. On review he notes that during the past week his cough has improved, although he now feels somewhat more short of breath with exertion and is more fatigued than one week ago. Laboratory studies reveal:

- White blood cell count 5,860/mm^3 (4,000-10,000)
- Hematocrit 28% (36-46)
- MCV 101 fL (80-95)
- Platelets 175,000/mm^3 (150,000-450,000)

The most appropriate course of action at this time is:

A) Test for glucose-6-phosphate dehydrogenase deficiency
B) Obtain folate and vitamin B12 levels
C) Observation, return visit in a few weeks for further laboratory studies
D) Inquire with patient about ethanol intake during the past week

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**Question 3**

A 25 year-old woman comes for her first clinic visit after a recent flu-like illness. Her past medical history is only remarkable for occasional migraine headaches that usually occur around the time of her menstrual period. These are generally relieved by ibuprofen. She takes no other medications. On review of systems she notes that her last menstrual period was heavier than usual. Physical examination is unremarkable.

Laboratory studies reveal:

- White blood cell count 7,400/mm^3 (4,000-10,000)
- Hematocrit 36% (38-46)
- Platelets 175,000/mm^3 (150,000-450,000)
- LDH 167 IU/L (107-231)
- Creatinine 0.7 mg/dL (0.7-1.3)

Peripheral blood smear: normal red and white cell morphology and decreased platelets.

The most appropriate next steps are:

A) Immediate hospitalization for intravenous gamma globulin
B) Send HIV test, discontinue ibuprofen, treat with corticosteroids
C) Obtain surgical consultation for splenectomy
D) Observation
A 35 year-old woman originally from the Dominican Republic comes to clinic for her first visit. She has no significant medical problems and has had two children. After the birth of her second child three years ago she was told to take iron tablets twice daily. Aside from an oral contraceptive, this is her only medication. Laboratory studies reveal:

- White blood cell count: 4,600/mm³ (4,000-10,000)
- Hematocrit: 35% (36-48)
- MCV: 66 fl (80-95)
- Platelets: 256,000/mm³ (150,000-450,000)
- Fe: 150 μg/dL (40-159)
- TIBC: 275 μg/dL (250-400)

The most appropriate management is:
A) Phlebotomy for hemochromatosis
B) Continue current iron therapy, initiate work-up for chronic inflammatory process
C) Switch therapy from oral iron sulfate to iron dextran
D) Discontinue iron therapy, send ferritin and hemoglobin electrophoresis

A 74 year-old man with diabetes mellitus controlled with an oral agent presents for routine follow-up. His other medical problems include hypertension, for which he takes an ACE inhibitor, and benign prostatic hypertrophy. On review of his records you note that his hematocrit has been gradually declining over the past three years. On his visit today laboratories reveal:

- Hematocrit: 28% (36-48)
- MCV: 84 fl (80-95)
- RDW: 15 (10-14.5)
- Platelets: 340,000/mm³ (150,000-450,000)
- BUN: 35 mg/dL (9-25)
- Creatinine: 1.9 mg/dL (0.7-1.3)
- LDH: 230 (107-231)

The most likely etiology of his anemia is:
A) Combined iron and B₁₂ deficiency
B) Medication effect from the ACE inhibitor
C) Erythropoietin deficiency
D) Anemia due to marrow replacement by metastatic prostate cancer

A 23 year-old man with sickle cell anemia is admitted for management of pneumonia. He presented with a two-day history of a dry non productive cough, fever to 101°F and was found to have a right lower lobe infiltrate. On admission his oxygen saturation was 94% on room air, and he was not short of breath. He is placed on cefuroxime and given IV hydration.

CBC on admission:
- White blood cell count: 18,000/mm³ (4,000-10,000)
- Hematocrit: 21% (36-48)
- Platelets: 247,000/mm³ (150,000-450,000)

One day later he complains of increasing shortness of breath and is found to have an oxygen saturation of 86% on room air. Chest radiograph reveals bilateral lower lobe opacities. The appropriate next steps are:
A) Continue current antibiotic coverage, administer supplemental O₂
B) Continue current antibiotic coverage, administer supplemental O₂, obtain V/Q scan
C) Continue current antibiotic coverage, administer supplemental O₂, transfuse PRBC
D) Add coverage for atypical organisms, administer supplemental O₂
E) Add coverage for atypical organisms, administer supplemental O₂, exchange transfuse

A 76 year-old woman on warfarin for chronic atrial fibrillation normally anticoagulated to an INR of 2.5 is found to have an INR of 5.8 on routine testing. She is otherwise asymptomatic. The most appropriate next step is:
A) Decrease dose of warfarin by 50%
B) Hold warfarin, administer 1mg vitamin K subcutaneously
C) Hold warfarin, administer 2.5 mg vitamin K orally
D) Hold warfarin, recheck INR in 1 to 2 days prior to restarting therapy
E) Hold warfarin for one day, restart at 50% of previous dose the next day

A 24 year-old Caucasian female is found to have a right popliteal deep venous thrombosis while taking oral contraceptives. Of the following heritable conditions, which is most likely to be found on diagnostic evaluation:
A) Antithrombin III deficiency
B) Protein C deficiency
C) Homocysteinemia
D) Factor V Leiden
E) Prothrombin gene mutation (G20210A)
Which of the following statements is true regarding oral replacement with Vitamin B12?

A) It is only effective in patients who possess intrinsic factor
B) Since it costs more than parenteral replacement, it should be discouraged
C) It is generally effective, though requires monitoring for compliance
D) When used in appropriate situations, the dose and frequency are similar to parenteral B12
E) Methylmalonate and homocysteine levels cannot be used for the monitoring of therapy

Question 9

An asymptomatic 35 year-old woman is seen in the office and is found to have the following CBC:

- White blood cell count 6,200/mm³ (4,000-10,000)
- Hematocrit 36% (36-48)
- Platelets 758,000/mm³ (150,000-450,000)

Which of the following statements is true:

A) Therapy with hydroxyurea is indicated
B) Warfarin therapy is indicated to prevent thrombotic complications
C) The possibility of iron deficiency, an inflammatory state or CML should be investigated
D) The patient has a very high risk of thrombosis or hemorrhage during the next five years

Question 10

A 67 year-old man with a history of unstable angina develops is admitted to the coronary care unit for further management of chest pain. His complete blood count is normal on admission and he is started on unfractionated heparin. On hospital day 5 his platelet count is noted have drifted down to 80,000/mm³. An ELISA assay for antibodies to the heparin-PF4 complex is sent

Which of the following statements are true:

A) Unfractionated heparin may be continued pending the ELISA results
B) The patient should be switched to a low molecular weight heparin pending the ELISA results
C) Unfractionated heparin should be discontinued immediately, and anticoagulation with a direct thrombin inhibitor should be begun pending the ELISA results
D) Unfractionated heparin should be discontinued immediately, and anticoagulation with warfarin should be begun pending the ELISA results

Question 11

A 28 year-old woman is seen for evaluation in the clinic. Her past medical history is notable for significant bleeding after extraction of her wisdom teeth, such that addition sutures were required. She takes no medications regularly, and does not smoke cigarettes or drink alcohol. Her family history is notable for the fact that her mother required blood transfusions several days after the birth of each of her two children. Her sister also had major bleeding several days after the birth of her child. The patient wants to become pregnant, but is concerned because of her family history

An appropriate evaluation at this time would include:

A) PT, PTT, and fibrinogen assays
B) No evaluation necessary, perform testing for von Willebrand’s disease if patient becomes pregnant
C) Von Willebrand’s Antigen level, Von Willebrand’s: ristocetin cofactor level, and factor VIII level
D) Urea clot solubility test

Question 12

A 67 year-old man with a history of hypertension is seen for routine physical examination. Aside from having a ruddy complexion and a grade II/VI systolic flow murmur, he has no other physical findings. CBC is notable for:

- White blood cell count 9,800/mm³ (4,000-10,000)
- Hematocrit 58% (36-48)
- Platelets 430,000/mm³ (150,000-450,000)

Which of the following statements is NOT true:

A) The diagnosis of polycythemia vera can be established by bone marrow aspirate and biopsy
B) Diagnostic testing includes erythropoietin level and JAK2 mutation analysis
D) The patient is at much higher risk for thrombosis than for bleeding
E) The differential diagnosis is between secondary polycythemia from hypoxia vs polycythemia vera

Question 13

A 67 year-old man with a history of hypertension is seen for routine physical examination. Aside from having a ruddy complexion and a grade II/VI systolic flow murmur, he has no other physical findings. CBC is notable for:

- White blood cell count 9,800/mm³ (4,000-10,000)
- Hematocrit 58% (36-48)
- Platelets 430,000/mm³ (150,000-450,000)

Which of the following statements is NOT true:

A) celecoxib
B) clopidogrel
C) ibuprofen
D) naprosyn
E) acetaminophen

Question 14
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<th>Question 15</th>
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<td>Which of the following statements best describes the effect of hydroxyurea on sickle cell anemia:</td>
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<td>A) Hydroxyurea is associated with minimal clinical benefit in all but a fraction of patients</td>
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<td>B) The mechanism of action of hydroxyurea is thought to include induction of increased fetal hemoglobin levels</td>
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<td>C) No apparent survival benefit has ever been demonstrated with the use of hydroxyurea</td>
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<td>D) In acute sickle cell pain crisis administration of hydroxyurea can result in a reduced time to hospital discharge</td>
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