

CHAPTER 10. VENOUS THROMBOEMBOLISM, SELF-ASSESSMENT QUESTIONS

1. A 42-year-old Asian woman just returned from vacation in Ethiopia. She presents to the emergency department (ED) with shortness of breath and is subsequently diagnosed with pulmonary embolism (PE). She weighs 45 kg (100 lb; body mass index [BMI] 19 kg/m²). Medications on admission include: estrogen-containing oral contraceptives, ibuprofen (prn), and ginseng tablets. She smokes one pack of cigarettes per day and drinks alcoholic beverages three to four times per week. Her sister died (age 41) of PE 4 years ago. The factors that most likely predisposed this patient for venous thromboembolism (VTE) include:

- A. Age, ibuprofen use, smoking
- B. Female sex, foreign travel, weight
- C. Asian ancestry, ginseng use, regular alcohol consumption
- D. Recent immobility, estrogen use, inherited disorder of hypercoagulability

2. The following is a recommended risk assessment model for estimating VTE risk specific to hospitalized medical patients:

- A. The CAPRINI Risk Prediction Score
- B. The WELLS Risk Prediction Score
- C. The PADUA Risk Prediction Score
- D. The PESCI Risk Prediction Score

3. Which VTE prevention strategy is the most appropriate for a 61-year-old patient who is undergoing a knee replacement surgery tomorrow, weighs 94 kg (207 lb), has an estimated creatinine clearance of 58 mL/min (0.97 mL/s), and has no known contraindications to anticoagulant drugs?

- A. Rivaroxaban 15 mg given orally every 12 hours
- B. Fondaparinux 2.5 mg given SC every 24 hours
- C. Aspirin 81 mg given orally every 24 hours
- D. Early ambulation combined with graduated compression stockings (GCS)

4. Which of the following prophylactic strategies is most appropriate for a 62-year-old patient who is admitted to hospital with left-sided paralysis following an acute hemorrhagic stroke?

- A. GCS
- B. Early ambulation
- C. Inferior vena cava (IVC) filter

D. Intermittent pneumatic compression (IPC)

5. Which of the following anticoagulants would be an appropriate option as single therapy for the initial acute-phase treatment of patients diagnosed with acute lower extremity DVT?

A. Apixaban

B. Dabigatran

C. Desirudin

D. Warfarin

6. A patient is diagnosed with a left lower extremity deep vein thrombosis (DVT) and is initiated on intravenous unfractionated heparin (UFH) and warfarin therapy concurrently. How long should UFH and warfarin be overlapped?

A. For at least 4 days as long as the aPTT is greater than 50 seconds for 3 days

B. For at least 5 days and only after the INR is greater than 2

C. For 7 days or until the INR is greater than 2.5

D. UFH can be discontinued once the aPTT is greater than 75 seconds, regardless of the length of therapy

7. A patient had hip replacement surgery 2 weeks ago. He now presents with a right lower extremity DVT. He is admitted to the hospital for anticoagulation treatment. Following surgery, he received dalteparin 5000 units SC daily for 10 days. It was noted that his platelet count dropped from $390 \times 10^3/\text{mm}^3$ ($390 \times 10^9/\text{L}$) following the surgery to $160 \times 10^3/\text{mm}^3$ ($160 \times 10^9/\text{L}$) on the day of discharge. He has no previous history of thromboembolic events. Which of the following treatment options would be the best recommendation in this patient's case?

A. Warfarin should be started now and continued for 6 months.

B. Unfractionated heparin (UFH) and warfarin should be started now and continued for 3 months.

C. Enoxaparin should be started now and the patient should be evaluated for thrombotic thrombocytopenic purpura.

D. Fondaparinux should be started now and the patient should be evaluated for heparin-induced thrombocytopenia.

8. The following statement is TRUE regarding drug interactions with the novel oral anticoagulants in patients with normal renal function:

A. Avoid use of Rivaroxaban with combined strong CYP3A4 inhibitors and P-glycoprotein inhibitors

B. Avoid use of Rivaroxaban with combined moderate CYP3A4 inhibitors and P-glycoprotein inhibitors

- C. Avoid use of Dabigatran with combined strong CYP3A4 inhibitors and P-glycoprotein inhibitors
- D. Avoid use of Dabigatran with combined moderate CYP3A4 inhibitors and P-glycoprotein inhibitors

9. In patients presenting with acute PE, thrombolytic therapy is recommended if:

- A. The patient has palpitations and hemoptysis
- B. Started within 4 hours of when patient first experiences symptoms
- C. The patient appears to be in shock (eg, systolic blood pressure < 90 mm Hg)
- D. The patient has elevated D-dimer concentration > 1000 ng/mL (1000 mcg/L)

10. A 47-year-old Caucasian man is being treated with warfarin 5 mg daily for PE diagnosed 6 weeks ago. Today, he presents to clinic for an INR check and is found to have an INR of 11.7. His CBC is normal, and he has no complaints or signs/symptoms of bleeding. You take the following approach to manage his INR:

- A. Hold his warfarin until INR < 2 and then resume warfarin at 5 mg daily
- B. Give vitamin K 2.5 mg PO and hold his warfarin until INR < 2, then resume warfarin at 5 mg daily
- C. Give Vitamin K 2.5 mg IV and hold his warfarin until INR < 2, then resume warfarin at 5 mg daily
- D. Give Vitamin K 10 mg IV and admit patient to the hospital until INR < 2, then resume warfarin at 5 mg daily

11. An 82-year-old man was admitted to hospital and recently diagnosed with acute DVT. Treatment has been initiated with intravenous UFH. Twelve hours later, his aPTT is greater than 150 seconds and he is noted to have bright red blood per rectum. Which of the following is the best course of action in the management of this patient?

- A. Hold heparin therapy for 60 minutes and then reduce infusion rate by 20%
- B. Hold heparin therapy and give vitamin K via slow IV infusion
- C. Hold heparin therapy and give recombinant factor VII
- D. Hold heparin therapy and give protamine sulfate via slow IV infusion

12. A 29-year-old woman is admitted for acute DVT. She reports that she had a PE last year, 2 weeks following the birth of her daughter. She was treated with enoxaparin and warfarin for 3

months. Her symptoms completely resolved. What is the recommended duration of anticoagulation therapy in this case now?

- A. 3 months and then reevaluate risks and benefits
- B. 6 months and then discontinue
- C. 12 months and then reduce the dose by 50% for an additional 2 years
- D. Lifelong

13. Which of the following is the most appropriate treatment for a pregnant patient (first trimester) with a newly diagnosed acute PE?

- A. Enoxaparin SC 1 mg/kg twice daily
- B. Fondaparinux SC 2.5 mg daily
- C. UFH SC 333 units/kg followed by 250 units/kg twice daily
- D. Warfarin dose adjusted to achieve an INR goal of 2 to 3

14. Which of the following is the most appropriate initial treatment option in a patient with an acute DVT and a documented history of heparin-induced thrombocytopenia (HIT) 7 months ago but no history of prior VTE?

- A. Clopidogrel
- B. Dabigatran
- C. Dalteparin
- D. Warfarin

15. Which of the following statements accurately describes a potential advantage of the direct oral anticoagulants (apixaban, dabigatran, rivaroxaban) over warfarin in the treatment of VTE?

- A. More patients are able to tolerate the direct oral anticoagulants than warfarin.
- B. Adherence with direct oral anticoagulants is 20%–30% better than adherence to warfarin.
- C. When bleeding occurs, direct oral anticoagulants are more easily reversed than warfarin.
- D. The onset of anticoagulant activity is more rapid with direct oral anticoagulants when compared to warfarin.

ANSWERS

1. D

2. C

3. B

4. D

5. A

6. B

7. D

8. A

9. C

10. B

11. D

12. A

13. A

14. B

15. D