test questions PharmaCE™

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ANTITHROMBOTIC AGENTS FOR VTE

Goal

To review VTE and its complications, risk factors, and variety of affected patient populations, as well as the uses, dosing, advantages, disadvantages, and selected clinical data of the agents available for the prophylaxis and treatment of VTE.

Objectives

After reviewing this article, the reader will be able to:

1. discuss the incidence of VTE in the general population and the potential related morbidity and mortality;
2. identify patients who are at risk for VTE and have a need for thromboprophylaxis based on various risk categories;
3. select the optimal agent, dosage, monitoring parameters, and duration of treatment considering specific patient characteristics and prophylaxis and treatment scenarios;
4. compare and contrast characteristics of various anticoagulant agents used for the prophylaxis and treatment of VTE.

Test Questions

1. **Which of the following statements regarding the incidence and complications resulting from VTE is *false*?**
   (a) The incidence of recurrent VTE in the first year after the initial event ranges from 7% to 13%.
   (b) The postthrombotic syndrome associated with a previous VTE primarily occurs within the first year of the initial VTE event, and it is very rare.
   (c) The incidence of postthrombotic syndrome after a VTE can be as high as 30% over 8 years.
   (d) Fatal PE is frequently not diagnosed in time to prevent mortality.
   (e) Pulmonary hypertension and right-sided heart failure can be a consequence of PE.

2. **The rationale to use an anticoagulant for VTE prophylaxis includes all of the following *except*:**
   (a) a patient with several risk factors for acute bleeding such as a recent major bleed, who is mobile and has no concurrent VTE risk factors.
   (b) a patient who is immobile and has several identified VTE risk factors.
   (c) patients undergoing major orthopedic surgery.
   (d) patients in the hospital who have multiple identified risk factors for thrombosis but no bleeding risks.
   (e) hospitalized cancer patients.

3. **Which of the following scenarios places patients at the highest risk for VTE?**
   (a) hip fracture surgery and renal impairment
   (b) total knee replacement and cancer
   (c) hip fracture surgery and cancer
   (d) hip fracture surgery, obesity, and 60 years of age
   (e) total knee replacement, obesity, and 60 years of age

4. **Which of the following antithrombotic agents has been shown in controlled trials to be superior to other agents in the prophylaxis of VTE in patients undergoing hip fracture surgery?**
   (a) fondaparinux
   (b) LMWH
   (c) UFH
   (d) warfarin
   (e) aspirin

5. **The predominant adverse event associated with all antithrombotic therapies used for the prophylaxis of VTE is:**
   (a) thrombocytopenia.
   (b) PE.
   (c) bleeding.
   (d) postthromotic syndrome.
   (e) skin necrosis.

6. **The negative effect of LMWHs on wound healing is thought to be due to their inhibition of:**
   (a) factor Xa.
   (b) factor IIa.
   (c) tissue factor pathway inhibitor.
   (d) fibrinolysis.
   (e) Both a and b are correct.

7. **A 62-year-old woman presents with a new diagnosis of DVT. Her creatinine clearance is 25 mL/min. Which of the following agents is preferred for use in this patient for the initial phase of her therapy?**
   (a) lepirudin
   (b) fondaparinux
   (c) dalteparin
   (d) UFH
   (e) warfarin

8. **When HIT is suspected, the best course of action to prevent thromboembolic complications is to discontinue all heparin exposure and:**
   (a) wait for HIT antibody results to confirm the diagnosis.
   (b) begin therapy with a direct thrombin inhibitor while awaiting HIT antibody results to confirm the diagnosis.
   (c) begin therapy with a direct thrombin inhibitor if HIT antibody results confirm the diagnosis.
   (d) switch to an LMWH while awaiting HIT antibody results to confirm the diagnosis.
   (e) switch to fondaparinux while awaiting HIT antibody results to confirm the diagnosis.

9. **A 68-year-old male presents with DVT. He has normal renal function and a history of HIT. Which agent is preferred and safest for use as initial therapy in this patient?**
   (a) enoxaparin
   (b) fondaparinux
   (c) UFH
   (d) tinzaparin
   (e) aspirin

10. **The appropriate dose for fondaparinux in the treatment of VTE in a patient with a creatinine clearance less than 30 mL/min is:**

(a) 1.5 mg once daily.
(b) 2.5 mg once daily.
(c) 5.0 mg once daily.
(d) 7.5 mg once daily.
(e) Fondaparinux is contraindicated in patients with severe renal impairment.

11. LMWHs are often preferred over UFH in the treatment of acute VTE because:
(a) clinical trials have confirmed that LMWHs provide superior prevention of recurrent VTE.
(b) clinical trials have confirmed that LMWHs cause a lower incidence of major bleeding complications.
(c) LMWHs do not require any monitoring.
(d) LMWHs are inexpensive.
(e) LMWHs are more convenient to administer.

12. The recommended duration of anticoagulation for DVT associated with a transient risk factor is:
(a) 6 weeks.
(b) 3 months.
(c) 3–6 months.
(d) 6–12 months.
(e) indefinite.

Questions 13–15 refer to the following case:
A 55-year-old male is admitted to the hospital with worsening shortness of breath and increased leg swelling. The physicians determine that the patient is having an exacerbation of his heart failure. His history includes osteoarthritis, hypertension, coronary artery disease, diabetes mellitus type 2, and DVT that had occurred about a year ago.

13. Which of the following would be considered a risk factor for developing VTE in this patient ?
(a) osteoarthritis
(b) hypertension
(c) coronary artery disease
(d) diabetes mellitus type 2
(e) age

14. Which characteristic of the patient suggests that LMWH given subcutaneously daily would be a more effective option compared with UFH given subcutaneously 3 times daily?
(a) previous DVT
(b) age
(c) diabetes mellitus
(d) heart failure
(e) hypertension

15. Which of the following represents the optimal pharmacologic regimen for prevention of VTE in this patient?
(a) fondaparinux 5 mg subcutaneously daily
(b) enoxaparin 20 mg subcutaneously daily
(c) dalteparin 5000 units subcutaneously daily
(d) UFH 5000 units subcutaneously twice daily
(e) tinzaparin 175 units/kg subcutaneously daily