



Scientific team

1. Mention 3 major differences between heparin and warfarin.

2. A 63-year-old female patient with anemia secondary to chronic kidney disease and a hemoglobin level of 8.6 g/dL is treated with epoetin alfa. Eight days after the initial dose, the patient's hemoglobin level is 10.5 g/dL. Which would be the next step in the management of this patient's anemia?

- A. Continue epoetin alfa
- B. Discontinue epoetin alfa and initiate darbepoetin
- C. Discontinue epoetin alfa
- D. Increase the dose of epoetin alfa

3. Which of the following pharmacological effects do you expect to occur if clopidogrel was added to a cell culture of normal human platelets:

- A. Activation of platelet glycoprotein IIb/IIIa
- B. Decreased platelet COX-I activity
- C. Increased platelet thromboxane A2 synthesis
- D. Decreased platelet intracellular calcium level
- E. Increased platelet aggregation rate

4. Mention one adverse effect for each of the following that would lead to stopping treatment with that drug:

- Rivaroxaban
- Mefloquine
- darbepoiten

5. In the laboratory, you are trying to identify the name of drug X. You have been given the following information:

- (1) drug X is a naturally derived anticoagulant.
- (2) drug X is approved for the prophylaxis against postoperative venous thrombosis.
- (3) The drug is chiefly administered subcutaneously.

After performing an experiment to study its mechanism of action, you observed that drug X inactivates factor Xa but does not avidly affect thrombin activity. Accordingly, you highly suspect that drug X is:

- A. Heparin
- B. Fondaparinux
- C. Idarucizumab
- D. Argatroban
- E. Enoxaparin



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6. A 39-year-old male patient suffering from intestinal polyposis underwent a pancreassparing duodenectomy. Following the surgery, the patient started developing signs and symptoms of iron-deficiency anemia. Which of the followings is best to correct anemia in this patient?

- A. Ferric carboxymaltose
- B. Ferrous fumarate
- C. Ferric ammonium citrate
- D. Ferrous sulfate
- E. Ferrous sulfate, anhydrous

7. Explain the mechanism of action of the following drugs:

- Alteplase
- Chloroquine
- Quinine
- Hydroxyurea

### Answers

1.

- A-Heparin inhibits factor 10 and thrombin while warfarin inhibits Factor 10,9,7,2
- B-Heparin is taken parenterally while warfarin is taken orally
- C-heparin is rapidly acting while warfarin is slowly acting

2.C

3.D

4.

Rivaroxaban-Bleeding

Mefloquine-depression and Hallucinations

Darbepoiten-an increase of more than 1G/dl of hemoglobin over a 2 week period

5.E

6.A

7.

Alteplase-increases plasmin activation which hydrolyzes fibrin

Chloroquine-Prevents polymerization of heme into hemozoin

Quinine-interferes with heme polymerization

Hydroxyurea- increases hemoglobin F->reduces polymerization of hemoglobin S-reduce sickling and pain