dalteparin (dal-te-pa-rin)

Fragment

Classification: anticoagulants

Pharmacologic: antithrombotics, heparins (low molecular weight)

Pregnancy Category: B

Indications

Prevention of venous thromboembolism (deep vein thrombosis (DVT) and/or pulmonary embolism (PE)) in surgical or medical patients. Extended treatment of symptomatic DVT and/or PE in patients with cancer. Prevention of ischemic complications (with aspirin) in patients with unstable angina, non-Q-wave MI.

Action

Potentiates the inhibitory effect of antithrombin on Factor Xa and thrombin. Therapeutic Effects: Prevention of thrombus formation. Decreased incidence of death or recurrent MI.

Pharmacokinetics


TIME/ACTION PROFILE (antithrombotic effect)

ROUTE ONSET PEAK DURATION
Subcut rapid 4 hr up to 24 hr

Contraindications/Precautions

Contraindicated in: Hypersensitivity to dalteparin, heparin, or pork products; Active major bleeding; Thrombocytopenia related to previous dalteparin therapy.

Use Cautiously in: Patients with severe renal or hepatic impairment; Retinopathy (hypertensive or diabetic); Spinal or epidural anesthesia; Geri: Risk of bleeding may be q, consider age-related q, in renal function and body weight; OB, Lactation, Pedi: Safety not established; products containing benzyl alcohol should not be used in neonates.

Adverse Reactions/Side Effects


Interactions

Drug-Drug: Risk of bleeding by concurrent use of thrombolytics, anticoagulants, or agents that affect platelet function including NSAIDs, ticlopidine, clopidogrel, tiroxobin, or epifibatide.

Route/Dosage

DVT Prophylaxis

Subcut (Adults): Abdominal surgery — 2500 IU 1–2 hr before surgery, then once daily for 5–10 days. High-risk patients undergoing abdominal surgery — 5000 IU evening before surgery, then once daily for 5–10 days or 2500 IU 1–2 hr before surgery, another 2500 IU 12 hr later, then 5000 IU daily for 5–10 days. Hip replacement surgery — 2500 IU within 2 hr before surgery, another 2500 IU evening of the day of surgery, 4 hr after first dose, then 5000 IU daily for 5–10 days (if surgery is in the evening omit second dose of day of surgery) or 5000 IU evening before surgery, then 5000 IU daily for 5–10 days. Medical patients with severely restricted mobility: 5000 IU for 12 to 14 days.

Angina/Non–Q-wave MI

Subcut (Adults): 120 IU/kg (not to exceed 10,000 IU) q 12 hr with concurrent aspirin.

Pedi: Safety not established; products containing benzyl alcohol should not be used in neonates.

Exercise Extreme Caution in: Spinal/epidural anesthesia or spinal puncture (risk of spinal/epidural hematoma that may lead to long-term or permanent paralysis). Severe uncontrolled hypertension, bacterial endocarditis, bleeding diathesis, GI bleeding/hemorrhage/pathology. Hemorrhagic stroke. Recent CNS or ophthalmologic surgery. Active GI bleeding/hemorrhage; History of thrombocytopenia related to heparin.

Concomitant Use

Concurrent administration of dalteparin with other antithrombotic agents may increase bleeding risk.

Potential Nursing Diagnoses

Risk for injury related to bleeding (II)

Implementation

- Administer by SC or IM route.

- For SC use, inject into area of loose skin, subcutaneous tissue, or muscle using a needle length of 1/2 inch or less. For IM use, inject into muscle only.

- May be given undiluted or diluted with sterile water for injection.

- Hosp: Dilute each dose in 100 mL of sterile water for injection, then dilute in 500 mL of normal saline to produce a concentration of 50 IU/mL. Mix well.

- Immediate effects of overdose are: Hypotension, shock, possible respiratory failure (in children). Management includes: Supportive care. Maintenance of patent airway with appropriate respiratory support. IV fluids, vasopressors, atropine. Platelet transfusion if thrombocytopenia is severe. Monitor vital signs, respiratory status, urinary output, and laboratory values for at least 24 hr after dose.

- If in an emergency, consider emergency departments or hospital emergency departments.

- Notify physician immediately of signs and symptoms of overdose.

- To reduce bleeding, consider transfusing fresh frozen plasma, washed red blood cells, and platelets or cryoprecipitate.

- Do not reuse vials, needles, or syringes.

Evaluation/Desired Outcomes

- Prevention of thrombus formation.

- Decreased incidence of death or recurrent MI.

- Prevention of ischemic complications.

- Prevention of venous thromboembolism (DVT and/or PE) in surgical or medical patients.

- Prevention of ischemic complications (with aspirin) in patients with unstable angina, non-Q-wave MI.
Renal Impairment
Subcut (Adults): Cancer patients receiving extended treatment of symptomatic VTE with CCr < 30 mL/min—Monitor anti-Xa levels (target 0.5–1.5 IU/mL).

NURSING IMPLICATIONS
Assessment
- Assess for signs of bleeding and hemorrhage (bleeding gums; nose bleed; unusual bruising; black, tarry stool; hematuria; fall in hematocrit or BP; nausea, vomiting, or diarrhea not explained by disease process).
- Notify health care professional if these occur.
- Subcut: Observe injection sites for hematoma, ecchymosis, or inflammation.
- Lab Test Considerations: Monitor CBC, platelet count, and stool for occult blood periodically during therapy. If thrombocytopenia occurs, monitor closely. If hematocrit unexpectedly falls, assess patient for potential bleeding sites.
- May cause asymptomatic increases in transaminase levels (AST, ALT).

Potential Nursing Diagnoses
Ineffective tissue perfusion (Indications)
Risk for injury (Side Effects)
Implementation
- First dose is administered 1–2 hr before surgery.
- Dalteparin cannot be used interchangeably (unit for unit) with unfractionated heparin or other low-molecular-weight heparins.
- Subcut: Administer deep subcut while patient is sitting or lying down. Dalteparin may be injected into the abdominal wall inferior and lateral to the umbilicus, the upper outer side of the thigh, or the upper outer quadrant of the buttock. Rotate injection sites daily. Inject entire length of needle at a 45° or 90° angle while lifting and holding skin between thumb and forefinger.
- Do not administer IM.
- Syringe Incompatibility: Do not mix with other injections or infusions.

Patient/Family Teaching
- Advise patient to report any symptoms of unusual bleeding or bruising, dizziness, itching, rash, fever, swelling, or difficulty breathing to health care professional immediately.
- Instruct patient not to take aspirin or NSAIDs without consulting health care professional while on dalteparin therapy.

Evaluation/Desired Outcomes
- Prevention of deep venous thrombosis and pulmonary embolism.
- Prevention of ischemic complications (with aspirin) in patients with unstable angina or non-Q-wave MI.
- Reduction of recurrence of VTE in patients with cancer.

Why was this drug prescribed for your patient?