desirudin (des-i-rude-in)

Therapeutic: anticoagulants
Pharmacologic: thrombin inhibitors

Indications
Prevention of deep-vein thrombosis (DVT) after hip replacement surgery.

Action
Selectively inhibits free and clot-bound thrombin. Inhibition of thrombin prevents activation of factors V, VIII, and XI; conversion of fibrinogen to fibrin; platelet adhesion and aggregation. Therapeutic Effects: Decreased incidence of DVT and subsequent pulmonary embolism after hip replacement surgery.

Pharmacokinetics
Absorption: Completely absorbed following subcutaneous administration.
Distribution: Binds specifically and directly to thrombin.
Metabolism and Excretion: 40–50% excreted unchanged by kidneys; some metabolism in kidneys and pancreas.
Half-life: 2 hr.

Therapeutic Effects:
Decreased incidence of DVT and subsequent pulmonary embolism after hip replacement surgery.

Contraindications/Precautions
Contraindicated in:
Hypersensitivity to natural or recombinant hirudins; Active bleeding; Coagulation disorders.
Use Cautiously in:
Renal impairment (dosage change recommended if CCr < 60 mL/min); Geriatric patients (due to age-related renal impairment); Hepatic impairment; Pregnancy (use only if benefits to mother outweigh fetal risk); Lactation, children (safety not established).

Adverse Reactions/Side Effects
GI: Nausea.
Hemat: BLEEDING, anemia.
Local: Injection site reactions, wound secretion.

Interactions
Drug-Drug: Dextran 40, systemic corticosteroids, thrombolytics, and other anticoagulants 7 min of bleeding (discontinue if possible; if not, monitor laboratory and clinical status closely). Agents altering platelet function including salicylates, NSAIDs, thienopyridine, glycoprotein IIb/IIIa antagonists also risk of bleeding.

Route/Dosage
Subcut (Adults): 15 mg every 12 hr, start 5–15 min prior to surgery, but after regional block (if used), for up to 12 days.

NURSING IMPLICATIONS
Assessment
● Assess for signs of bleeding (bleeding gums, nosebleed, unusual bruising; black, tarry stools; hematuria; fall in hematocrit or BP; guaiac-positive stools; bleeding from surgical sites). Notify physician if these occur.
● Assess for evidence of thrombosis. Symptoms depend on area of involvement. Notify physician if these occur.
● Monitor patients with epidural catheters frequently for signs of neurological impairment (midline back pain, numbness or weakness in lower limbs, bowel and/or bladder dysfunction). Notify physician immediately if these occur.
● Observe injection sites for hematoma, ecchymosis, or inflammation.

Lab Test Considerations: Monitor activated partial thromboplastin time (aPTT) daily in patients with increased risk of bleeding and/or renal impairment. Monitor serum creatinine daily in patients with renal impairment. Peak aPTT


should not exceed two times control. Below control or discontinue desirudin until aPTT is 2 times control; reduce at a lower dose.

● If patient is switched from oral anticoagulants to desirudin or from desirudin to oral anticoagulants, measure anticoagulant activity closely.

● Therapeutic time is not suitable for monitoring desirudin.


Potential Nursing Diagnoses

Ineffective tissue perfusion (Indications)

Implementation

● Reconstitute each vial with 0.5 mL of diluent provided for a concentration of 15.75 mg of desirudin/0.5 mL. Shake vial gently until fully reconstituted to a clear colorless solution. Do not administer solution that is discolored, cloudy, or contain a particulate matter. Reconstituted solution should be used immediately, but is stable for 24 hr at room temperature and protected from light. Discard unused solution.

● Subcut: Withdraw all reconstituted solution into syringe with a 26- or 27-gauge, 1/2-inch length needle. Inject entire contents subcutaneously which will deliver 15 mg. Patient should be sitting or lying down during administration. Rotate sites between left and right anterolateral and left and right posterolateral thigh or abdominal wall. Inject entire length of needle while pinching skin between thumb and forefinger; continue to pinch skin throughout injection. Do not rub injection site following injection to prevent bruising.

● Syringe Incompatibility: Do not mix with other diluents or medications.

Patient/Family Teaching

● Advise patient to report symptoms of unusual bleeding or bruising to health care professional immediately.

● Instruct patient not to take aspirin, NSAIDs, or herbal products during therapy without consulting health care professional.

Evaluation/Desired Outcomes

● Decreased incidence of DVT and subsequent pulmonary embolism after hip-replacement surgery.

Why was this drug prescribed for your patient?