denileukin diftitox (den-i-look dif-ti-tox)

**Classification**  
Therapeutic: antineoplastics  
Pharmacologic: cytotoxic proteins

**Pregnancy Category** C

**Indications**  
Persistent or recurrent cutaneous T-cell lymphoma whose malignant cells express the CD25 component of the interleukin-2 (IL-2) receptor.

**Action**  
A fusion protein that contains parts of diphtheria toxin fused to IL-2. Directs cytocidal action of diphtheria toxin to cells with IL-2 receptors. **Therapeutic Effects:** Regression of cutaneous T-cell lymphoma.

**Pharmacokinetics**  
**Absorption:** IV administration results in complete bioavailability.  
**Distribution:** 0.06–0.08 L/kg.  
**Metabolism and Excretion:** Metabolized by proteolytic breakdown.  
**Half-life:** 70–80 min.

**Contraindications/Precautions**  
Contraindicated in: Hypersensitivity to denileukin, diphtheria toxin, or interleukin-2; Lactation.  
Use Cautiously in: Geriatric patients (increased risk of adverse reactions); Preexisting cardiovascular disease (increased risk of vascular leak syndrome); OB, Pedi: Pregnancy or children (safety not established).

**Adverse Reactions/Side Effects**  
CNS: dizziness, headache, confusion, insomnia.  
EENT: loss of visual acuity, loss of color vision.  
CV: chest pain, edema, hypotension, tachycardia, arrhythmia, hypotension, ischemic heart disease, MI, syncope, tachycardia, accessory AV nodal pathway, AV block, atrial fibrillation, bradycardia, hypotension.  
Resp: cough, dyspnea, pharyngitis, rhinitis.  
GI: anorexia, diarrhea, nausea, vomiting, constipation, dyspepsia, dysphagia, flatulence, increased transaminases.  
GU: albuminuria, hematuria.  
F and E: hypocalcemia, dehydration, hypokalemia.  
Musculoskeletal: arthritis, myalgia, arthralgia.  
Local: injection site reactions.  
Metabol: hypoalbuminemia, weight loss.  
MS: myalgia, arthralgia.  
Mus: rhabdomyolysis.  
Neuro: paresthesia.  
Misc: CHF, high blood pressure.

**Interactions**  
**Drug-Drug:** None noted.

**Route/Dosage**  
**IV (Adults):** 9 or 18 mcg/kg/day for 5 consecutive days every 21 days.

**NURSING IMPLICATIONS**

**Assessment**  
- Monitor for signs and symptoms of a hypersensitivity reaction (hypotension, back pain, dyspnea, rash, chest pain or tightness, tachycardia, dyspnea or laryngismus, syncope, anaphylaxis) during and for 24 hr after administration. Depending on the severity of reaction, decrease rate or discontinue infusion. Keep an IV antihistamine, epinephrine, corticosteroid, and resuscitation close by during administration.
- Monitor for flu-like syndrome (fever or chills, asthenia, GI upset, myalgia, arthralgia). Usually occurs within several hours to days after infusion. Antipyretics and antiemetics may be used to treat symptoms.
- Assess patient for symptoms of vascular leak syndrome (hypertension, edema, hypovolemia, syncope, angioedema) during and for 24 hr after administration. Depending on the severity of reaction, decrease rate or discontinue infusion. Keep an IV antihistamine, epinephrine, corticosteroid, and resuscitation close by during administration.
- Assess patient for symptoms of rebound during therapy. May cause diarrhea, vomiting, and anorexia. Monitor weight, edema, blood pressure, and serum albumin levels routinely. Syndrome is usually self-limited and treatment is symptomatic.
- Monitor bowel function and fluid status. May cause diarrhea, vomiting, and anorexia. Monitor weight, edema, blood pressure, and serum albumin levels routinely. Syndrome is usually self-limited and treatment is symptomatic.
- Assess for rash throughout therapy. May require antihistamines or topical or oral corticosteroids.
- Monitor vision periodically during therapy. May cause loss of visual acuity and loss of color vision.

**NURSING CONSIDERATIONS**  
Before administration, patient’s malignant cells should be tested for CD25 expression.
Monitor CBC, blood chemistry panel including liver and renal function, and serum albumin before and weekly during therapy. May cause anemia, leukopenia, thrombocytopenia, hypokalemia, hypocalcemia, hematuria, albuminuria, and AST and ALT concentrations. Elevations in AST and ALT usually occur during the 1st course of therapy and resolve within 2–6 wk.

Monitor serum albumin levels before initiation of each course. May cause hypalbuminemia, with nadir occurring 1–2 wk after administration. Administration should be delayed until serum albumin levels >3 g/dL.

**Potential Nursing Diagnoses**

- Risk for infection (Adverse Reactions)
- Deficient knowledge, related to medication regimen (Patient/Family Teaching)

**Implementation**

- **High Alert:** Fatalities have occurred with chemotherapeutic agents. Before administering, clarify all ambiguous orders; double check single, daily, and course-of-therapy dose limits; have second practitioner independently double check original order, calculations and infusion pump settings. Administer only in settings equipped to provide cardiopulmonary resuscitation and close monitoring of patients.

**IV Administration**

- **Intermittent Infusion:** Frozen solution must be thawed to room temperature in refrigerator for up to 24 hr or at room temperature for 1–2 hr before preparation. Do not heat solution. Do not refreeze solution after thawing. Mix solution in vial by swirling gently; do not shake. After thawing, haze may be visible, but should clear when solution is at room temperature. Do not use solution unless clear, colorless, and without particulate matter. Prepare and hold denileukin in plastic syringe or IV bag; may adsorb to glass.

- **Diluent:** For each 1 mL of denileukin removed, no more than 9 mL of 0.9% NaCl should be added to infusion bag.

- **Concentration:** Denileukin concentration must be >15 mcg/mL during all steps of preparation for infusion. Withdraw calculated dose from vial and inject into empty infusion bag. Do not use an in-line filter. Administer within 6 hr of preparation; discard unused portion.

- **Rate:** Infuse over at least 15 min. Do not administer as a bolus.

- **Additive Incompatibility:** Do not physically mix with other drugs.

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**Patient/Family Teaching**

- Advise patient to notify health care professional if fever; chills; dyspepsia; diarrhea; cough, persistent cough, upper throat; signs of infection; edema; flu-like symptoms; bleeding gums, bruising, petechiae; or blood in urine, stool, or emesis occur.
- Caution patient to avoid crowds and persons with known infections. Instruct patient to use soft toothbrush and electric razor. Caution patient not to drink alcoholic beverages or take products containing aspirin or NSAIDs.

**Evaluation/Desired Outcomes**

- Regression of cutaneous T-cell lymphoma.

*Why was this drug prescribed for your patient?*