DOCEtaxel (doe-se-tax-el)

**High Alert**

**Docefrez, Taxotere**

**Classification**

Therapeutic: antineoplastics

Pharmacologic: taxoids

**Pregnancy Category D**

**Indications**

Breast cancer (locally advanced/metastatic breast cancer or with doxorubicin and cyclophosphamide as adjuvant treatment of node-positive disease). Non– small-cell lung cancer (locally advanced/metastatic) after failure on platinum regimen or with platinum at initial therapy. Advanced metastatic hormone-refractory prostate cancer (with prednisone). Squamous cell carcinoma of the head and neck (locally advanced) with cisplatin and fluorouracil. Gastric adenocarcinoma (locally advanced) with cisplatin and fluorouracil.

**Action**

Interferes with normal cellular microtubule function required for interphase and mitosis. Therapeutic Effects: Death of rapidly replicating cells, particularly malignant ones.

**Pharmacokinetics**

**Absorption:** IV administration results in complete bioavailability.

**Distribution:** Unknown.

**Metabolism and Excretion:** Extensively metabolized by the liver; metabolites undergo fecal elimination.

**Half-life:** 11.1 hr.

**TIME/ACTION PROFILE (effect on blood counts)**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
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<tbody>
<tr>
<td>IV</td>
<td>rapid</td>
<td>5–9 days</td>
<td>7 days</td>
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**Contraindications/Precautions**

**Contraindicated in:** Hypersensitivity; Hypersensitivity to polysorbate 80; Known alcohol intolerance; Neutrophil count < 1500/mm³; Liver impairment (serum bilirubin upper limit of normal, ALT and/or AST 1.5 times upper limit of normal), OB, Lactation: Pregnancy or lactation.

**Use Cautiously in:** OB: Patients with childbearing potential. OB or lactation: Pregnancy or lactation.

**Adverse Reactions/Side Effects**

CNS: Fatigue, weakness.

Resp: ACUTE RESPIRATORY DISTRESS SYNDROME, INTERSTITIAL LUNG DISEASE, PULMONARY FIBROSIS, bronchospasm, dyspnea.

CV: ASCITES, CARDIAC TAMPONADE, PERICARDIAL EFFUSION, PULMONARY EDEMA, peripheral edema.

GI: Diarrhea, nausea, stomatitis, vomiting.

Derm: Alopecia, edema, rash, dermatitis, desquamation, erythema, nail disorders.

Hemat: Anemia, leukopenia, thrombocytopenia, leukemia.

Local: Injection site reactions.

MS: Myalgia, arthralgia.

Neuro: Neurosensory deficits, peripheral neuropathy.

Misc: Hypersensitivity reactions, including anaphylaxis.

**Interactions**

**Drug-Drug:** q Bone marrow depression may occur with other antineoplastics or radiation therapy. Strong inhibitors of CYP3A4, including atazanavir, clarithromycin, indinavir, itraconazole, ketoconazole, nefazodone, nelfinavir, ritonavir, saquinavir, telithromycin, or voriconazole q levels and the risk of toxicity; avoid concomitant use (if need to use, docetaxel dose by 50%).

**Route/Dosage**

**IV (Adults):**

- Breast cancer—60–100 mg/m² every 3 wk; Breast cancer adjuvant therapy—75 mg/m² every 3 wk for 6 cycles (with doxorubicin and cyclophosphamide).
- Non– small-cell lung cancer—75 mg/m² every 3 wk (alone or with platinum).
- Prostate cancer—75 mg/m² every 3 wk (with oral prednisone).
- Advanced cell head and neck cancer—75 mg/m² every 3 wk (with cisplatin and fluorouracil).
- Gastric adenocarcinoma—75 mg/m² every 3 wk (with cisplatin and fluorouracil).

**NURSING IMPLICATIONS**

**Assessment**

- Monitor vital signs before and after administration.
- Assess infusion site for patency. Docetaxel is not a vesicant. If extravasation occurs, discontinue infusion immediately and aspirate the IV needle. Apply cold compresses to the site for 24 hr.

- **Pharmacology:**

  - **Genetic Implication:**

  - **CYP Indications:**

    - **Genetic Implication:**

      - **CYP Indications:**
Monitor for hypersensitivity reactions continuously during infusion. These are most common after the first and second doses of docetaxel. Reactions may consist of bronchospasm, hypotension, and/or chest pain.

Mild to moderate reactions may be treated symptomatically and infusion slowed or stopped until reaction subsides. Severe reactions require discontinuation of therapy and symptomatic treatment. Do not readminister docetaxel to patients with previous severe reactions. Severe edema may also occur. Weigh patients before each treatment. Fluid accumulation may result in edema, ascites, and pleural or pericardial effusions.

Monitor for bone marrow depression. Assess for bleeding (bleeding gums, bruising, petechiae; guaiac stools, urine, and emesis) and avoid IM injections and taking rectal temperatures if platelet count is low. Apply pressure to venipuncture sites for 10 min. Assess for signs of infection during neutropenia. Anemia may occur. Monitor for increased fatigue, dyspnea, and orthostatic hypotension. Monitor liver function studies (AST, ALT, alkaline phosphatase, bilirubin) before each cycle. If AST/ALT > 2.5 to <5 x upper limit of normal and AP > 2.5 x upper limit of normal, or AST/ALT > 5 x upper limit of normal and AP > 2.5 to <5 x ULN, reduce dose by 20%. If AST/ALT > 5 x upper limit of normal and/or AP > 5 x upper limit of normal discontinue therapy.

Potential Nursing Diagnoses
Risk for infection (Adverse Reactions)
Risk for injury (Adverse Reactions)

Implementation

High-alert medications have occurred with chemotherapy agents. Before administering, clarify all ambiguous orders; double-check sample, daily, and course-of-therapy dose limits; have second practitioner independently double-check order, calculations, and infusion pump settings. Do not confuse Taxotere (docetaxel) with Taxol (paclitaxel).

Premedicate with dexamethasone 8 mg twice daily for 3 days starting 1 day before docetaxel infusion to reduce incidence and severity of fluid retention and hypersensitivity reactions. Premedicate patients with hormone-refractory metastatic prostate cancer with PO dexamethasone 8 mg, at 12 hours, 3 hours and 1 hour before docetaxel infusion.

Solution should be prepared in a biologic cabinet. Wear gloves, gown, and mask while handling medication. Discard IV equipment in specially designated containers.

IV Administration

Intermittent Infusion: For injection concentrate: Before dilution, allow vials to stand at room temperature for 5 min. Solution is pale yellow to brownish yellow.

For powder for injection: Allow number of vials required for dose to stand at room temperature for 5 min. Reconstitute with diluent provided, 1 mL for 20 mg vial or 1 mL for 80 mg vial. Shake vial to dissolve. Solution should be clear; do not administer solutions that are discolored or contain a precipitate. If concentration of 0.74 mg/mL is not exceeded. Rotate gently to mix. Do not administer solutions that are cloudy or contain a precipitate. Diluted solution should be administered within 6 hours.

Concentration:
- For injection concentrate: 0.74 mg/mL
- For powder for injection: 2.4 mg/mL

Diluent:
- 0.9% NaCl, D5W

Withdraw required amount and inject into 250 mL bag of 0.9% NaCl or D5W. If a dose greater than 200 mg is required, use a larger volume diluent so that concentration of 0.74 mg/mL is not exceeded. Rotate gently to mix. Do not administer solutions that are cloudy or contain a precipitate. Skirled solution

CONTINUED
must be infused within 4 hrs. Concentration: 0.3 mg/mL to 0.74 mg/mL. Rate: Administer over 1 hr.

Y-Site Compatibility: acyclovir, alfentanil, allopurinol, amifostine, amikacin, amphotericin B lipid complex, aminoglycosides, aminophylline, amiodarone, amphotericin B colloidal, amphotericin B liposome, ampicillin, ampicillin/sulbactam, anidulafungin, argatroban, atracurium, azithromycin, aztreonam, bivalirudin, bleomycin, bumetanide, buprenorphine, busulfan, butorphanol, calcium chloride, calcium gluconate, carboplatin, carmustine, captopril, colchicine, colistimethate, colistin, colostrum, cefepime, cefotaxime, ceftriaxone, cefuroxime, chlorambucil, cyclophosphamide, cyclosporine, cyclosporine, cyclosporine, dactinomycin, dexamethasone, dextran 40, dexpanthenol, doxorubicin, doxorubicin liposome, docetaxel, dolasetron, dopamine, doripenem, doxacurium, doxorubicin, droperidol, enalapril, ephedrine, epinephrine, etoposide, etoposide phosphate, famotidine, fenoldopam, fentanyl, fluconazole, fludarabine, fluorouracil, foscarnet, fosphenytoin, furosemide, ganciclovir, gemcitabine, gentamicin, glycopyrrolate, granisetron, haloperidol, heparin, hydralazine, hydrocortisone, hydromorphone, ifosfamide, imipenem/cilastatin, insulin, irinotecan, isoproterenol, ketorolac, leucovorin, levofloxacin, levorphanol, lidocaine, linezolid, lorazepam, magnesium sulfate, mannitol, meperidine, meroxidase, mitomycin, mitoxantrone, mitoxantrone, monoclonal antibodies, morphine, mupirocin, mycophenolate, nafarelin, nalbuphine, naldixic acid, neomycin, neostigmine, netilmicin, nizatidine, octreotide, ondansetron, oxaliplatin, palonosetron, pamidronate, pancuronium, pantoprazole, pemetrexed, pentamidine, pentazocine, pentobarbital, phenobarbital, phenylephrine, piperacillin/tazobactam, potassium acetate, potassium chloride, potassium phosphates, procainamide, prochlorperazine, propranolol, quinupristin/dalfopristin, ranitidine, remifentanil, rituximab, rocuronium, sodium acetate, sodium bicarbonate, sodium phosphates, succinylcholine, sufentanil, tacrolimus, teniposide, theophylline, thiotepa, ticarcillin/clavulanate, tigecycline, tirofiban, tobramycin, tolazoline, trastuzumab, trimethoprim/sulfamethoxazole, vancomycin, vecuronium, vinblastine, vincristine, voriconazole, zidovudine, zoledronic acid.

Y-Site Incompatibility: amphotericin B colloidal, amphotericin B liposome, dextran 40, dexamethasone, liposome, dexamethasone, liposome, dantrolene, doxorubicin liposome, idarubicin, methylprednisolone, nalbuphine, phenytoin.

Patient/Family Teaching

● Instruct patient to report symptoms of hypersensitivity reactions (respiratory symptoms; edema of face, lips, tongue; throat; trouble swallowing; fever; rash; redness all over body) to health care professional immediately.

● Advise patient to wash hands carefully with soap and water before and after exposure to animals or visitors, and to avoid proximity to persons with known infections. Patient should be cautioned not to receive any vaccinations without advice of health care professional.

● Advise patient to notify health care professional if fever (101°F or higher) occurs; chills; sore throat; signs of infection; bleeding gums; bruising; petechiae; or blood in urine, stool, or emesis occur. Caution patient to avoid crowds and persons with known infections.

● Patient should be cautioned not to drink alcoholic beverages or take products containing salicylates.

● Patient is at increased risk for developing neutropenia.

● Instruct patient to notify health care professional if signs of fluid retention (peripheral edema in the lower extremities, weight gain, dyspnea), abdominal pain, yellow skin, weakness, gait disturbances, swelling of the feet, or joint or muscle ache occur.

● Instruct patient to inspect oral mucosa for redness and ulceration. If mouth sores occur, advise patient to use a soft toothbrush and electric razor.

● Instruct patient to notify health care professional of all Rx or OTC medications, vitamins, or herbal products being taken and consult health care professional before taking any new medications.

● Instruct patient to notify health care professional if pregnancy is planned or suspected or if breast feeding.

● Emphasize the need for periodic lab tests to monitor for side effects.
Evaluation/Desired Outcomes
- Decrease in size or spread of malignancy in women with advanced breast cancer.
- Decrease in size or spread of malignancy in locally advanced or metastatic non-small cell lung cancer, squamous cell carcinomas of the head and neck and gastric adenocarcinomas.
- Decreased size or spread of advanced metastatic hormone-refractory prostate cancer.

Why was this drug prescribed for your patient?