Oxaliplatin (ox-a-li-pla-tin)

Eloxatin

Classification
Therapeutic: antineoplastics
Pharmacologic: alkylating agents

Pregnancy Category D

Indications

Action
Inhibits DNA replication and transcription by incorporating platinum into normal cross-linking (cell-cycle nonspecific). Therapeutic Effects: Death of rapidly replicating cells, particularly malignant ones.

Pharmacokinetics
Absorption: IV administration results in complete bioavailability.
Distribution: Extensive tissue distribution.
Protein Binding: 90% (platinum).
Metabolism and Excretion: Undergoes rapid and extensive nonenzymatic bio-transformation; excreted mostly by the kidneys. Half-life: 391 hours.

TIME/ACTION PROFILE
ROUTE ONSET PEAK DURATION
IV unknown unknown unknown

Contraindications/Precautions
Contraindicated in: Hypersensitivity; Hypersensitivity to other platinum compounds.

Use Cautiously in: Renal impairment; Geri: ↑ risk of adverse reactions; Pedi: Safety not established.

Adverse Reactions/Side Effects
Adverse reactions are more common with the combination of oxaliplatin, 5-FU, and leucovorin. CNS: Nervousness, Peripheral neurotoxicity, numbness, tingling, distal paresthesias, dysarthria, vertigo, sensory neuralgia, hearing loss, paresthesias, ataxia, dizziness, blurred vision, diplopia, visual abnormalities, headache, drowsiness, anxiety. CV: chest pain, edema, hypertension, hypotension, thromboembolism. Resp: Coughing, dyspnea, respiratory distress. GI: Diarrhea, nausea, vomiting, abdominal pain, anorexia, pseudomembranous colitis, stomatitis, stomatitis, mouth ulcers, dysphagia, dysphonia, dysphagia, mouth irritation, rhinoconjunctivitis, sinusitis, conjunctivitis, hiccups, dyspepsia. Hemat: Neutropenia, thrombocytopenia, anemia, bleeding, eosinophilia. MS: Back pain. Local: Injection site reactions. Respiratory: Bronchospasm, upper respiratory tract infection.

Interactions
Drug-Drug: Concurrent use of nephrotoxic agents may ↑ toxicity.

Route/Dosage
IV (Adults): Day 1—65 mg/m² with leucovorin 200 mg/m² at the same time over 2 hr, followed by 5-fluorouracil 600 mg/m² over 2–4 min, then 5-fluorouracil 600 mg/m² as a 22 hr infusion. Day 2—leucovorin 200 mg/m² over 2 hr, followed by 5-fluorouracil 600 mg/m² over 2–4 min, then 5-fluorouracil 2000 mg/m² as a 22 hr infusion. Cycle is repeated every 2 wk. Dosage reduction/alteration may be required for neurotoxicity or other serious adverse effects.
Renal Impairment
IV (Adults): CCr <30 mL/min—dose on Day 1 to 65 mg/m².

NURSING IMPLICATIONS

Assessment
● Assess for peripheral sensory neuropathy. Acute onset occurs within hr to 1–2 days after dosing, resolves within 3–4 days, and frequently recurs with further dosing (transient paresthesias, dysesthesias, and hypoesthesia of hands, feet, and perioral area). Symptoms may be exacerbated by exposure to cold or cold objects, mouth or during symptoms. May also cause pain, numbness, and tingling of fingers and toes. Persistent (>14 days) causes paresthesias, dysesthesias, and hypoesthesia of hands, feet, perioral area, or throat. Assess for bone pain, abnormal tongue sensation, dysphagia, eye pain, and a feeling of chest pressure. Persistent (≥30 days) causes paresthesias, dysesthesias, and hypoesthesia of hands, feet, perioral area, or throat. May also cause pain, numbness, and tingling of fingers and toes. Persistent neuropathy may occur without prior acute neuropathy and may improve upon discontinuation of oxaliplatin.
● Assess for signs of pulmonary fibrosis (non-productive cough, dyspnea, crackles, radiological infiltrates). May be fatal. Discontinue oxaliplatin if pulmonary fibrosis occurs.

● Monitor for signs of anaphylaxis (rash, hives, swelling or lips or tongue, sudden cough). Epinephrine, corticosteroids, and antihistamines should be readily available.

● Monitor for signs and symptoms of reversible posterior leukoencephalopathy syndrome (headache, altered mental functioning, seizures, abnormal vision from blurriness to blindness, associated or not with hypertension).

● Lab Test Considerations: Monitor WBC with differential, hemoglobin, platelet count, and blood chemistries (ALT, AST, bilirubin, and creatinine) before each oxaliplatin cycle.

Potential Nursing Diagnoses

Nausea (Adverse Reactions)

Implementation

● Extravasation may result in local pain and inflammation that may be severe and lead to necrosis.

● Premedicate patient with antiemetics with or without dexamethasone. Prehydration is not required.

IV Administration

● pH: 4.8–7.5.

● Intermittent Infusion: Protect concentrated solution from light; do not freeze.

Diluent:

Must be further diluted with 250–500 mL of D5W. Do not use 0.9% NaCl or any other chloride-containing solution for final solution. Do not use aluminum needles or administration sets containing aluminum parts; aluminum may cause degradation of platinum compounds. May be stored in refrigerator for 24 hr or 6 hr at room temperature. Diluted solution is not light-sensitive. Do not administer solutions that are discolored or contain particulate matter.

Concentration:

0.2–0.6 mg/mL.

Rate:

Administer oxaliplatin simultaneously with leucovorin in separate bags via Y-line over 120 min. Prolonging infusion time to 6 hr may decrease acute toxicities. Infusion times for fluorouracil and leucovorin do not need to change.

● Y-Site Compatibility:

alemtuzumab, alfentanil, amifostine, amikacin, aminocaproic acid, amiodarone, amphotericin B colloid, amphotericin B lipid complex, amphotericin B liposome, ampicillin, ampicillin/sulbactam, anidulafungin, argatroban, atracurium, azithromycin, aztreonam, bivalirudin, bleomycin, bumetanide, buprenorphine, butorphanol, calcium chloride, calcium gluconate, carboplatin, caspofungin, cefotetan, cefoxitin, ceftazidime, ceftriaxone, cefuroxime, chlorambucil, ciprofloxacin, clarithromycin, clopidogrel, cyclophosphamide, cyclosporine, dactinomycin, dacarbazine, daunorubicin, dexamethasone sodium phosphate, dexrazoxane, dexamethasone, diltiazem, diphenhydramine, dolasetron, doxazosin, doxetaxel, droperidol, epinephrine, etoposide, etoposide phosphate, famotidine, fenoldopam, fentanyl, fludarabine, fluticasone, foscarnet, fosphenytoin, furosemide, gemcitabine, gentamicin, glibenclamide, glycopyrrolate, granisetron, haloperidol, heparin, hetastarch, hydralazine, hydrocortisone, hydromorphone, idarubicin, ifosfamide, imipenem/cilastatin, imipramine, insulin, irinotecan, isoproterenol, ketorolac, labetalol, leucovorin calcium, levothyroxine sodium, levoprolol, lidocaine, linezolid, lorazepam, magnesium sulfate, mannitol, marcaine, meperidine, mesna, methotrexate, methylprednisolone sodium succinate, mitomycin, mitoxantrone, morphine, mupafylline, nabumetone, nalbuphine, naloxone, nesiritide, nicardipine, nitroglycerin, nitroprusside, norepinephrine, octreotide, ondansetron, palonosetron, pancuronium, pemetrexed, pentamidine, pentazocine, phentolamine, phenylephrine, potassium acetate, potassium chloride, potassium phosphates, prasugrel, prostaglandin E1, prostaglandin E2, propranolol, quinupristin/dalfopristin, ranitidine, rocuronium, sodium acetate, sodium citrate, sodium succinate, sucralfate, succinylcholine, sufentanil, tacrolimus, teniposide, theophylline, thiotepa, ticarcillin/clavulanate, tigecycline, tirofiban, tobramycin, tolazoline, topotecan, trimethoprim/sulfamethoxazole, vancomycin, vasopressin, vecuronium, verapamil, vinblastine, vincristine, vinorelbine, voriconazole, zidovudine, zolendronic acid.

● Y-Site Incompatibility: cefepime, cefoperazone, dantrolene, diazepam. Alkaline solutions, chloride-containing solutions. Infusion line should be finished with D5W prior to administration of other solutions or medications.

Patient/Family Teaching

● Inform patients and caregivers of potential for peripheral neurotoxicity and potential for exposure to cold or cold objects. Advise patient to avoid cold drinks, use of ice in drinks or ice packs, and to cover exposed skin prior to exposure to cold.
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cold temperature or cold objects. Caution patients to cover themselves with a blanket during infusion, do not breathe deeply when exposed to cold air, wear warm clothing, and cover mouth and nose with a scarf or pull-down ski cap to warm the air that goes to their lungs, do not take things from the freezer or refrigerator without wearing gloves, drink fluids warm or at room temperature, always drink through a straw, do not use ice chips for nausea, be aware that most metals (car doors, mailbox) are cold, wear gloves to touch, do not run air conditioning at high levels in house or car, if hands get cold wash them with warm water. Advise health care professional of any cold since last treatment before next infusion.

● Instruct patient to notify health care professional immediately if signs of reversible posterior leukoencephalopathy syndrome, low blood cell counts (fever, persistent diarrhea, infection) or if persistent vomiting, signs of dehydration, cough or breathing difficulty, thirst, dry mouth, dizziness, decreased urination, signs of infection (fever (temperature of >100.5°F), cough that brings up mucus, chills or shivering, burning or pain on urination, pain on swallowing, sore throat, redness or swelling at intravenous site) or signs of allergic reactions occur.

● Advise female patient to use effective contraception during therapy and to avoid breastfeeding; oxaliplatin is teratogenic.

Evaluation/Desired Outcomes

● Decrease in size and spread of malignancies.

Why was this drug prescribed for your patient?