**epirubicin** (ep-i-roo-bi-sin)
Elixia, Pharmorubicin F/S

**Classification**
Therapeutic: antineoplastics
Pharmacologic: anthracyclines

**Pregnancy Category D**

**Indications**
A component of adjuvant therapy for evidence of axillary tumor involvement following resection of primary breast cancer.

**Action**
Inhibits DNA and RNA synthesis by forming a complex with DNA.

**Therapeutic Effects:**
Death of rapidly replicating cells, particularly malignant ones.

**Pharmacokinetics**

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

**Distribution:** Rapidly and widely distributed; concentrates in RBCs.

**Metabolism and Excretion:** Extensively and rapidly metabolized by the liver and other tissues.

**Half-life:** 35 hr.

**TIME/ACTION PROFILE (effect on WBCs)**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
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<tbody>
<tr>
<td>IV</td>
<td>unknown</td>
<td>10–14 days</td>
<td>21 days</td>
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</tbody>
</table>

**Contraindications/Precautions**

- **Contraindicated in:** Hypersensitivity to epirubicin, other anthracyclines, or related compounds; baseline neutrophil count <1500 cells/mm³; Heart failure; Recent MI; Severe arrhythmias; Previous treatment with anthracyclines up to the maximum cumulative dose; Severe hepatic dysfunction; Concurrent radiation therapy; OB, Lactation: Significant risk for fetal or infant harm.
- **Use Cautiously in:** Cardiovascular disease, prior or concomitant radiation therapy to mediastinal or pericardial area, previous therapy with anthracyclines, or concomitant use of cardiotoxic drugs; Severe renal impairment (serum creatinine >5 mg/dL); Concurrent use of cimetidine; Concurrent use of other cardiotoxic drugs; Depressed bone marrow reserve; OB: Fetal risk not established; OB, Lactation: Significant risk for fetal or infant harm.

**Adverse Reactions/Side Effects**

- **CNS:** Lethargy
- **CV:** Cardiotoxicity (dose-related), bradycardia, heart block, thromboembolism, ventricular tachycardia, MI, tachycardia, atrioventricular block, pericardial effusion, radiation recall reaction, rash, skin/nail hyperpigmentation, Endo: Pancreatic insufficiency, Oncologic: Alopecia, flushing, itching, photosensitivity, radiation-recall reaction, rash, skin/nail hyperpigmentation, Local: Radiation-site reactions, phlebitis at IV site, tissue necrosis, Metabolic: Hyperuricemia, Misc: anorexia, nausea.

**Interactions**

- **Drug-Drug:** Cimetidine: Increase blood levels and risk of serious toxicity; avoid concurrent use. Additive hematologic and gastrointestinal toxicity with other antineoplastic or radiation therapy. Use with other anthracyclines may ↑ risk of cardiotoxicity; avoid concurrent use. May ↑ antibody response to live-virus vaccines and ↑ risk of adverse reactions. Trastuzumab may ↑ risk of cardiotoxicity; avoid epirubicin <2 weeks after stopping trastuzumab therapy.

**Route/Dosage**

- **IV (Adults):** 100–120 mg/m² repeated in 3–4 wk cycles (total dose may be given on day 1 or split and given in equally divided doses on day 1 and day 8 of each cycle (combination regimens may employ concurrent 5-fluorouracil and cyclophosphamide).

**Dosage Adjustment**

- **Hepatic Impairment**
  - **IV (Adults):** Bilirubin 1.2–3 mg/dL or AST 2–4 times upper limit of normal—use 50% of recommended starting dose; Bilirubin >3 mg/dL or AST >4 times upper limit of normal—use 25% of recommended starting dose.

**Nursing Implications**

**Assessment**
- Monitor for bone marrow depression, Assess for bleeding (bleeding gums, bruising, purpura, gastrointestinal bleeding, urination, and emesis) and avoid constant use of cardiotoxic drugs (↑ risk of cardiotoxicity). Severe renal impairment (serum creatinine >5 mg/dL), consider ↓ dose. Be cautious in patients <12 yr of age or ↓ doses if ↓ GFR (use 25% of recommended starting dose). Depressed bone marrow reserve; OB: Fetal risk not established; ↑ risk of acute cardiotoxicity and chronic HF; ↑ risk of breast cancer in female patients >50 yr.

**Adverse Reactions/Side Effects**

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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.

- Severe nausea and vomiting may occur. Administer parenteral antiemetic agents 30–45 min prior to therapy and routinely around the clock for the next 24 hr as indicated. Monitor amount of emesis and notify health care professional if emesis exceeds guidelines to prevent dehydration.

- Measure cardiac function, using ECG and a multigated radionuclide angiography (MUGA) scan or an ECHO, prior to therapy. Perform repeated evaluations of left ventricular ejection fraction during therapy. Monitor for development of signs of cardiac toxicity, which may occur early (ST-T wave changes, sinus tachycardia, and extrastoles) or late (may occur months to yr after termination of therapy). Delayed cardiac toxicity is characterized by cardiomyopathy, tachycardia, peripheral edema, dyspnea, rales/crackles, weight gain, hepatomegaly, ascites, pleural effusions. Toxicity is usually dependent on cumulative dose.

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epirubicin

- plate, lamivudine, enalapril, ibrutinib, fexofenadine, gemcitabine, gemtuzumab, granisetron, heparin, hydrocortisone sodium succinate, hydroxyzine, isoflurane, imipenem, imipramine, insulin, loratadine, midazolam, mitomycin, morphine, meprobamate, metronidazole, methotrexate, metoprolol, melphalan, meperidine, mesna, methylprednisolone, mexiteline, methylenediamine, mycophenolate mofetil, nalbuphine, nelfinavir, nifedipine, nitrofurantoin, nitroglycerin, octreotide, ondansetron, oxaliplatin, palonosetron, pancuronium, penicillin, pentamidine, pentazocine, phenylephrine, potassium chloride, procainamide, prochlorperazine, promethazine, prazosin, propofol, pemetrexed, propranolol, quinapril, ranitidine, rifampin, rocuronium, sodium acetate, succinylcholine, sufentanil, tacrolimus, teniposide, theophylline, thiotepa, tirofiban, tobramycin, vancomycin, vasopressin, vecuronium, verapamil, vinblastine, vincristine, vinorelbine, voriconazole, zidovudine, zolendronic acid.

- Acyclovir, allopurinol, aminophylline, amphotericin B colloidal, amphotericin B lipid complex, amphotericin B liposome, ampicillin, ampicillin/sulbactam, aztreonam, clarithromycin, colistimethate, co-trimoxazole cefepime, cefoperazone, cefotaxime, cefuroxime, dexamethasone sodium phosphate, diazepam, dexamethasone sodium phosphate, flucloxacillin, flucytosine, flucytosine, fluoroquinolones, fosfomycin, fosfomycin, foscarnet, fosphenytoin, furosemide, ganciclovir, heparin, hydrocortisone sodium succinate, ketorolac, leucovorin, magnesium sulfate, meropenem, methohexital, methylprednisolone, nafcillin, pantoprazole, pemetrexed, pentobarbital, phenobarbital, phenytoin, piperacillin/tazobactam, potassium phosphates, sodium bicarbonate, sodium phosphates, thiopental, ticarcillin/clavulanate, tigecycline, trimethoprim/sulfamethoxazole.

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Patient/Family Teaching

- Instruct patient to notify health care professional promptly if fever, sore throat, signs of infection; bleeding gums; bruising; petechiae; blood in stools, urine, or emesis; increased fatigue; dyspnea; or orthostatic hypo tension occurs. Caution patient to avoid crowds and persons with known infections. Instruct patient to use soft toothbrush and electric razor and to avoid falls. Patient should be cautioned not to drink alcoholic beverages or take medication containing aspirin or NSAIDs, because these may precipitate gastric bleeding.

- Instruct patient to report pain at injection site immediately.

- Instruct patient to inspect oral mucosa for erythema and ulceration. If ulceration occurs, advise patient to use sponge brush, rinse mouth with water after eating and drinking, and confer with health care professional if mouth pain interferes with eating. Pain may require treatment with opioid analgesics. Patients should receive follow-up care as needed.

- Advise patient that this medication may have teratogenic effects. Contraception should be used during and for at least 3 mo after therapy is concluded. Instruct patient to notify health care professional before attempting therapy that this medication may cause irreversible gonadal suppression.

- Instruct patient to notify health care professional if all Rx or OTC medications, vitamins, or herbal products are being taken and to avoid concurrent use of alcohol or OTC medications and herbal products, especially cold preparations, without consulting health care professional, especially concurrently.

- Instruct patient to notify health care professional immediately if vomiting, dehydration, fever, evidence of infection, symptoms of HF, or pain at injection site occurs. Patients should be informed of the risk of irreversible cardiac damage and treatment-related leukopenia.

- Discuss the possibility of hair loss with patient. Instruct patient to avoid skin irritation at site of injection.

- Instruct patient to notify health care professional of all Rx or OTC medications, vitamins, or herbal products being taken and to avoid concurrent use of alcohol or OTC medications and herbal products, especially cimetidine, without consulting health care professional, especially concurrently.

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- Emphasize the need for periodic lab tests to monitor for side effects.

Evaluation/Desired Outcomes

- Instruct patient to notify health care professional promptly if fever, sore throat, signs of infection; bleeding gums; bruising; petechiae; blood in stools, urine, or emesis; increased fatigue; dyspnea; or orthostatic hypotension occurs. Caution patient to avoid crowds and persons with known infections. Instruct patient to use soft toothbrush and electric razor and to avoid falls. Patient should be cautioned not to drink alcoholic beverages or take medication containing aspirin or NSAIDs, because these may precipitate gastric bleeding.

Why was this drug prescribed for your patient?