Erlotinib (er-lo-ti-nib)
Tarceva

**Classification:** Therapeutic: antineoplastics
Pharmacologic: enzyme inhibitors

**Pregnancy Category:** D

**Indications**
First-line therapy of metastatic non-small cell lung cancer that has epidermal growth factor exon 19 deletions or exon 21 substitution mutations. Maintenance treatment of locally advanced/vasi late non-small cell lung cancer when disease has not progressed after four cycles of platinum-based first-line chemotherapy. Locally advanced/metastatic non-small cell lung cancer that has not responded to ≥1 previous chemotherapy regimen. First-line therapy for locally advanced, surgically unresectable, or metastatic pancreatic cancer (with gemcitabine).

**Action**
Inhibits the enzyme tyrosine kinase, which is associated with human epidermal growth factor receptor (EGFR); blocks growth stimulation signals in cancer cells.

**Therapeutic Effects:** Decreased spread of lung or pancreatic cancer with increased survival.

**Pharmacokinetics**
- **Absorption:** 60% absorbed; bioavailability up to 100% with food.
- **Distribution:** Unknown.
- **Protein Binding:** 93% protein bound.
- **Metabolism and Excretion:** Mostly metabolized by the liver (CYP3A4 enzyme system).
- **Half-life:** 36 hr.

**TIME/ACTION PROFILE (blood levels)**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
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<tr>
<td>Oral</td>
<td>unknown</td>
<td>4 hr</td>
<td>24 hr</td>
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**Contraindications/Precautions**
- **Contraindicated in:** OB, Lactation: Pregnancy or lactation.
- **Use Cautiously in:** Hepatic impairment; Previous chemotherapy/radiation, preexisting lung disease, metastatic lung disease (may increase risk of interstitial lung disease); Patients with child-bearing potential; Pedi: Safety not established.

**Adverse Reactions/Side Effects**
- **CNS:** CEREBROVASCULAR ACCIDENT (pancreatic cancer patients), fatigue.
- **CV:** MYOCARDIAL INFARCTION/ISCHEMIA (pancreatic cancer patients).
- **EENT:** conjunctivitis, corneal perforation, corneal ulceration.
- **Resp:** INTERSTITIAL LUNG DISEASE, dyspnea, cough.
- **GI:** HEPATOTOXICITY, GI PERFORATION, diarrhea, abdominal pain, anorexia, nausea, stomatitis, vomiting, liver enzymes.
- **Derm:** BULLOUS AND EXFOLIATIVE SKIN DISORDERS, rash, dry skin, pruritus.
- **GU:** RENAL FAILURE.
- **Hemat:** microangiopathic hemolytic anemia with thrombocytopenia (pancreatic cancer patients).

**Drug Interactions**
- **Drug-Drug:** Strong inhibitors of CYP3A4, including atazanavir, clarithromycin, indinavir, itraconazole, ketoconazole, nefazodone, nelfinavir, ritonavir, saquinavir, telithromycin, or voriconazole may increase levels and the risk of toxicity; consider dose reduction. Strong inducers of CYP3A4, including rifampin, rifabutin, rifapentine, phenytoin, carbamazepine, or phenobarbital may decrease levels and may reduce response; alternative therapy or dose should be considered. Ciprofloxacin may decrease levels and the risk of toxicity. Smoking may increase levels and the risk of toxicity. Smoking may increase levels of warfarin and may increase risk of bleeding with warfarin. Levels of proton pump inhibitors and H2 blockers may be increased. Cimetidine, metoclopramide, midazolam levels. May increase levels of warfarin.

**Nursing Implications**
- **Assess respiratory status prior to and periodically during therapy. If dyspnea, cough or fever occur, discontinue erlotinib; assess for interstitial lung disease, and institute treatment as needed.**
Assess for diarrhea. Usually responds to loperamide but may require dose reduction or discontinuation of therapy if patient becomes dehydrated.

Assess skin throughout therapy. If bullous, blistering, and exfoliative skin conditions, including Stevens-Johnson syndrome/toxic epidermal necrolysis, occur, interrupt or discontinue treatment. Skin rash may require treatment with corticosteroids or anti-infectives with anti-inflammatory properties; acne treatments may aggravate dry skin and erythema.

Assess eyes periodically during therapy. If acute or worsening eye disorders or pain occur, interrupt or discontinue therapy.

Assess for GI pain. Patients receiving concomitant anti-angiogenic agents, corticosteroids, NSAIDs, and/or taxane-based chemotherapies, or who have prior history of peptic ulceration or diverticular disease, are at increased risk for GI perforation. Permanently discontinue erlotinib in patients who develop gastrointestinal perforation.

Lab Test Considerations: Monitor liver function tests (AST, ALT, bilirubin, alkaline phosphatase) periodically during therapy. Dose reduction or discontinuation of therapy should be considered if severe changes in liver function (total bilirubin ≥ 3 times upper limit of normal and/or transaminases ≥ 5 times upper limit of normal) occur.

Monitor renal function and electrolytes in patients at risk for dehydration. Withhold therapy if dehydration occurs.

Monitor INR regularly in patients taking warfarin. May cause increased INR.

Potential Nursing Diagnoses

Ineffective breathing pattern (Side Effects)

Implementation

PO: Administer at least 1 hr before or 2 hr after food.

Patient/Family Teaching

• Instruct patient to take erlotinib as directed.

• Advise patient to notify health care professional if severe or persistent diarrhea, nausea, anorexia, vomiting, onset or worsening of dyspepsia, unexplained deepness of cough, or eye irritation occur.

• Advise patient to wear sunscreen and protective clothing to decrease skin reactions.

• Caution patient to use highly-effective contraceptive during and for at least 2 wk after completion of therapy. Advise female patients to notify health care professional if pregnancy is planned or suspected or if breast feeding.

Evaluation/Desired Outcomes

• Decrease in spread of non–small cell lung or pancreatic cancer with increased survival.

Why was this drug prescribed for your patient?