etravirine (e-tra-ver-een)

Intended Use: Antiretrovirals

Pharmacologic: Non-nucleoside reverse transcriptase inhibitors

Pregnancy Category: B

Indications: HIV-1 infection (with other antiretrovirals) in treatment-experienced patients who have evidence of viral replication and HIV-1 strains resistant to a non-nucleoside reverse transcriptase inhibitor (NNRTI) and other antiretrovirals.

Action: Binds to the enzyme reverse transcriptase, which results in disrupted viral DNA synthesis. Therapeutic Effects: Evidence of decreased viral replication and reduced viral load with slowed progression of HIV and its sequelae.

Pharmacokinetics: Absorption: Well absorbed following oral administration. Food enhances absorption. Distribution: Unknown. Protein Binding: 99.9%. Metabolism and Excretion: Mostly metabolized by the liver (CYP3A4, CYP2C9, and CYP2C19 enzyme systems); minimal renal excretion; mostly eliminated in feces as unchanged drug and metabolites. Half-life: 41 hr.

TIME/ACTION PROFILE (blood levels)

ROUTE ONSET PEAK DURATION
PO unknown 2.5–4 hr 12 hr

Contraindications/Precautions: Contraindicated in: Concurrent use with other NNRTIs, rifampin, rifapentine, St. John’s wort. Use Cautiously in: Concurrent use of antiarrhythmics, anticonvulsants, antibiotics, clarithromycin, erythromycin, disopyramide, disulfiram, doxycycline, docetaxel, dexamethasone, emetine, ethanol (alcoholic use), azathioprine, azole antifungals, azoles, hydroxychloroquine, indinavir, isoniazid, hydroxyurea, immunosuppressants, irinotecan, itraconazole, ketoconazole, lamotrigine, lidocaine, linezolid, methadone, midazolam, mitomycin, mycophenolate, mycophenolic acid, nevirapine, nitrofurantoin, nifedipine, norethindrone, nortriptyline, ondansetron, oxaliplatin, palonosetron, prednisone, prochlorperazine, proguanil, propranolol, quinidine, ranitidine, ranolazine, rifabutin, rifaximin, rifapentine, ritonavir, roﬁbuvir, roxithromycin, ranitidine, theophylline, troleandomycin, trimethoprim, verapamil, voriconazole, zidovudine, zonisamide. Use only when adequately supervised by a specialist. Children: Safety not established.


Interactions: Drug-Drug: Etravirine is a substrate of the CYP3A4, CYP2C9, and CYP2C19 enzyme systems; other medications that induce or inhibit these systems may be expected to alter the response to etravirine. Etravirine is an inducer of CYP3A4 and an inhibitor of CYP2C9 and CYP2C19. The effects of medications that are substrates of these enzyme systems may be altered by concurrent use. Concurrent use with other NNRTIs including efavirenz, nevirapine, and delavirdine may lead to loss of effectiveness and should be avoided. Concurrent use with protease inhibitors (PIs) including nelfinavir and indinavir may lead to altered plasma levels and should be monitored with concurrent low dose ritonavir. Concurrent use with higher dose ritonavir, combination tipranavir/ritonavir, fosamprenavir/ritonavir, saquinavir/ritonavir, atazanavir/ritonavir, lopinavir/ritonavir, and maraviroc may lead to elevated drug levels and should be avoided. Concurrent use with licopinavir/ritonavir may raise levels of both drugs; concurrent use with saquinavir/ritonavir should be undertaken cautiously. Concurrent use with antithrombotics including anidulafungin, dipyridamole, diclofenac, ibuprofen, metformin, quinapril, propafenone, and quinidine, blood level monitoring recommended. Blood levels and effects may be elevated by anticoagulants including warfarin, clopidogrel, and phenprocoumon, and plasma and blood lipids monitoring recommended. Blood levels and effects may be increased by antiretrovirals including ritonavir, efavirenz, and nevirapine, ritonavir should be used with caution. Concurrent use with voriconazole voriconazole may raise levels of both drugs. Concurrent use with voriconazole voriconazole may raise levels of both drugs. Use with voriconazole voriconazole should be undertaken cautiously.
Drug Interactions

- Concomitant use of itraconazole and ketoconazole (dose adjustments may be necessary).
- Concomitant use with fluconazole may result in decreased plasma levels. May alter levels and effectiveness; avoid concurrent use. Rifampin and rifapentine may decrease plasma levels and effectiveness; avoid concurrent use. Rifabutin should only be used without a protease inhibitor/ritonavir combination. May decrease blood levels and effectiveness by inducing CYP3A4; other agents should be considered. May alter blood levels and effectiveness of fluconazole, clarithromycin, and telaprevir.
- May alter blood levels and sedation from diazepam; monitor for effects. Levels and effectiveness may be increased by cimetidine.
- May alter blood levels and effects of itraconazole, ketoconazole, and miconazole; dose adjustments may be necessary. May alter blood levels and effects of cyclosporine, sirolimus, and tacrolimus; careful monitoring required. May alter antihistamine effects of diphenhydramine; may increase diphenhydramine levels.

Drug-Natural Products: St. John’s wort may decrease blood levels and effectiveness; avoid concurrent use.

Route/Dosage

PO (Adults): 200 mg twice daily.
PO (Children 6–17 yr and ≥30 kg): 200 mg twice daily.
PO (Children 6–17 yr and 25–29 kg): 150 mg twice daily.
PO (Children 6–17 yr and 20–24 kg): 125 mg twice daily.
PO (Children 6–17 yr and 16–19 kg): 100 mg twice daily.

NURSING IMPLICATIONS

Assessment

- Assess for change in severity of HIV symptoms and for symptoms of opportunistic infections during therapy.
- Assess patient for rash (mild to moderate rash usually occurs in the 2nd wk of therapy and resolves within 1–2 wk of continued therapy). If rash is severe (erythematous or maculopapular rash with moist desquamation or angioedema) or accompanied by systemic symptoms (serum sickness-like reaction, Stevens-Johnson syndrome, toxic epidermal necrolysis), therapy must be discontinued immediately.
- Lab Test Considerations: Monitor viral load and CD4 cell count during therapy. May cause serum AST, ALT concentrations.
- Monitor liver function tests periodically during therapy. May cause serum AST, ALT concentrations.
- Monitor blood levels and effects of clarithromycin, atorvastatin, and miconazole; dose adjustments may be necessary. May alter blood levels and effects of cyclosporine, sirolimus, and tacrolimus; careful monitoring required. May alter antihistamine effects of diphenhydramine.
- May cause hyperglycemia; monitor blood glucose levels.
- May cause hyperuricemia; monitor serum uric acid levels.
- May cause hyperkalemia; monitor serum potassium levels.
- May cause hypercalcemia; monitor serum calcium levels.

Potential Nursing Diagnoses

- Risk for infection (Indications)
- Noncompliance (Patient/Family Teaching)

Implementation

PO: Administer tablet twice daily following a meal; type of food does not matter. Swallow tablet whole, do not break, crush, or chew. If patient has difficulty swallowing, may disperse tablet in 5 mL (1 teaspoon) of water; or at least enough liquid to cover the medication, stir well until water looks milky. Add more water or orange juice or milk (do not place tablets in orange juice or milk without first adding water); avoid grapefruit juice, wine, or carbonated beverages. Once dispersed, patient should stir well and drink immediately; rinse glass with water and drink several times to ensure entire dose is consumed.

Patient/Family Teaching

- Emphasize the importance of taking etravirine as directed, at the same time each day. It must always be used in combination with other antiretroviral drugs. Do not take more than prescribed amount and do not stop taking without consulting health care professional. Take missed doses following a meal if remembered within 6 hr of the time its usually taken, then return to regular schedule. If more than 6 hr from time dose is usually taken, omit dose and resume dosing schedule; do not double doses.
- Instruct patient that etravirine should not be shared with others.
- Instruct patient that etravirine does not cure AIDS or prevent associated opportunistic infections. Etravirine does not reduce the risk of transmission of HIV to others through sexual contact or blood contamination. Caution patient to use a condom and to avoid sharing needles or donating blood to prevent spreading the AIDS virus to others. Advise patient that the long-term effects of etravirine are unknown at this time.
- May cause dizziness, impaired concentration, or drowsiness. Caution patient to avoid driving or other activities requiring alertness until response to medication is known.

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CONTINUED
etravirine

● Instruct patient to notify health care professional immediately if rash, signs of hypersensitivity (fever, generally ill feeling, extreme tiredness, muscle or joint aches, blisters, oral lesions, eye inflammation, facial swelling), signs and symptoms of fever problems (yellowing of skin or whites of eyes, dark or tea colored urine, pale colored stools/shadow movements, nausea, vomiting, loss of appetite, or pain, aching or sensitivity on right side below ribs), or signs of Immune Reconstitution Syndrome (signs and symptoms of an infection) occur.

● Advise patient to notify health care professional of all Rx or OTC medications, vitamins, or herbal products being taken and to consult with health care professional before taking other medications, especially St. John’s wort.

● Advise patient that changes in body fat (increased fat in upper back and neck, breasts, and around back, chest, and stomach area, loss of fat from legs, arms, and face) may occur.

● Advise patients taking oral contraceptives to use a nonhormonal method of birth control during etravirine therapy and to notify health care professional if they become pregnant or plan to breast feed while taking etravirine.

● Emphasize the importance of regular follow-up exams and blood counts to determine progress and monitor for side effects.

Evaluation/Desired Outcomes

● Delayed progression of AIDS and decreased opportunistic infections in patients with HIV.

● Decrease in viral load and increase in CD4 cell counts.

Why was this drug prescribed for your patient?