Lamivudine (la-mi-voo-deen)

Classification: Antiretroviral, nucleoside reverse transcriptase inhibitors

Pregnancy Category C

Indications

- HIV infection (with other antiretrovirals). Unlabeled Use: Part of HIV-postexposure prophylaxis with zidovudine and indinavir.
- Chronic hepatitis B infection.

Action

After intracellular conversion to its active form (lamivudine-5-triphosphate), inhibits viral DNA synthesis by inhibiting the enzyme reverse transcriptase.

Therapeutic Effects: Slows the progression of HIV infection and decreases the occurrence of its sequelae. Increases CD4 cell counts and decreases viral load. Protection from liver damage caused by chronic hepatitis B infection; decreases viral load.

Pharmacokinetics

Absorption: Well absorbed after oral administration (86% in adults, 66% in infants and children).

Distribution: Distributes into the extravascular space. Some penetration into CSF; remainder of distribution unknown.

Metabolism and Excretion: Mostly excreted unchanged in urine; 5% metabolized by the liver.

Half-life: Adults—3.7 hr; children—2 hr.

TIME/ACTION PROFILE (blood levels)

ROUTE ONSET PEAK DURATION

PO unknown 0.9 hr† 12 hr

†On an empty stomach; peak levels occur at 3.2 hr if lamivudine is taken with food. Food does not affect total amount of drug absorbed.

Contraindications/Precautions

- Hypersensitivity;

- Breast feeding not recommended for HIV positive mothers.

- Pedi: Pediatric patients with a history of or significant risk factors for pancreatitis (use only if no alternative).

Adverse Reactions/Side Effects

Noted for combination of lamivudine plus zidovudine;

CNS: SEIZURES, fatigue, head- ache, headache, insomnia, malaise, depression, dizziness, confusion, dizziness, weakness, numbness, vertigo, abdominal discomfort, fontanelle protrusion, pseudotumor cerebri, tinnitus, sleepiness, tremor, malaise, feeling of weakness, flushing, hypotension, hypertension, paresthesia, hyperesthesia, ringing in ears, pan- creatitis, pancreatitis, pancreatitis, pancreatitis, anorexia, diarrhea, vomiting, abdominal discomfort, dyspepsia.

Derm: alopecia, erythema multiforme, rash, urticaria.

Endo: hyperglycemia.

F and E: lactic acidosis.

Hemat: anemia, neutropenia, pure red cell aplasia.

MS: musculoskeletal pain, arthralgia, muscle weakness, myalgia, rhabdomyolysis.

Neuro: neuropathy.

Misc: hypersensitivity reactions including ANAPHYLAXIS, immune reconstitution syndrome.

Interactions

Drug-Drug: Trimethoprim/sulfamethoxazole levels (dose alteration may be necessary in renal impairment); risk of pancreatitis with concurrent use of other drugs causing pancreatitis; risk of neuropathy with concurrent use of other drugs causing neuropathy.

Combination therapy with tenofovir and abacavir may lead to virologic nonresponse and should not be used.

Route/Dosage

HIV infection

PO (Adults and Children >16 yr and ≥50 kg): 150 mg twice daily or 300 mg once daily.

PO (Adults ≤50 kg): 1 mg/kg twice daily.

PO (Children 5 mg—16 yr): Oral solution—4 mg/kg twice daily (up to 150 mg twice daily); Tablets—15–25 kg: 75 mg twice daily, 26–30 kg: 75 mg twice daily, 31–50 mg: 75 mg twice daily, 51–100 mg: 150 mg twice daily.

PO (Adults): GS 30–60 mg/m²—150 mg once daily; GS 75–90 mg/m²—150 mg once daily; GS 90–120 mg/m²—150 mg/3 times daily—300 mg once daily; GS 120–150 mg/m²—150 mg/3 times daily—50 mg/3 times daily—50 mg once daily; GS 150 mg/m²—50 mg/3 times daily—50 mg once daily.
Chronic Hepatitis B

PO (Adults): 100 mg once daily.

Renal Impairment

PO (Adults): CCr 30–49 mL/min—100 mg first dose, then 50 mg once daily; CCr 15–29 mL/min—100 mg first dose, then 25 mg once daily; CCr 5–14 mL/min—35 mg first dose, then 15 mg once daily; CCr <5 mL/min—35 mg first dose, then 10 mg once daily.

PO (Children 2–17 yr): 3 mg/kg once daily (up to 100 mg/day).

NURSING IMPLICATIONS

Assessment

● Assess patient, especially pediatric patients, for signs of pancreatitis (nausea, vomiting, abdominal pain) periodically during therapy. May require discontinuation of therapy.

● HIV: Assess patient for change in severity of symptoms of HIV infection and for symptoms of opportunistic infection during therapy.

● Monitor patient for signs and symptoms of peripheral neuropathy (tingling, burning, numbness, or pain in hands or feet); may be difficult to differentiate from peripheral neuropathy of severe HIV disease. May require discontinuation of therapy.

● Chronic Hepatitis B Infection: Monitor signs of hepatitis (jaundice, fatigue, anorexia, pruritus) during therapy.

Lab Test Considerations:

● Monitor serum amylase, lipase, and triglycerides periodically during therapy. Elevated serum levels may indicate pancreatitis and require discontinuation.

● Monitor liver function. May cause elevations of AST, ALT, CPK, bilirubin, and alkaline phosphatase, which usually resolve after interruption of therapy. Lactic acidosis may occur with hepatic toxicity causing hepatic steatosis; may be fatal, especially in women.

Potential Nursing Diagnoses

Risk for infection (indications)

Implementation

● Do not confuse lamivudine with lamotrigine. Do not confuse Epivir tablets and oral solution with Epivir-HBV tablets and oral solutions. Epivir Tablets and Oral Solution contain a higher dose of the same active ingredient (lamivudine) than in Epivir-HBV Tablets and Oral Solution. Epivir-HBV was developed for patients with hepatitis B and should not be used for patients dually infected with HIV and hepatitis B; use may lead to lamivudine-resistant HIV due to subtherapeutic dose.

PO: May be administered without regard to food.

Patient/Family Teaching

● Instruct patient to take lamivudine as directed, every 12 hr. Explain the difference between Epivir and Epivir-HBV to patients. Emphasize the importance of compliance with full course of therapy, not taking more than the prescribed amount, and not discontinuing without consulting health care professional. Take missed doses as soon as possible unless nearly time for next dose. Do not double doses. Caution patient not to share medication with others.

● Inform patient that lamivudine does not cure HIV disease or prevent associated or opportunistic infections. Lamivudine does not reduce the risk of transmission of HIV to others through sexual contact or blood contamination. Caution patient to use a condom during sexual contact and avoid sharing needles or donating blood to prevent spreading HIV to others. Advise patient that the long-term effects of lamivudine are unknown at this time.

● Instruct patient to notify health care professional promptly if signs of peripheral neuropathy or pancreatitis occur.

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

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

Evaluation/Desired Outcomes

● Slowing of the progression of HIV infection and its sequelae.

● Decrease in viral load and improvement in CD4 levels in patients with advanced HIV infection.

● Protection from liver damage caused by chronic hepatitis B infection; decreases viral load.

Why was this drug prescribed for your patient?