zidovudine (zye-doe-vee-den)

AZT, Retrovir

Classification
Therapeutic: antiretrovirals
Pharmacologic: nucleoside reverse transcriptase inhibitors

Pregnancy Category C

Indications
HIV infection (with other antiretrovirals). Reduction of maternal/fetal transmission of HIV. Unlabeled Use: Chemoprophylaxis after occupational exposure to HIV.

Action
Following intracellular conversion to its active form, inhibits viral RNA synthesis by inhibiting the enzyme DNA polymerase (reverse transcriptase). Prevents viral replication. Therapeutic Effects: Virustatic action against selected retroviruses. Slowed progression and decreased sequelae of HIV infection. Decreased viral load and improved CD4 cell counts. Decreased transmission of HIV to infants born to HIV-infected mothers.

Pharmacokinetics
Absorption: Well absorbed following oral administration. Distribution: Widely distributed, enters the CNS. Crosses the placenta. Metabolism and Excretion: Mostly (75%) metabolized by the liver; 15–20% excreted unchanged by the kidneys. Half-life: 1 hr.

TIME/ACTION PROFILE (blood levels)

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<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
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<tbody>
<tr>
<td>IV</td>
<td>rapid</td>
<td>end of infusion</td>
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Contraindications/Precautions
Contraindicated in: Hypersensitivity. Use cautiously in: Bone marrow reserve (dose required for anemia or granulocytopenia); Severe hepatic or renal disease (dose modification may be required). Use milk products only if potential for age-related deficits in vitamin D, bone, renal, or cardiac function.

Adverse Reactions/Side Effects

Drug Interactions
Drugs that increase the risk of bone marrow depression include other agents with bone marrow-depressing properties, antineoplastics, radiation therapy, or ganciclovir. Toxicity may be increased by concurrent administration of probenecid or fluconazole. Levels are decreased by clarithromycin.

Route/Dosage
Management of HIV Infection
PO (Adults): 100 mg 4 times daily while awake or 200 mg 3 times daily or 300 mg twice daily (depends on combination and clinical situation).
PO (Children 4 wk–18 yr): 10 mg/kg 4 times daily or 20 mg/m2 3 times daily; 30 kg–300 mg twice daily or 200 mg 3 times daily.
IV (Adults and Children ≥12 yr): 2 mg/kg/hr as a continuous infusion. Change to oral therapy as soon as possible.

Prevention of Maternal/Fetal Transmission of HIV Infection
PO (Adults ≥14 wk Pregnant): 100 mg 5 times daily until onset of labor.
IV (Adults during Labor and Delivery): 2 mg/kg over 1 hr, then continuous infusion of 1 mg/kg/hr until umbilical cord clamped.
IV (Infants): 3.5 mg/kg q 6 hr until able to take PO.

[Unlabeled] = Discontinued.
PO (Infants): 2 mg/kg q 6 hr, started within 12 hr of birth and continued for 6 wk.

PO (Neonates premature <30 wk gestational age at birth): 2 mg/kg q 12 hr

PO (Neonates premature ≥30 wk gestational age at birth): 1.5 mg/kg q 12 hr

IV (Neonates premature <30 wk gestational age at birth): 1.5 mg/kg q 12 hr

NURSING IMPLICATIONS

Assessment

- Assess patient for change in severity of symptoms of HIV and for symptoms of opportunistic infections during therapy.

Lab Test Considerations:

- Monitor viral load and CD4 counts prior to and periodically during therapy.

- Monitor CBC every 2 wk during the first 8 wk of therapy in patients with advanced HIV disease, and decrease to every 4 wk after the first 2 mo if zidovudine is well tolerated or monthly thereafter unless indicated in patients who are asymptomatic or have early symptoms. Commonly causes granulocytopenia and anemia. Anemia may occur 2–4 wk after initiation of therapy. Anemia may respond to epoetin administration.

- Monitor serum AST, ALT, and alkaline phosphatase levels. Lactic acidosis may occur with hepatic toxicity, causing hepatic steatosis; may be fatal, especially in women.

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

Possible Nursing Diagnoses

- Risk for infection (Indications) (Side Effects)

Implementation

- Do not confuse Retrovir (zidovudine) with ritonavir.

- PO: Administer doses around the clock.

- IV: Patient should receive the IV infusion only until oral therapy can be administered.

- Infusion Considerations: Monitor vital signs and CV events prior to and periodically during therapy.

- Monitoring: Monitor CBC every 2 wk during the first 8 wk of therapy in patients with advanced HIV disease, and decrease to every 4 wk after the first 2 mo if zidovudine is well tolerated or monthly thereafter unless indicated in patients who are asymptomatic or have early symptoms. Commonly causes granulocytopenia and anemia. Anemia may occur 2–4 wk after initiation of therapy. Anemia may respond to epoetin administration.

- Laboratory Monitoring: Monitor viral load and CD4 counts prior to and periodically during therapy.

- Serum AST, ALT, and alkaline phosphatase levels: Monitor serum AST, ALT, and alkaline phosphatase levels periodically during therapy. Lactic acidosis may occur with hepatic toxicity, causing hepatic steatosis; may be fatal, especially in women.

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

- Additive Incompatibility: Blood products or protein solutions.
CONTINUED

zidovudine

● Discontinue.

Patient/Family Teaching

● Instruct patient to take zidovudine as directed, around the clock, even if sleep is interrupted. Emphasize the importance of compliance with therapy, not taking more than prescribed amount, and not discontinuing without consulting health care professional. Take missed doses as soon as remembered unless almost time for next dose; do not double doses. Inform patient that long-term effects of zidovudine are unknown at this time.

● Instruct patient that zidovudine should not be shared with others.

● Zidovudine may cause dizziness or fainting. Caution patient to avoid driving or other activities requiring alertness until response to medication is known.

● Instruct patient that zidovudine does not cure HIV and 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 the AIDS virus to others.

● Instruct patient to inform health care professional promptly if fever, sore throat, signs of infection, muscle weakness, or shortness of breath occurs. Caution patient to avoid crowds and persons with known infections. Instruct patient to use soft toothbrushes, to use caution when using toothpicks or dental floss, and to have dental work done prior to therapy or deferred until blood counts return to normal. Patient should also notify health care professional immediately if shortness of breath, muscle weakness, muscle aches, symptoms of hepatitis or pancreatitis, or other unexpected reactions 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.

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

Evaluation/Desired Outcomes

● Decreased viral load and increase in CD4 counts in patients with HIV.

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

● Reduction of maternal/fetal transmission of HIV.

Why was this drug prescribed for your patient?

● Improved survival for patients with AIDS.

● Improved HIV-related symptoms in patients with AIDS.

● Improved quality of life for patients with AIDS.

● Improved survival for patients with AIDS-related conditions.

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