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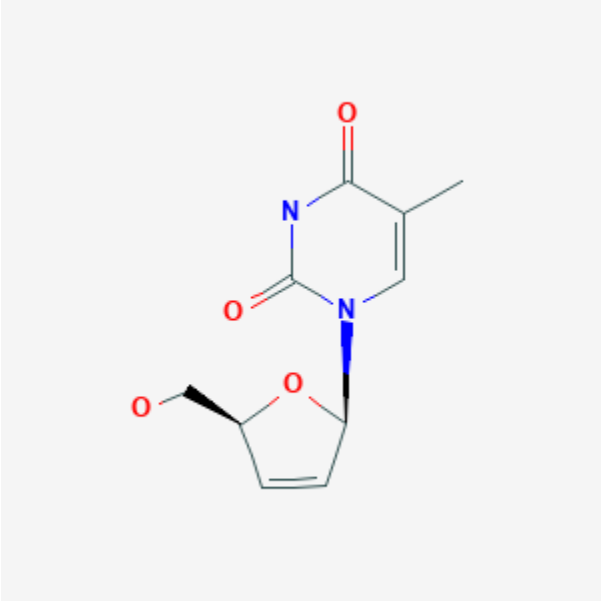
Stavudine

Revised: October 31, 2018.

CASRN: 3056-17-5



Drug Levels and Effects

Summary of Use during Lactation

In the United States and other developed countries, HIV-infected mothers should generally not breastfeed their infants. Published experience with stavudine during breastfeeding is limited. In countries in which no acceptable, feasible, sustainable and safe replacement feeding is available, World Health Organization guidelines recommend that all women with an HIV infection who are pregnant or breastfeeding should be maintained on antiretroviral therapy for at least the duration of risk for mother-to-child transmission. Mothers should exclusively breastfeed their infants for the first 6 months of life; breastfeeding with complementary feeding should continue through at least 12 months of life up to 24 months of life.[1] The first choice regimen for nursing mothers is tenofovir, efavirenz and either lamivudine or emtricitabine. If these drugs are unavailable, alternative regimens include: 1) zidovudine, lamivudine and efavirenz; 2) zidovudine, lamivudine and nevirapine; or 3) tenofovir, nevirapine and either lamivudine or emtricitabine. Exclusively breastfed infants

should also receive 6 weeks of prophylaxis with nevirapine. Stavudine should not be used in first-line regimens because of its metabolic toxicities.[2][3]

Drug Levels

Maternal Levels. One study measured stavudine in breastmilk samples from nursing mothers who had been randomized to receive the drug as part of a clinical trial to evaluate maternal to child transmission of HIV infection. The dosages, dosage regimens and time of breastmilk sample collection times were not reported. The stavudine milk to plasma ratio was found to be 1.73 in 2 patients.[4]

Fifty-two mothers who were taking stavudine either 30 mg (<60 kg) or 40 mg (>60 kg) twice daily had milk samples analyzed for stavudine. Exact timing of the previous dose was not available. Stavudine was detectable in 44 samples of whole milk and 45 samples of skim milk. The median stavudine concentrations were 151 mcg/L in whole milk and 190 mcg/L in skim milk. The average infant intake of stavudine via breastmilk was estimated to be 22.7 mcg/kg daily.[5]

Twenty-eight mothers who were receiving stavudine 30 mg twice daily as part of a combination antiretroviral regimen provided a total of 93 milk samples at birth, 1 month, 3 months and/or 6 months postpartum. Milk samples were collected at a median of 4.5 hours (range 3.5 to 6 hours) after the previous dose. The median breastmilk stavudine concentration was 105 mcg/L (range 34 to 117 mcg/L).[6]

Infant Levels. Fifty-two infants whose mothers who were taking stavudine either 30 mg (<60 kg) or 40 mg (>60 kg) twice daily had blood samples analyzed for stavudine. Exact timing of the mothers' previous dose was not available. Stavudine was undetectable (<5 mcg/L) in all but 7 of the infants with an estimated stavudine intake from milk of 22.7 mcg/kg daily. In the 7 infants who had detectable serum concentrations, all had serum concentrations less than 10 mcg/L and their median serum concentration was 5% (range 1 to 15%) of their mothers' serum concentration.[5]

Breastfed infants of 28 mothers who were receiving stavudine 30 mg twice daily as part of a combination antiretroviral regimen had a total of 30 blood samples analyzed at 1 month, 3 months and/or 6 months postpartum. Samples were collected at a median of 4.5 hours (range 3.5 to 6 hours) after the previous maternal dose and a median of 30 minutes (range 20 to 60 minutes) after the previous nursing. The infants' stavudine plasma concentrations ranged from 0 to 2.5 mcg/L, which was a median of 4% (range 0 to 8%) of the maternal serum concentration.[6]

Effects in Breastfed Infants

Relevant published information was not found as of the revision date.

Effects on Lactation and Breastmilk

Some case reports and in vitro studies have suggested that protease inhibitors might cause hyperprolactinemia and galactorrhea in some male patients,[7][8] although this has been disputed.[9] One case series found an incidence of gynecomastia of 2.4 cases per person annually among men receiving highly active antiretroviral therapy; 70% of the affected patients were taking stavudine. Gynecomastia was unilateral initially, but progressed to bilateral in 53% of cases. No alterations in serum prolactin were noted and spontaneous resolution usually occurred within one year, even with continuation of the regimen.[10] The relevance of these findings to nursing mothers is not known. The prolactin level in a mother with established lactation may not affect her ability to breastfeed.

Alternate Drugs to Consider

Lamivudine, Nelfinavir, Nevirapine, Zidovudine

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Substance Identification

Substance Name

Stavudine

CAS Registry Number

3056-17-5

Drug Class

Breast Feeding

Lactation

Anti-Infective Agents

Anti-HIV Agents

Antiviral Agents

Anti-Retroviral Agents

Reverse Transcriptase Inhibitors