

Didanosine (ddl, Videx)

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What is Videx?

- Videx and Videx EC are anti-HIV medications. They are in a category of HIV medications called nucleoside reverse transcriptase inhibitors (NRTIs). NRTIs prevent HIV from altering the genetic material of healthy T-cells. This prevents the cells from producing new virus and decreases the amount of virus in the body.
- Videx, manufactured by Bristol-Myers Squibb, was the second drug approved for the treatment of HIV, and was approved by the U.S. Food and Drug Administration in 1989.
- This lesson reviews both Videx buffered tablets, which can be taken once or twice a day, and Videx EC, a capsule that only needs to be taken once a day. They are the same drug, but come in different forms and are taken differently. Because Videx EC is considered to be easier to take and does not contain an antacid buffer (which can cause stomach upsets and prevents many other medications from being taken at the same time as Videx tablets and powder), most HIV-positive adults are now taking Videx EC.
- Videx or Videx EC must be used in combination with at least two other anti-HIV drugs.

How should Videx buffered tablets be taken?

- The preferred dose of Videx buffered tablets is two 100mg tablets twice a day (for people who weigh 132 pounds or more) or one 100mg tablet and one 25mg tablet twice a

day (for people who weigh less than 132 pounds). It is also possible to take Videx once a day, although some experts still recommend the twice-daily dosing schedule (it has been studied more carefully in clinical trials). If Videx tablets are taken once a day, the correct doses are: two 200mg tablets once a day (for people who weigh 132 pounds or more) or three 100mg tablets once a day (for people who weigh less than 132 pounds).

- Babies and children can also take Videx, using the powder formulation that can be used to make a liquid solution. The dose depends on a baby's size or a child's weight. If you are caring for a child who is HIV-positive and has been prescribed Videx, be sure that you understand the correct dose to give the child. As a child grows, the dose of Videx will need to be increased on a regular basis.
- Videx buffered tablets must be taken on an empty stomach (not eating within two hours before or one hour after taking Videx). Food and many liquids can prevent Videx from being properly absorbed into the bloodstream. Videx should be taken with water. It should not be taken with acidic juices, soda, or milk.
- Videx buffered tablets should not be taken at the same time as other medications. Other medications should be taken two hours before or two hours after taking Videx. This is because the antacid buffer in Videx can affect the way other medications—such as the protease inhibitors—are broken down in the gut and absorbed into the bloodstream.

How should Videx EC capsules be taken?

- The correct dose of Videx EC is one 400mg capsule once a day (for people who weigh 132 pounds or more) or one 250mg capsule (for people who weigh less than 132 pounds). It is also possible to take Videx capsules twice a day: one 200mg capsule twice a day (for people who weigh 132 pounds or more) or one 125mg capsule twice a day (for people who weigh less than 132 pounds).
- Videx EC should not be used by babies or children. Videx tablets or powder are necessary for pediatric patients.
- Videx EC must be taken on an empty stomach (not eating within two hours before or one hour after taking Videx EC). Food and many liquids can prevent Videx EC from being properly absorbed into the bloodstream. Videx EC should be taken with water. It should not be taken with acidic juices, soda, or milk.
- Videx EC can be taken with other medications, because it does not contain an antacid buffer (which is used in Videx tablets).

How effective is Videx? And what about resistance?

- Numerous studies have demonstrated that Videx is effective for the treatment of HIV when combined with other anti-HIV drugs, usually at least one other nucleoside reverse transcriptase inhibitor (NRTI) and either a protease inhibitor or non-nucleoside reverse transcriptase inhibitor (NNRTI). Videx should not be taken alone (as monotherapy) or with just one other anti-HIV drug.
- The United States Department of Health and Human Services (DHHS) lists Videx as an “alternative” NRTI for HIV-positive people starting anti-HIV treatment for the first time (Retrovir® [AZT], Epivir® [3TC], and Viread® [tenofovir] are listed as “preferred” NRTI options). If Videx is used, the DHHS recommends combining it with either Epivir or Emtriva® (FTC) plus the NNRTI Sustiva® (efavirenz).

- The DHHS recommends against using Videx or Videx EC and Zerit® (d4T) or Hivid® (ddC) in the same drug combination. The risk of side effects, which are similar for Zerit, Hivid, and Videx/Videx EC, are increased when these drugs are used at the same time.
- Therapy with Videx can cause certain changes (mutations) in HIV’s structure to occur. Some mutations will prevent Videx from working against HIV. Some studies suggest that HIV is much more likely to become resistant to Videx if it is already resistant to Retrovir® (AZT), another NRTI. If HIV is not resistant to Retrovir, resistance to Videx may develop much more slowly. If HIV does become resistant to Videx, it will not likely be sensitive to Hivid® (ddC), another NRTI. However, this is not the same the other way around: HIV that becomes resistant to Hivid may still be sensitive to Videx. If your viral load does not go undetectable or becomes detectable (and increases) while you are taking an anti-HIV drug regimen, your doctor can order a drug-resistance test to determine if your HIV has mutations that are causing resistance to Videx and to help you figure out which NRTIs your HIV is still sensitive to.

What about drug interactions?

VIDEX BUFFERED TABLETS:

- Because Videx buffered tablets contain an antacid buffer to neutralize acid in the stomach (this is necessary for Videx to be absorbed properly into the bloodstream), it should not be taken at the same time as medications that require acid in the stomach. Examples of medications that require acid in the stomach include Atrisone™ (dapson), Sporanox® (itraconazole), Nizoral® (ketoconazole), Cipro® (ciprofloxacin), and quinolones. These medications should be taken at least two hours before or two hours after taking Videx.
- Videx buffered tablets should not be taken at the same time as any of the available protease inhibitors, especially Reyataz™ (atazanavir). The protease inhibitors should be taken at last two hours before or two hours after taking Videx.

- Videx buffered tablets can be taken at the same time as Viramune® (nevirapine) and Sustiva, two non-nucleoside reverse transcriptase inhibitors (NNRTIs). Rescriptor® (delavirdine), another NNRTI, should be taken two hours before or two hours after taking Videx.
- Methadone, a drug used to treat heroin addiction, can decrease the amount of Videx (from the buffered tablets only) in the bloodstream. As a result, it's probably best to switch from Videx buffered tablets to Videx EC capsules if methadone is also being used.

VIDEX BUFFERED TABLETS AND VIDEX EC:

- Viread® (tenofovir), a nucleotide reverse transcriptase inhibitor, can significantly increase the amount of Videx in the bloodstream. This can increase the risk of experiencing side effects that can be caused by Videx, such as pancreatitis, peripheral neuropathy, and lactic acidosis. If Viread is being used, the Videx or Videx EC must be reduced to 250mg a day (as opposed to the standard dose of 400mg once a day). For example, if your doctor has prescribed Viread and Videx EC, you should be taking one 250mg Videx EC capsule once a day. However, this is only intended for people who weigh 132 pounds (60 kg) or more; for people who weigh less than 132 pounds, a safe dose of Videx or Videx EC, for use in combination with Viread, has not yet been determined.
- Ribavirin (Rebetol®; Copegus®), one of the two drugs that are often prescribed to treat hepatitis C, can increase Videx levels inside cells. Researchers have not yet determined the correct dose of Videx for HIV-positive people who are also taking ribavirin to treat their hepatitis C infection. In turn, it is probably best to avoid combining these drugs.
- Because Videx can cause pancreatitis, it should be used carefully in combination with other drugs that can also cause pancreatitis. These include intravenous pentamidine and TMP/SMX (Bactrim™; Septra®). It is also possible that combining Videx with hydroxyurea, a cancer drug that has been studied as a treatment for HIV, increases the risk of pancreatitis.
- The oral form of Cytovene® (ganciclovir), a treatment used to prevent CMV from recurring in people who have had this disease, can decrease Videx and Videx EC levels in the bloodstream. Videx and Videx EC can increase Cytovene levels in the bloodstream. No dosing recommendations have been made.
- Methadone, a drug frequently used to help people recovering from heroin addiction, can decrease the amount of Videx in the bloodstream. This can result in an anti-HIV drug regimen being less effective against HIV, which can cause drug resistance.
- Combining Videx with Zerit® (d4T), another nucleoside reverse transcriptase inhibitor (NRTI), may increase the risk of developing lactic acidosis. This is especially true in HIV-positive pregnant women who take both of these drugs together. In turn, the U.S. Food and Drug Administration (FDA) has recommended that HIV-positive women not take these two drugs together while they are pregnant.

What about side effects?

- Lactic acidosis, which can be fatal, and severe liver problems (fatty liver) have been reported in people taking nucleoside reverse transcriptase inhibitors (NRTIs). These problems are more likely to occur in HIV-positive people taking Zerit® (d4T) or Zerit in combination with Videx. Contact your doctor immediately if you experience nausea, vomiting, or unusual or unexpected stomach discomfort; weakness and tiredness; shortness of breath; weakness in the arms and legs; yellowing of the skin or eyes; or pain in the upper stomach area.
- Videx can cause inflammation of the pancreas (pancreatitis). Pancreatitis is a rare but serious side effect that can be life-threatening in some cases. Notify your doctor immediately if you develop symptoms of pancreatitis, including nausea, vomiting, diarrhea, and abdominal pain. You should avoid alcohol while you are taking Videx, as alcohol can increase the risk of damage to your pancreas.
- A common side effect of Videx is peripheral neuropathy, which can result in pain, tingling, numbness, or burning in the hands and/or feet. Stopping Videx and starting another NRTI that



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does not usually cause peripheral neuropathy—for example, Retrovir® (AZT) or Ziagen® (abacavir)—is often the best way to stop peripheral neuropathy.

- Other common side effects include stomach aches, nausea, diarrhea, dry mouth, and central nervous system effects (e.g., anxiety, headaches, trouble sleeping, irritability, and restlessness). Very often, these side effects improve within a few months/weeks of starting Videx.
- Damage to the eyes is another serious side effect that can be caused by Videx. This is more likely to occur in HIV-positive children taking Videx.
- Anti-HIV drug regimens containing NRTIs, including Videx and Videx EC, can cause increased fat levels (cholesterol and triglycerides) in the blood, abnormal body-shape changes (lipodystrophy; including increased fat around the abdomen, breasts, and back of the neck, as well as decreased fat in the face, arms, and legs), and diabetes.

Who should not take Videx?

- Before taking this medication, tell your doctor if you have: kidney disease; liver disease; a history of pancreatitis; a history of lactic acidosis or elevated lactate levels; a history of peripheral neuropathy. You may not be able to take Videx, or you may require lower doses or special monitoring during treatment, if you have any of these conditions.
- Videx is classified by the FDA as a pregnancy category B drug. All the FDA-approved anti-HIV drugs are classified as either category B or C. Pregnancy category B means that animal studies have failed to demonstrate a risk to the fetus, but there are no adequate and well-controlled studies in pregnant women. Pregnancy category C means that animal studies have shown an adverse effect on the fetus and there are no adequate and well-controlled studies in humans, but potential benefits may warrant use of the drug in pregnant women despite potential risks. HIV-positive women who become pregnant should discuss the benefits and possible

side effects of anti-HIV treatment to help protect their babies from HIV.

- It is not known whether Videx passes into breast milk and what effects it may have on a nursing baby. However, to prevent HIV transmission of the virus to uninfected babies, it is recommended that HIV-positive mothers not breast-feed.

Where can I learn more about clinical trials that are using Videx?

- If you would like to find out if you are eligible for any clinical trials that include Videx, there is an interactive web site run by amfAR, the American Foundation for AIDS Research.
- Another useful service for finding clinical trials is *AIDSinfo.nih.gov*, a site run by the U.S. National Institutes of Health. They have “health information specialists” you can talk to at their toll-free number at 1-800-HIV-0440 (1-800-448-0440).

a note about this publication

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