Crystal Meth and HIV/AIDS: The Perfect Storm?

Crystal methamphetamine (CM) is an extremely addictive stimulant that increases sexual arousal while reducing inhibition and judgment. Its use is associated with a range of high-risk sexual behaviors that increase the likelihood of acquiring or transmitting HIV. Given the relatively high prevalence of CM use among people living with HIV and among men who have sex with men (MSM), there is great concern that this drug is fueling the HIV epidemic. Equally worrisome are the effects that CM use can have on the prognosis and overall health of HIV-infected patients.

Methamphetamine Use and HIV Transmission

CM use increases the risk for HIV transmission and acquisition in a number of ways.

First, the drug lowers sexual inhibitions, impairs judgment, and provides the necessary energy and confidence to engage in sexual activity for long periods of time. As a result, methamphetamine users are more likely than nonusers to engage in unprotected anal sex and to have sex with injection drug users, HIV-positive partners, and those of unknown HIV status; they also tend to report a greater number of sex partners and to have a history of other sexually transmitted diseases (STDs).

Second, CM use is a well-documented cause of erectile dysfunction, which can lead users to engage in even higher-risk sexual activities. For example, users who cannot sustain an erection may switch to receptive anal sex, which carries a higher risk of HIV acquisition than does insertive anal sex. Alternatively, users may take erectile-dysfunction drugs, and the combination of these with CM can lead to longer, more-aggressive periods of sex, potentially resulting in condom breaks or mucosal tears, which can cause bleeding and increased risk of HIV transmission.

Third, CM causes mucosal dryness, which increases the risk for tissue tears. Additional damage to rectal tissues can occur when CM is inserted into the rectum ("keistering," "booty bumping").

Finally, when CM is injected, needle sharing can greatly enhance transmission of HIV and hepatitis viruses.

Numerous cross-sectional studies have demonstrated an association between CM use and increased risk for HIV infection, but only a few studies have prospectively assessed seroincidence. In the largest of these, the Multicenter AIDS Cohort Study, the relative risk for
HIV seroconversion was 1.5 among CM users compared with nonusers and was even higher (3.1) among men who used both methamphetamine and poppers.

**Methamphetamine Use and Progression of HIV Disease**

In addition to facilitating HIV transmission, CM use is associated with detrimental behavior changes that can affect the prognosis and overall health of people living with HIV. For instance, current methamphetamine use decreases adherence to HIV treatment and medical follow-up. Frequent CM use has also been associated with increased risk for antiretroviral resistance, particularly to NNRTIs, with the obvious implications for treatment and transmission risk. For example, CM use is thought to have contributed to the acquisition of triple-class–resistant virus by the New York City patient described in 2005. In addition, some patients use CM to treat HIV-associated symptoms, such as fatigue, instead of seeing a physician. Such self-medication may lead to underdiagnosis and undertreatment of HIV and to important complications such as anemia and hypogonadism.

CM use may also influence progression and complications of HIV disease more directly. For example, animal studies have shown that CM can impair the immune system and increase HIV replication, and human studies suggests that it can accelerate the progress of HIV-related dementia.