COMMUNITY HIV/AIDS MOBILIZATION PROJECT (CHAMP)

TAG
TREATMENT ACTION GROUP

COMMUNITY BRIEFING:
MULTI-DRUG RESISTANT, FAST PROGRESSING HIV IN NYC

In the past several weeks, there has been much media attention on a case of a man with HIV who progressed to an AIDS diagnosis in a relatively short time, and whose virus is resistant to many kinds of AIDS drugs.

This has raised alarm for many people in a time in which there is much fear of drug resistance as well as concerns about the challenges of HIV prevention.

This fact sheet has been created by HIV prevention and treatment activists to supplement available materials on this case. It will be updated as more information becomes available, and was completed on February 24, 2004.

We hope it will present background information on this case and provoke additional inquiry to understand more about its implications. In addition, it presents historical data that might be useful in putting this case into context.

It does not repeat basic information on HIV prevention, crystal meth, or the importance of medication adherence, as these are available elsewhere. In addition, it does not address significant concerns about the way this story was released and its subsequent coverage in the media, which are initiated in other document and still require additional discussion.

We have collected some of these additional materials on a webpage, including a community sign-on letter, organizational statements, and a service provider advisory from the New York State Department of Health: **www.champnetwork.org/index.php?name=newcase**

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To learn more about HIV infection, viral progression, crystal meth treatment option and other related information on this case, contact:

Community HIV/AIDS Mobilization Project (CHAMP): 212-966-0466 x 1206 / www.champnetwork.org

Harm Reduction Coalition: 212-213-6376 / www.harmreduction.org

HIV Forum: www.hivforumnyc.org

Project Inform Hotline: 1-800-822-7422 / www.projectinform.org

Treatment Action Group (TAG): 212-253-7922 / www.treatmentactiongroup.org

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QUESTIONS AND ANSWERS ON THE NYC DRUG-RESISTANT, FAST-PROGRESSING AIDS CASE

What makes this case seem different?
This case has attracted attention because of particular features of the virus, the individual's disease progression, and the individual's risk behavior. In this document, we will primarily address the features of the virus, but stress the importance of not drawing conclusions without additional data on the role of his risk behavior itself on the virus or on disease progression.

There are three distinct viral features in this case, all of which have been seen before but that have not been documented in one person. It is unclear how these three components interrelate. They are:

1) SI type virus
The HIV is of a type called *syncytium inducing (SI)*. We have known about SI types of HIV since the late 1980s. This type of HIV has usually been seen in people who are in the late state of AIDS rather than people who are newly infected or asymptomatic.

However, there have been rare cases of people who seem to have been infected with this virus and who progressed rapidly to AIDS. There are still questions about how to understand this rare situation, because there are people who got needle-stick infections with SI type virus that did *not* progress rapidly, and the virus in their body became non-SI virus. These reports date back to the late 1980s and should be examined to help us put this current case into perspective.

2) Dual tropism
HIV infects CD4 T-cells by latching on to the CD4 molecule on the outside of the cell. In the mid 1990s, it was discovered that HIV must also use one of two additional receptors in order to enter the cell. These receptors are called CCR5 and CXCR4.

Most SI viruses use CXCR4. However, some viruses seem to be able to use either receptor. This is called *dual tropism*. Although relatively uncommon, a study from the ALIVE cohort of injection drug users in Baltimore found that dual tropic viruses could be SI and lead to rapid disease progression. This study was published in 1998 and was based on infections in 1989 and 1990.

The speed of T cell decline (both CD4 and CD8 cells) in three of these individuals was very similar to this New York case, who is also said to be infected with a dual tropic SI virus.

3) Multi-drug resistance
This case was dubbed "3-DCR HIV," meaning that it is resistant to three classes of HIV drugs: protease inhibitors (PI), nucleoside analogues (NRTIs) and non-nucleoside reverse transcriptase inhibitors (NNRTI). There is only one other class of drugs, the entry inhibitors.

Much of the coverage described the HIV as untreatable. However, at the Retrovirus Conference, the poster presentation states, "the virus tested sensitive to two NNRTI (efavirenz and delavirdine)."

In addition, the virus does not show high-level resistance to all NRTIs: "Susceptibility of the patient's virus was comparable to a drug susceptible reference virus for a number of drugs: [abacavir, ddI, d4t, AZT and tenofivir]."

It is important to understand that there are different levels of resistance, and that people may benefit from treatment if they do not have high-level resistance, and may even benefit if they have high-level resistance.

Dual tropism and SI are known features of HIV. It is not surprising that we would eventually see this type of virus also becoming drug resistant, just as non-SI type virus is seen in drug resistant forms. There are no indications at this time, however, that this is a widespread phenomenon.

Infection with virus with similar levels of resistance to some drugs in all three classes has been reported many times before. <u>Thus, with the current information available, it is inaccurate to say that this person is resistant to all AIDS drugs or to three classes of AIDS drugs</u>

Is this virus easily spread?
No. Because dual tropic and SI viruses have been around all along but have remained rare in newly infected people, many people think that they are not easily transmitted. Because the NY case involves only one individual, there is currently no reason to believe that this case will be any different.
It is possible that this kind of HIV could be passed on to another person. However, there is no particular reason it would be easier to pass on than other types, and may in fact be harder, which would explain why this type of virus has remained unusual.

How long has this person been infected?
At this time it is unclear. Based on the data presented, the only thing that appears reasonably certain is that the infection occurred after May 2003, the date of his last HIV negative test result.
A detuned ELIZA was performed on January 13, 2005; the result was positive. Guidance on the detuned ELIZA states that positive results usually show that infection occurred at least six months before the test date. In this case, that would suggest that infection occurred before August 2004.

Has anyone else gotten this virus?
No, according to the most recent update from the New York City Department of Health and all other sources.

Initial reports of a stored sample of another person's drug resistance test in California appeared to be similar, but it is unclear where that person is from and if they had any contact with the NY individual. We do know is that they are not from San Diego, contrary to initial reports. Although the viral sample looked similar, more investigation is needed (drug resistance testing involves genetic analysis of a small portion of the HIV genetic matter, and is not the best method for determining if two viruses are directly related.)

How uncommon is fast progression?
The poster presentation on this case states that Multi-Center AIDS Cohort Study suggests that the likelihood of progression to AIDS in six months is 7 out of 10,000. For 12 months, it is estimated to be 45 out of 10,000. Every year, approximately 40,000 people are newly infected in the United States; these estimates predict that 28 will progress in the first six months and 180 within the first year. *It is a rare but real occurrence*.

If I am newly diagnosed with HIV, am I going to be a rapid progressor?
It is very unlikely (see statistics above). The vast majority of people with HIV do not need antiretroviral (ARV) treatment for many years after they become HIV infected. The standard tools you will use to monitor your HIV infection and determine if you need treatment are CD4 tests and viral load tests. Resistance tests are an additional tool that can help people make decisions about what medications may work best for them. So far, they have been shown to be most accurate in people who have already taken ARVs.

For more information, contact Project Inform's national AIDS treatment hotline: 1-800-822-7422

If I have HIV, can I pick up this new strain? How often does re-infection or superinfection happen?
Re-infection or super-infection – meaning when someone who is already HIV positive is infected with additional, different HIV -- has been frequently mentioned as a possible cause for alarm in this case.

Re-infection has become a popular term in HIV community literature and the media, but really very little is known and it is thought to be extremely rare. There is little information available about the true risks of an HIV positive person picking up additional types of virus. Although several cases have been documented, more research is needed.

People on ARV treatment are not likely to become rapid progressors or newly infected with drug resistant virus. It is important to not panic when hearing about this new case, as the stress of HIV infection is a challenge itself.

What does it mean when they say that this case is "virulent?"
This term has been used frequently in describing this case. It is implying that the virus itself is causing rapid progression, not that the virus is spread to other people more readily. However, many factors are known to influence the speed of disease progression. The majority of these factors are related to the individual and not the virus.

Data at the Retrovirus Conference shows that the virus replicates well in the test tube, which means it is virulent in that sense, and there may be additional information that helps to determine if the rapid progression is from the virus itself or other factors.

It is important to clarify that virulent does not mean easily-transmitted, and that we are not seeing an outbreak of this sort of infection at this time.

What is the role of crystal meth in this man getting infected and getting sick?
There are no known associations between crystal meth use and rapid disease progression. In addition, the west coast has had high rates of crystal use in MSM/gay men for the last decade, without the emergence of widespread drug resistance or cases of rapid progression.

There has been some basic laboratory science suggesting that methamphetamine could have adverse affects on the immune system. It can be difficult to separate out the direct impact of a drug on health from the secondary factors associated with severe drug use, such as poor nutrition. More study is needed.

It is important to recognize that crystal meth, often combined with Viagra, can lead to disinhibition and increase in risk behavior. There are many stories of gay men reporting unsafe sex while using crystal. We need more community resources to approach this problem. However, organizations that specialize in delivering frank messages to MSM and gay communities have been subject to harassment by HHS under the Bush Administration, increasing the barriers to developing effective community interventions.

If people are using crystal meth, what can help them reduce or eliminate their drug use?
It is not true that crystal meth addiction is untreatable. However, it is challenging, and relapse is common. There is ongoing research on counseling-based approaches to meth addiction, as well as a search for biomedical treatments that could help with detox and/or maintaining sobriety.

However, there is a lot to learn about effective treatment for methamphetamine addiction in different parts of the country and different communities. In addition, research has indicated that HIV negative and HIV positive gay men give different descriptions of why they were or are using crystal, and effective treatment interventions may look different for each group.

Abstinence-based methods may work for some people, and others may benefit from harm reduction approaches that help them stay as healthy as possible and reduce their risk while gaining control over their drug use. For more information on crystal meth harm reduction and treatment in New York City, contact GMHC (800) 243-7692 or (212) 367-1354), Harm Reduction Coalition (212-213-6376), Positive Health Project (212-465-8304), and check out the listings at www.hivforumnyc.org/nycsources.php.