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MISSION
“The Center for AIDS Information & Advocacy empowers people living with HIV to make informed decisions about their healthcare by providing the latest research and treatment information and by advocating for accessible, affordable, and effective treatment options until there’s a cure.”

About HIV Treatment ALERTS!

_HIV Treatment ALERTS!_ is a publication of The Center for AIDS Information & Advocacy (The CFA). This newsletter is intended for those affected by HIV and their caregivers. The statements and opinions expressed in this newsletter do not imply recommendations or endorsement. Always consult your doctor before altering a prescribed drug regimen or taking any drug or supplement.

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The 14th Conference on Retroviruses and Opportunistic Infections (CROI), held in Los Angeles from February 25th to the 28th, is one of the biggest HIV science conferences held each year. As in past years, the world’s leading researchers presented their findings from work they have been doing to understand, prevent, and treat HIV/AIDS and its complications. Continuing our tradition at The Center for AIDS, this issue of HIV Treatment ALERTS provides our readers with a snapshot of some very exciting studies.

New treatments are being developed to control HIV disease, especially for those who are highly treatment-experienced. Researchers are discovering that some existing drugs used to treat certain diseases and conditions in HIV-negative people are proving useful for those living with HIV. They are also finding solutions for some of the side effects of HIV infection and the drugs used to treat it. Although some of the potential new treatments seem to be less effective than originally thought, research continues. Twenty-five years after the epidemic began, scientists are learning more and more about improving the lives of people living with HIV and AIDS.

**WHAT’S NEW DOC?**

There are about 40,000 HIV+ people in the US who have developed resistance to available HIV meds. These individuals are running out of treatment options and must rely on a complex and ever-changing combination of approved drugs to keep their HIV under control. Fortunately, the conference brings some very good news. Several drugs in development belong to entirely new classes of HIV drugs: integrase inhibitors and chemokine antagonists. These drugs attack HIV in completely different ways than the traditional ones that have been around for the last 20 years. If these new drugs prove to be effective, they would be the first new classes of HIV meds to be approved by the US Food and Drug Administration (FDA) since 2003 and would also be the first new classes of oral HIV meds in 10 years. The last HIV med from a new class to be approved was Fuzeon (or T-20), that works by blocking HIV from entering human cells, and needs to be injected twice a day. Given the problems related to treating people who are drug resistant, these new study findings present a new opportunity for hope.

**Integrase Inhibitors**

David Cooper, from the University of New South Wales in Australia, presented early results from a study of the integrase inhibitor raltegravir (Abstracts #105aLB and #105bLB), formerly known as MK-0518, combined with 3 or more existing HIV drugs (optimized background therapy). This drug works by blocking an HIV enzyme called integrase, which is one of the enzymes HIV needs to reproduce in the body. Integrase inhibitors would stop HIV from inserting its genetic material into uninfected cells. All 699 patients who began the study had viral loads
between 30,000 to 50,000 copies and T-cell counts between 146 to 163. After 16 to 24 weeks of treatment, 77% of the patients taking raltegravir had a viral load below 400 copies (considered undetectable) compared to only 42% of those taking the placebo; 61% of the patients on the new drug had a viral load less than 50 copies. All of these patients had a dramatic decrease in viral load and a much higher increase in T cells compared to the placebo patients and the drug was well-tolerated.

Initial results for another integrase inhibitor known as elvitegravir (previously known as GS-9137) show great promise, although it is still in an early stage of development (Abstract #143LB). According to Anthony Zolopa, from Stanford University, the study involved 278 HIV+ people who were highly treatment-experienced and have few treatment choices left. Patients received either 20 mg, 50 mg, or 125 mg of elvitegravir with 100 mg of Norvir or Norvir boosted by a protease inhibitor (either Aptivus [tipranavir] or Prezista). After 24 weeks of treatment, researchers found that the 125 mg once-daily dose of elvitegravir, taken with Norvir, was the most effective. The drug appears to be very potent and well-tolerated, but it must be taken with at least one other HIV drug. Testing continues on this drug and it probably will not be available before 2009.

Chemokine Antagonists
A study that tested the chemokine antagonist maraviroc also showed good results (Abstracts #104aLB and #104bLB). This eagerly awaited drug from Pfizer works by blocking HIV from entering cells rather than interfering with it once it is inside cells, which is how the currently available drugs work. Over 1,000 patients took either the new drug with optimized background therapy or a placebo. Almost half of the patients with T-cell counts around 150 and viral loads of 65,000 copies had less than 50 copies after taking the new drug for 24 weeks compared to about one quarter of the patients getting the placebo. For more information on this drug, see the New Drug Profile on p. 9 in this issue.

NNRTI
Anton Pozniak, from London, reported on a Phase 2 study of TMC 278 (Abstract #144LB), the new “non-nuke” still under investigation. TMC 278 seems to have the strength of the HIV med Sustiva (efavirenz), but without some of the central nervous system or psychiatric side effects associated with Sustiva (e.g., dizziness, trouble sleeping, confusion, strange dreams, amnesia, hallucinations). The 368 patients in this study received either 25 mg, 75 mg, or 150 mg of TMC 278 or placebo, combined with either Combivir (Retrovir + Epivir) or Truvada (Viread + Emtriva). Patients taking TMC 278 were less likely to report the above side effects related to Sustiva. Further, the number of patients with a rash was also lower among the TMC 278 patients. Overall, serious side effects occurred in about 10% of both Sustiva and TMC 278 patients.

AWAY ON VACATION

SMART Study
As we reported last year, the international SMART (Strategies for the Management of Anti-Retroviral Therapy) Study was stopped because researchers determined that delayed or interrupted treatment (drug conservation) caused more than twice the risk of AIDS or death than immediate, continuous treatment (viral suppression). At that time, researchers also found that interrupting treatment led to more serious illnesses, including liver, kidney, and heart disease. The original goal of the study was to enroll 6,000 patients and study them for 8 years. Patients were randomized (placed by chance) to either take continuous therapy or to interrupt their ther-
apy when their T-cell count went higher than 350 copies, and then restart HIV therapy only when their T cells dropped below 250 copies.

More research has been done to compare the risk of heart disease between the continuous treatment group and the interrupted treatment group (Abstract #41). There were 48 cases of heart attacks, heart disease, and stroke in the interruption group and 31 cases among the continuous group. This means that in this study, treatment interruption of HIV drugs was associated with a 50% higher risk for heart disease.

In a different study (Abstract #979) that expanded on the results of the SMART Study, William Burman, from the Denver Department of Public Health, and other researchers found that HIV+ individuals who take breaks or vacations from their HIV therapy might be more likely to pass the virus on to their sexual or drug partners. Risk behavior was defined as vaginal or anal sex without a condom or needle-sharing. HIV transmission risk was defined as unprotected sex or sharing needles while having an HIV viral load greater than 1,500 copies. In a survey of the 833 patients from the SMART Study, the researchers determined that the risk of transmitting HIV to their partners was similar among patients in both the interrupted and continuous treatment groups. However, viral load levels were higher overall among patients in the interrupted group. This means that if a person on a treatment break has unprotected sex or shares drug-injecting equipment when their viral load is high, the risk of infecting their partners is higher.

**SURVIVAL AT ANY COST?**

**FIRST Study**

It is well known that HIV+ individuals with lower T-cell counts are at increased risk for developing AIDS-related opportunistic infections (OIs). New data presented by Jason Baker and his team of researchers from the University of Minnesota (Abstract #37) indicate that lower T-cell counts create other risks—they raise the risk of serious health conditions not usually associated with HIV or AIDS. The FIRST (Flexible Initial Retrovirus Suppressiv Therapy) Study looked at the relationship between fatal and non-fatal OIs in contrast to infections not generally considered opportunistic (not related to HIV/AIDS), taking into account patients’ latest T-cell count before any of these events occurred.

In this study, almost 1,400 HIV+ patients who had never received HIV meds before were assigned to receive 1 of 3 types of standard HIV therapy (“non-nuke” + “nukes”, PI + “nukes”, or a combination of 3 drugs from 3 different classes). The average baseline (or starting) T-cell count was 163, with an average increase of 258 T cells during follow-up. After 5 years of follow-up, there were 266 new AIDS-defining events and 166 non-AIDS-defining events relating to heart, liver, and kidney disease, in addition to non-AIDS-defining cancers, such as skin, anal, and lung cancers. As expected, OIs occurred more often in subjects with detectable HIV viral loads and lower T-cell counts.

The data suggest that treatment strategies that reduce the amount of time spent with lower T-cell counts will prevent OI events as well as non-AIDS defining illnesses. These FIRST data support the findings of the SMART study (see above), which found that both OIs and non-opportunistic liver, kidney, and heart disease were more common in the group that interrupted therapy and spent more time at lower T-counts compared to those patients receiving continuous therapy.

Although it is well established that people who have low T-cell counts while taking HIV drugs remain at risk of AIDS-defining OIs, the risk of non-AIDS defining illnesses in such people has been unclear. The study raises some interesting questions. Are non-AIDS defining illnesses being caused by the toll that HIV takes on the immune system? Or, are people simply living longer (because of HIV drugs) and suffering from common problems related to older age? Although scientists have thought it was the latter, this thinking might be wrong. Because there was a noticeable drop in risk as T-cell counts rose,
researchers now believe that it is not just longer life spans that lead to serious illness. If researchers find out that this is the case, it might be better to start HIV meds earlier when a person’s T-cell count is 350, rather than waiting until it drops further.

**Kidney Risks**

Investigators from Europe and North America continue to discuss and investigate the double-edged effect of HIV drugs on kidney toxicity and kidney disease among people with HIV. While HIV drugs can help the kidney function better by reducing the damage that HIV itself does to it, these drugs continue to have their own toxic effects.

**Viread** (tenofovir) has been associated with kidney failure in certain cases, although the risks have proven to be nearly always mild, rare, and reversible. One presentation (Abstract #832) showed that Viread treatment may be associated with modest declines in the kidney’s ability to function properly, especially in treatment-experienced HIV+ patients. Also, exposure to low-dose Norvir may increase the risk of kidney damage in Viread-treated individuals. In a study with over 5,500 patients, researchers at Johns Hopkins University in Baltimore concluded that Viread was associated with a 4% greater decline in the ability of the kidney to work properly compared with alternative “nukes” in treatment-experienced patients.

The Swiss HIV Cohort Study team (Abstract #834) also looked at the effect of Viread on kidney function. They studied 700 people who either had never taken HIV meds or who had interrupted treatment for at least 12 months and had started combination therapy with or without Viread. The results showed that starting HIV combination therapy was associated with a significant decline in kidney function in all populations studied.

However, the decrease was much more frequent in patients treated with Viread.

**HELL NO, THE VIRUS WON’T GO!**

New data from the Centers for Disease Control and Prevention (CDC) suggest that 1 in 10 individuals diagnosed with HIV in recent years was infected with HIV strains that are resistant to at least one of the available HIV meds. The US Variant, Atypical, and Resistant HIV Surveillance (VARHS) system, in which blood samples from newly diagnosed individuals are tested for drug-resistant mutations, was created by the CDC to give the clearest picture of the scope and types of resistance in the US. This project involved more than 3,100 HIV+ patients in 11 states (Abstract #648). The system uses standard genotypic resistance testing, which identifies specific HIV mutations associated with drug resistance. Because the patients in this study had not started HIV treatment yet, having HIV drug-resistant mutations in their blood would mean that the resistant virus was transmitted to them at the time of their infection.

Results show that the level of resistance varied depending on the class of drug: resistance to “non-nukes” was the highest (6.9%), then “nukes,” at 3.6%, and last were protease inhibitors (2.4%). Only a small minority (1.9%) of individuals newly diagnosed with HIV had evidence of multiple drug resistance. Previous studies have suggested an increase in drug resistance over the last 10 to 15 years, from 5% in the mid-90s to 10% in recent years.

More studies need to be done so that investigators can determine if there are certain characteristics, such as health status before infection with HIV, gender or ethnic differences, sexual practices, or illegal drug use, that make a person more likely to become infected with drug-resistant HIV. This is a growing concern because the...
number of people with HIV infection who are taking HIV meds for long periods of time has increased. The possibility of infection with a strain of the virus that is harder to treat emphasizes the importance of HIV prevention efforts and the need to identify more effective treatment strategies.

**Kaletra**

Taking Kaletra (lopinavir/ritonavir) once a day may be less effective than taking it twice a day in patients with high viral loads. The AIDS Clinical Trials Group (ACTG) study 5073 (Abstract #138) consisted of over 400 HIV+ people who had a viral load below 200 copies. All patients took Emtriva with either Viread or Zerit (stavudine) in addition to Kaletra.

The patients were placed in 1 of 3 treatment groups. In the first group, patients took standard doses (400 mg lopinavir/100 mg ritonavir) of twice-daily Kaletra. In the second group, patients took standard doses (800 mg lopinavir/200 mg ritonavir) of once-daily Kaletra. In the third group, patients also received once-daily Kaletra, but as a part of “directly observed therapy” for 24 weeks, meaning that they took their daily doses under the direct supervision of health-care workers for the first 6 months of the study (but without supervision for the last 6 months of the trial). Patients in the first two study groups took their medications without supervision.

Overall, both treatment groups were able to achieve viral loads below 200 copies. However, over time, patients taking Kaletra once a day had higher viral loads than the twice-a-day group. For people beginning HIV therapy for the first time, Kaletra-based treatment regimens are a popular option, dosed either once or twice a day. Once-daily dosing requires taking 4 tablets every 24 hours; twice-daily dosing involves taking 2 tablets every 12 hours. A concern with all HIV treatment regimens is that people with high viral loads, usually defined as pre-treatment levels greater than 100,000 copies, may face greater challenges keeping their viral loads undetectable compared to those with lower pre-treatment levels. Therefore, as this study showed, the long-term risk of virologic failure is slightly higher for those with high viral loads taking the once-daily Kaletra-based regimen.

**THE GOOD, THE BAD, AND THE UGLY**

**Fosamax for Bone Loss**

Bone problems, such as osteopenia, osteoporosis, and osteonecrosis are usually seen in people over the age of 50. Lower levels of estrogen in women and testosterone levels in men may speed up bone loss, which leads to these conditions. As bone loss increases, a person may develop symptoms related to weakened bones, including back pain, loss of height, stooped posture, a curved backbone (dowager’s hump), or fractures that may occur with a minor injury, especially of the hip, spine, or wrist.

A study presented at the conference (Abstract #42) examined how well Fosamax, which is approved for the treatment of osteoporosis in HIV-negative individuals, worked in HIV+ patients who were doing well on their HIV treatment but who were experiencing bone loss. The AIDS Clinical Trials Group (ACTG) study 5163 was designed to investigate the safety and effectiveness of taking calcium and vitamin D supplements twice daily with or without once-weekly Fosamax for the treatment of bone loss in HIV+ people. The 82 patients received either 70 mg of Fosamax plus calcium and vitamin D or calcium and vitamin D plus a placebo. After a year of treatment, the patients on Fosamax plus supplements had an improvement in bone strength.

**Lipodystrophy Treatment**

Several studies presented information on drugs that could help reduce lipodystrophy in HIV+ individuals. One of these (Abstract #45LB), an experimental drug known as TH9507, stimulates the release of growth hormone, which helps the body develop and grow properly. The drug has the potential to help reduce visceral fat, a buildup of fat around the gut, deep within the body. This condition, which often occurs after beginning certain HIV treatments, is also known as metabolic syndrome and is a common occurrence for HIV+ people. But there
is a Catch 22. Treatments that reduce visceral fat can also reduce subcutaneous fat (the fatty tissue between skin and muscle). This is bad—it can lead to muscle loss, which is responsible for facial wasting (sunken cheeks) and thinning of the arms and legs.

Stephen Grinspoon, of Harvard Medical School, presented final results for 412 US and Canadian HIV+ patients with lipodystrophy-associated visceral fat increases. They received either 2 mg daily subcutaneous (under the skin) injections of TH9507 or placebo injections for 26 weeks. The good news is that patients who received the TH9507 had a 20% reduction in visceral fat compared to patients on placebo but without any significant changes in limb fat. The results also showed that cholesterol and triglyceride levels among those receiving TH9507 improved during the treatment period. No serious side effects were reported.

In the AIDS Clinical Trials Group (ACTG) study 5142 (Abstract #38), which compared 3 HIV drug regimens, researchers found that Kaletra plus 2 “nukes” is less likely to cause limb fat loss than Sustiva plus 2 nukes. Although the 753 patients in the study taking the Sustiva combination had better control of the virus than patients taking the Kaletra combination, they were more likely to have fat loss in the face and limbs. Further, a second study of Kaletra taken alone (Abstract #44LB) also found that when compared to patients treated with Sustiva and Combivir, those who received Kaletra monotherapy were much less likely to lose limb fat after 2 years of treatment. This is not surprising since researchers have known for a long time that AZT, which is part of the Combivir formula (AZT/3TC) can cause fat loss. (NOTE: Monotherapy is not recommended as standard therapy for HIV infection).

Preliminary results from another study (Abstract #39) indicate that Zetia may be a moderately effective cholesterol-lowering option for HIV+ patients receiving HIV drugs. A 14-week study conducted by researchers at the University of North Carolina, Chapel Hill, and the University of California, San Francisco, enrolled 48 HIV+ patients, all of whom were receiving HIV drugs and who had moderately high “bad” LDL cholesterol levels. In the first phase of the study, patients received 10 mg per day of Zetia or placebo for 6 weeks. This was followed by a 2-week “washout period” in which no one received treatment. Then, those who originally took the Zetia switched to 6 weeks of placebo treatment, and those originally taking the placebo took 6 weeks of Zetia. After 6 weeks of Zetia treatment, LDL cholesterol decreased by an average of 12% compared to a 3% drop in the placebo group. The researchers concluded that Zetia, used alone, led to significant declines in LDL cholesterol and was well tolerated.
NEW DRUG PROFILE: Maraviroc

It’s different, it’s strong, and it’s almost here.

What is it?
Maraviroc (or Celsentri) is an HIV medication, the first of its kind. Maraviroc doesn’t block HIV directly; instead, maraviroc binds to a human protein known as CCR5. This is one of the proteins HIV uses to enter human T cells. By binding to CCR5, maraviroc keeps HIV from infecting T cells.

Who’s it for?
Maraviroc, in combination with other HIV meds, is indicated for treatment-experienced adults infected with CCR5-tropic (attracted to something specified) HIV.

What does that mean?
In order for HIV to infect a T cell, the virus must first latch onto a receptor (nerve ending), called CD4, on the cell’s surface. Researchers have known for a long time that HIV needs a second receptor on the CD4 receptor to enter the T cell. The others receptors that it uses are CCR5 and CXCR4, with CCR5 being the most common. The new drug, maraviroc, has the ability to block HIV that uses CCR5, but not HIV that uses CXCR4. This is the first time that a treatment for HIV is targeting a function of the cells in the body, not the virus itself.

How do I know what kind of virus I have?
Your doctor can order a test called Trofile to see whether you have virus that uses CCR5, CXCR4 or both. This test is expensive and may take more than a month to complete. Some providers may not offer it. Also, if you have a low level of CXCR4 virus, the test can’t detect it.

What’s the dose?
The recommended initial dose is 300 mg twice daily. But your dose might be decreased to 150 mg twice daily, or increased to 600 mg twice daily, depending on the other medications you’re taking.

Do I have to take maraviroc with food?
You can take it with or without food, as you prefer. (Of course, this might not be true of all your other medications.)

When does maraviroc become available?
The Food and Drug Administration’s Antiviral Advisory (FDA) Committee voted 12 to 0 on April 24, 2007 to approve maraviroc. The drug will probably be available in June 2007.

What did the studies show?
The two registrational studies were known as MOTIVATE I and MOTIVATE II. (MOTIVATE stands for Maraviroc + Optimized Therapy In Viremic Antiretroviral Treatment Experienced Patients.) The studies were also known by their numbers, 1027 and 1028.

In both studies, nearly twice as many patients treated with maraviroc reached undetectable viral loads (less than 50 copies) compared to those receiving placebo. Patients treated with maraviroc also had greater increases in their T-cell counts than patients receiving placebo.

What are the risks?
In the studies, thrush, herpes simplex infections, and upper respiratory tract infections were more common among those receiving maraviroc than among those receiving placebo.

What else?
As noted above, maraviroc doesn’t block the virus; it blocks a natural human protein, CCR5. Some worry about the long-term effects of blocking a natural protein, one that may play an important role in the immune system. That’s a reasonable concern. But keep this in mind: some people are born without the ability to make CCR5, and they live healthy, normal lives.

Others worry that by blocking CCR5, CXCR4-using virus will emerge. CXCR4-using virus has been associated with rapid HIV disease progression. But in the MOTIVATE studies, when CXCR4-using virus emerged in people taking maraviroc, it did not appear to damage their immune systems. In fact, some of these people had increases in their T-cell counts even though their viral loads did not decline.

Who makes maraviroc?
Pfizer.

Does Pfizer have any plans to study maraviroc in treatment-naive patients?
Yes. In fact, that study is already underway.
HIV Super Strain Revisited

In the April 2005 edition of The Center for AIDS Information & Advocacy *HIV Treatment ALERTS!*, we reported the strange case of a 40-something year old, gay man in New York City (referred to as NYC) who appeared to be newly infected with a form or “strain” of HIV that was resistant to the 3 main classes of HIV drugs. To complicate matters, his disease was quickly progressing to the clinical definition of AIDS (very low T-cell count). At the time, the scientific community was very concerned because this case highlighted the possibility that there was a new strain of HIV that could not be treated with available HIV meds and that was being spread through unprotected sex. After testing positive for HIV in December 2004, NYC quickly progressed to having AIDS in a matter of months. In spite of this diagnosis, the man reportedly continued to have unprotected anal sex with multiple partners, often taking methamphetamine (“meth”) too.

Although such cases had been extremely rare until this point, the media was quick to grab hold of the story, warning of “a new, impossible-to-treat strain of HIV.” Public Health departments used the case as “a wake-up call to men who have sex with men,” urging them to take action and prevent the “devastation” that the spread of this drug-resistant strain of HIV could cause. Some of the media sources seemed to be reviving the public outrage of the early days of the AIDS epidemic. By giving the new strain a name, “3DCR-HIV” (short for “3-drug-class-resistant HIV”), the New York City Health Department drew parallels to an unnamed new virus that was called “GRID,” or gay-related infectious disease. The case also renewed the debate here in the US about the best way to teach sex education and HIV prevention—comprehensive versus abstinence-only programs. Even at that time, many in the medical community warned against spreading panic unnecessarily. The specific details of the NYC case had not been reported in a scientific journal, only in the mainstream press, an information source not known for its objective news coverage. The *ALERTS* cautioned our readers not to overreact before more details were known.

Finally, 2 years later, the first comprehensive report on the case has been published in the May 1st *Journal of Infectious Diseases*. Not surprisingly, most of the assumptions about the case turned out to be wrong. Ongoing studies of the NYC patient now suggest that he may have been infected with a very resistant strain of HIV rather than having developed it himself. The rapid drop in his T cells was probably caused by primary infection rather than the extremely rapid course of infection that was first reported. The person who infected NYC (let’s call him John) was finally identified; it was discovered that the virus John was infected with was very drug-resistant and that his regular sexual partner (let’s call him Bob) was also infected with a very drug-resistant virus.

NYC’s initial AIDS diagnosis and status as a “rapid progressor” were based mostly on his very low T-cell count of 80. He showed no signs of serious disease progression other than fever, sore throat, weakness, fatigue, and weight loss, all of which are common symptoms of primary infection. The case was further complicated by the fact that John was not following his HIV treatment regimen very closely. This could have led to mutations which made his strain of the virus even more drug-resistant. For years, researchers have thought that HIV reinfe-
Although such cases had been extremely rare until this point, the media was quick to grab hold of the story, warning of “a new, impossible-to-treat strain of HIV.”

tion, or “superinfection,” as it is sometimes called, can happen as a result of unprotected sex between 2 HIV-infected people. Simply put, superinfection occurs when a person with HIV gets infected a second time with a different strain of the virus while having unprotected sex or sharing needles with another HIV-infected person. Over time, the new strain will flourish in the body, often making a person’s once successful treatment useless and leading to a high viral load and a weakened immune system.

Here is what we now know. It appears that John had been suffering from a very serious case of AIDS, even though he had been taking HIV drugs for many years. This suggests that the strain of HIV that he had was probably quite strong and multi-drug resistant. NYC reportedly engaged in unprotected anal intercourse with both John and Bob, despite knowing their HIV status. All 3 individuals reported using methamphetamine drugs during the night in question.

What does this tell us about the NYC case? His rapid disease progression was not caused by a “superbug” that was mutating and growing inside of his body, making him develop AIDS in a matter of months. It came about because he was “superinfected” during unsafe sex with 2 people who were drug-resistant. The use of illegal drugs didn’t help—it probably made his immune system a little weaker and made it easier for superinfection to happen. All of the panic over a superbug could have been explained sooner if anyone had looked into NYC’s sexual contacts during the first few months after he became sick.

Although the initial fears of a multidrug-resistant strain of HIV spreading rapidly through sex were exaggerated, this case raises a red flag about the dangers of transmitting a drug-resistant strain of HIV—or superinfecting—an HIV+ partner. There have been other reports over the years of superinfection and the potential for rapid disease progression in early HIV infection. Health-care providers who counsel HIV-infected patients now need to be sure that patients understand that getting a drug-resistant strain of HIV through unprotected sex is possible.

In the end, this case is important for a few reasons. First, it illustrates the public health implications of unsafe sex between HIV+ people—the possibility of HIV becoming more and more resistant to drugs is real and growing. Second, it highlights the need for more research to understand just how risky superinfection can be and how it could be controlled or treated. Third, it emphasizes the need to figure out what health conditions or behavioral factors might predict whether or not a person is likely to be superinfected. And finally, it reminds us that we can’t take everything we see in the media at face value. Too often, things get blown out of proportion in the rush to be the first to get a story out. It is always best to wait for scientific reports, especially when it comes to health concerns.
Scientists have discovered that a substance in green tea prevents HIV from attaching to our immune system cells by getting there first. According to researchers from Baylor College of Medicine in Houston and the University of Sheffield in the England, in a report that appears in the Journal of Allergy and Clinical Immunology, a compound in green tea called catechin, also known as epigallocatechin gallate [EGCG] or flavonoid) blocks the ability of HIV to enter and destroy the immune system.

The health effects of brewed green tea are attributed to numerous chemical substances that make up 30% of dried leaf extract. Of these, EGCG is the most active. Similar substances in other plants have been found to be less plentiful and have fewer medicinal properties. EGCG binds well to many molecules and affects a variety of enzyme. It is this specific aspect of green tea that researchers think is responsible for its many reported health benefits.

Animal studies have shown that drinking green tea is associated with a lower rate of cancer in humans. The major component of green tea, EGCG, is thought to be the most potent cancer-preventive component of the catechins. This protective effect of green tea has been evaluated in pancreatic, colon, rectal, skin, breast, prostate, liver, and lung cancer. Recently EGCG has emerged as a potential candidate in the fight against AIDS. Investigators have found that its antiviral effects can be targeted at HIV infection. However, this does not mean you should start drinking gallons of green tea every day. But, there is some encouraging news.

HIV infection results in damage to the immune system when the gp120 glycoprotein (a protein that has sugar molecules attached to it) latches onto the T cell. Even though gp120 produces antibodies that help fight against the virus, HIV manages to escape, leading to infection. Ever since the discovery of the virus as the cause of AIDS, there has been an intense effort to develop methods to slow down or prevent HIV infection. Until now, scientists have spent much of their time trying to find ways to build up the immune system to prevent HIV from attaching itself to the T cells. Christina L. Nance, PhD, and William T. Shearer, MD, PhD, of Baylor College of Medicine and Texas Children’s Hospital, and Mike P. Williamson, PhD, of the University of Sheffield, began looking at ways to get high enough levels of EGCG into the body for it to be able to protect the body against HIV. They paired the T cell with gp120, then paired the T cell with EGCG. By studying the physical structure of the T cell, they realized that EGCG hooks onto the same exact pocket on the T cell as gp120. This ability to block gp120 is its most important feature since it prevents the initial encounter of HIV with T cells.

If EGCG proves to have value as an HIV treatment, it probably will not be used alone. It would be part of a combination of drugs. The researchers do not recommend that people drink large quantities of green tea with the expectation that it will prevent infection with HIV. These studies are designed to determine whether a drug derived from green tea would have that effect. The next phase of the research will be testing EGCG in humans.

1 Journal of Allergy and Clinical Immunology 118(6):1369-74, Dec 2006.

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In January, new precautions were added to the labeling for the injectable HIV fusion inhibitor Fuzeon. The new information focuses on side effects reported when the Biojector 2000 needle-free device is used to inject Fuzeon. In addition, the correct injection sites are spelled out.

Patients using the Biojector 2000 needle-free device to inject Fuzeon may experience shooting nerve pain and tingling that can last for up to 6 months. This is caused by injecting the drug close to large nerves or near joints. In addition, bruising and collections of blood under the skin have been reported. Patients taking blood thinners, or patients with hemophilia or any other bleeding disorder, may be at higher risk of bruising or bleeding after using the Biojector.

The preferred body sites for injecting Fuzeon (regardless of the injection method) are the upper arm, abdomen, and upper thigh. Do not inject Fuzeon in the same area as you did the time before or where there is a current injection site reaction from an earlier dose. Fuzeon should not be injected near the elbow, knee, groin, or the lower or inner buttocks. In addition, Fuzeon should not be injected directly over a blood vessel; into moles, scar tissue, or bruises; or near the navel (belly button), surgical scars, tattoos, or burn sites.

In January, new precautions were added to the labeling for the “non-nuke” Sustiva concerning potential drug interactions. Patients taking Sustiva should not take Hismanal (astemizole), Vascor (bepridil), Propulsid (cisapride), Versed (midazolam), Orap (pimozide), Halcion (triazolam), or ergot derivatives (for example, Wigraine and Cafergot). Patients could experience serious and life-threatening side effects if Sustiva is taken with one or more of these drugs.

In addition, if combined with Sustiva, the following drugs may require a change in the dose of either Sustiva or the other medicine: Rifadin (rifampin); Sporanox (itraconazole); Nizoral (ketoconazole); calcium-channel blockers (for example, Cardizem, Tiazac, and others); and the cholesterol-lowering medications Lipitor (atorvastatin), Pravachol (pravastatin), and Zocor (simvastatin). Sustiva should not be taken with standard doses of Vfend (voriconazole). However, Sustiva and Vfend can be taken together if dose adjustments are made for both drugs.
Anemia treatment warnings

In March, the Food and Drug Administration (FDA) issued a warning about the use of Aranesp, Epogen, and Procrit in all patients. These drugs are called erythropoiesis-stimulating agents (ESAs). They stimulate a patient’s bone marrow to produce more red blood cells and are given to patients to reduce the need for blood transfusions. ESAs are used to treat anemia in a variety of conditions, including anemia caused by chronic kidney failure, cancer, and treatment with Retrovir (AZT, zidovudine) in HIV patients. These drugs are sometimes also given to patients before they have major surgery to reduce the need for blood transfusions.

The warnings advise health-care providers to monitor red blood cell levels (hemoglobin levels) and to adjust the dose of ESAs to maintain the lowest hemoglobin level necessary to avoid a blood transfusion. Recent studies show that when patients with chronic kidney failure receive a higher than recommended dose of an ESA, they are more likely to die or experience blood clots, strokes, heart failure, and heart attacks. Other studies have reported that patients with head and neck cancer receiving radiation therapy had faster tumor growth. In addition, cancer patients not receiving chemotherapy died sooner and did not have any fewer blood transfusions when ESAs were given according to the dosing recommendations for cancer patients receiving chemotherapy.

Finally, patients scheduled for surgery who received ESAs to reduce blood transfusions during and after surgery had more blood clots than those not given an ESA.

While ESAs appear to be safe and effective when used at the recommended dose, anyone using these drugs must be aware that they are at increased risk of death and of serious heart complications, including stroke, heart attack, and blood clots in the heart or lungs. The warnings recommend that patients and their health-care providers carefully consider the risks of ESAs and the risks of red blood cell transfusions (an alternative treatment for anemia) before making a decision to use ESAs.

Last December, the Food and Drug Administration (FDA) approved Radiesse, an injectable filler to correct signs of facial lipoatrophy (loss of fat) in HIV+ people. Until now, Sculptra was the only facial filler approved by the FDA for this condition. Radiesse contains a synthetic (or man-made) version of calcium hydroxyapatite, a substance found in bones and teeth. When Radiesse is injected into the skin, natural collagen forms around the calcium hydroxyapatite. As a result, the skin becomes thicker and conceals the hollows in the face associated with lipoatrophy. Common side effects include bruising, swelling, pain, and redness at the injection side, which are usually temporary and mild in nature. There is also the small possibility of infection at the injection site. Radiesse is considered to be a temporary filler and treatment may need to be repeated within a few years to maintain results.
**Anemia:** low levels of red blood cells or hemoglobin in the blood, resulting in feelings of tiredness or fatigue.

**Antibody:** proteins produced by the immune system to fight specific bacteria, viruses, or other antigens.

**Chemokine antagonist:** (also known as CCR5, short for chemokine receptor 5). This new class of HIV drugs blocks HIV from attaching onto the CCR5 receptor on the T-cell, making it hard for the virus to enter T cells.

**Enzyme:** a protein made in the body that can change one substance into another.

**Genetic material:** used to store a person’s biological blueprint in the body.

**Genotypic resistance testing:** a test that looks at a person’s HIV genes to see if there have been changes (mutations) to HIV. When changes in these HIV genes occur, HIV drugs are not as effective.

**Growth hormone:** a substance secreted by one part of the body that stimulates cells in another part of the body.

**Integrase inhibitor:** a new class of HIV medication that blocks the action of integrase, an enzyme that inserts genetic material from the virus into a person’s cells.

**Lipoatrophy:** the loss of fat under the skin, especially in the limbs and cheeks, that appear as dents in the skin.

**Lipodystrophy:** changes in the body fat, such as loss of fat in the arms and legs, and a buildup of fat in the gut or at the back of the neck.

**Mutation:** occurs when a gene is damaged or changed in such a way as to alter the genetic material carried by that gene.

**Opportunistic infection:** a disease or infection caused by an organism that is usually harmless but becomes activated when a person’s immune system is weakened or damaged.

**Osteopenia:** refers to bone mineral density that is lower than normal but not low enough to be classified as osteoporosis.

**Osteoporosis:** a disease that weakens bones, increasing the risk of sudden and unexpected fractures.

**Osteonecrosis:** the destruction (necrosis) of bone tissue, often due to an interference with the supply of blood to the bone.

**Placebo:** a pill or substance with no effect on the body, such as a sugar pill. It is often used to compare with a real medication to see what the medication’s real effect might be.

**Primary infection:** the period soon after being infected HIV when the virus multiplies rapidly and causes flu-like symptoms.

**Regimen:** a treatment plan for drugs or medications, including the dose, the schedule of treatments.

**Resistance (resistant):** a genetic change that allows HIV to reproduce itself in the presence of an HIV medication.

**Toxicity:** the degree to which a substance is poisonous or dangerous.

**Triglyceride:** a type of fat found in the blood that the body uses to store energy.

**Virologic failure:** an increase in viral load.
HIV+? We’re fighting for a cure. In the meantime… We can show you how to stay alive.

Questions about HIV?
• Would you like the most up-to-date material on HIV disease and its treatment?
• Are you a provider with information needs for yourself or for clients?
• Would you like information about our HIV educational programs?

The CFA can help. The Center for AIDS (CFA) Information and Advocacy advocates both locally and nationally for better treatments and better access to care for persons living with HIV/AIDS and strives to keep the Houston medical and affected community informed, updated, and involved in the search for a cure.

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