Is HIV Treatment Actually Reducing Heart Attack Risk?

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New study data reported at the fourth IAS Conference on HIV Pathogenesis, Treatment and Prevention indicates that HIV treatment—despite its often negative effects on blood lipid levels—may actually reverse artery hardening that can lead to a heart attack or stroke.

Research has shown that immune activation—and possibly HIV itself—can contribute to the formation of plaques inside blood vessel walls, possibly leading to artery hardening (arteriosclerosis). In turn, some investigators are now hypothesizing that antiretroviral (ARV) treatment may actually have positive effects on cardiovascular health—and there is a growing body of evidence suggesting that patients on treatment have less likelihood of getting cardiovascular disease than those are not on HIV medications.

Adding to the mounting data is study A5142, a clinical trial comparing Sustiva, Kaletra and both drugs combined in patients starting treatment for the first time. It found improvements in flow-mediated dilation (FMD), a cardiovascular test for arteriosclerosis that measures the ability of blood vessels to expand, in patients after six months of potent ARV therapy.

According to Francesca Torriani, MD, of the University of California, San Diego, who presented the results on behalf of her AIDS Clinical Trials Group (ACTG) colleagues, it didn't matter which treatment regimen patients were on—it was the reduction in viral load that had the positive effect on patients' FMD scores.

Preliminary results from A5142 had found advantages in both the Sustiva and Kaletra arms of the study. Whereas Sustiva showed a slightly better long-term antiviral effect, Kaletra was associated with less pronounced reductions in limb fat.

The A5142 data at IAS 2007 come from an 82-patient substudy. Using ultrasound, the researchers measured patients' FMD in their brachial arteries, which run from the shoulder to the elbow. They were tested upon entering the study, then at weeks 4 and 24.

The average age upon entering the study was 35 years; 91 percent were men, 54 percent were white, and 44 percent were active smokers. The average pretreatment CD4 count was 252 and the

average viral load was almost 100,000 copies.

While a normal FMD result is one greater than 7 percent, the average pretreatment reading among those participating in the substudy was approximately half that: 3.68 percent. After four weeks, dilation had improved by 0.74 percent; by week 24, it had improved by 1.48 percent.

Dr. Torriani said that FMD improvements were similar in all three treatment groups, even though "bad" LDL cholesterol levels became elevated in patients receiving either of the Kaletra-containing regimens. Total and "good" HDL cholesterol levels increased in all three groups.

When the researchers looked at factors associated with FMD changes, only a reduction in viral load—not the treatment used or the changes in lipid levels—was linked with improvements.

"During the first 24 weeks of antiretroviral treatment, effective control of HIV replication improves [blood vessel] function regardless of the initial antiretroviral regimen or lipid effects," Dr. Torriani's group wrote in their study abstract.

Research exploring both the risks and benefits of ARV treatment, including early HIV treatment studies, is being planned or currently underway.

Source:

Torriani F, Komarow L, Cotter B, et al. **Control of HIV viral replication is associated with rapid improvement in endothelial function sustained over 24 weeks: A5152s, a substudy of A5142** [Abstract WEAB302]. Fourth IAS Conference on HIV Pathogenesis, Treatment and Prevention, Sydney, 2007.
