HIV Lipodystrophy: Rosiglitazone or Metformin?

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The full report is titled "Comparison of Rosiglitazone and Metformin for Treating HIV Lipodystrophy. A Randomized Trial." It is in the 6 September 2005 issue of *Annals of Internal Medicine* (volume 143, pages 337-346). The authors are J.P.H. van Wijk, E.J.P. de Koning, M. Castro Cabezas, J. op't Roodt, J. Joven, T.J. Rabelink, and A.I. Hoepelman.

What is the problem and what is known about it so far?

Powerful drugs (highly active antiretroviral therapy, or HAART) have greatly improved survival and quality of life in patients infected with HIV. They also can produce troublesome side effects. One possible side effect, called lipodystrophy, deals with how the body makes and uses fat. Patients with lipodystrophy may have a wasting appearance because they lose fat from the face, arms, legs, and buttocks and gain it in the belly, breasts, and back of the neck. They can develop resistance to insulin (the hormone that allows cells to use sugar), diabetes, and a high triglyceride level. They also may have problems with their arteries (atherosclerosis) that increase the risk for stroke and heart attacks. Doctors now wonder whether drugs that affect insulin resistance and that are used to treat diabetes, such as rosiglitazone or metformin, may help prevent some of the problems associated with lipodystrophy.

Why did the researchers do this particular study?

To compare the effects of rosiglitazone and metformin in patients with HIV lipodystrophy.

Who was studied?

39 HIV-infected men with lipodystrophy who had been receiving antiviral drugs for at least 18 months.

How was the study done?

The researchers recruited men from an HIV clinic in the Netherlands who self-reported fat loss in their face, arms, legs, and buttocks. They received sugar- and fat-loading tests and blood tests to measure levels of insulin, glucose, lipids, and adiponectin. (Adiponectin is a hormone produced by fat cells that affects metabolism of sugar and lipids. High levels are associated with decreased risk for heart attacks.) The researchers measured the amount of fat in the men's bellies with computed tomography. They also measured the ability of an artery in the arm to relax and expand in response to increased blood flow (flow-mediated vasodilation). After these measurements, men were randomly assigned to receive either rosiglitazone or metformin for 6 months. The researchers then repeated the tests and compared how they had changed with the 2 treatments.

What did the researchers find?

Compared with metformin, rosiglitazone increased belly fat and adiponectin levels. Compared with rosiglitazone, metformin reduced lipid levels and increased some measures of artery vasodilation. Both drugs reduced sugar and insulin levels similarly.

What were the limitations of the study?

The small size and short duration of the study prevent firm conclusions about the clinical usefulness of either therapy in patients with HIV lipodystrophy. Whether either therapy affected the risk for heart attack or stroke was not tested. Both the patients and their doctors knew which treatment the men received.

What are the implications of the study?

Available evidence does not establish whether rosiglitazone or metformin better benefits HIV-infected patients with lipodystrophy.