Diabetes Med Glucophage and Diet/Exercise Changes Improve Cardio Risks in HIV

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People living with HIV and metabolic syndrome who combined the diabetes drug Glucophage (metformin), both with and without dietary changes and exercise, may be able to stave off signs of cardiovascular disease (CVD), according to a new research paper published online ahead of print in the journal AIDS.

CVD, including "sub-clinical" signs of the disease such as plaque buildup in arteries (atherosclerosis), is increasingly common among people living with HIV. A likely reason for this is an increased rate of metabolic syndrome—a combination of diabetes, high triglyceride and cholesterol levels, elevated blood pressure and/or abdominal obesity—among HIV-positive people, including those using antiretroviral therapy.

Dietary changes and exercise have long been considered to be important elements of CVD prevention and management, though their benefits in preventing plaque buildups in the arteries and other important cardiovascular health markers aren't well understood.

Similarly, while drugs such as Glucophage have been shown to significantly reduce CVD-related complications in overweight HIV-negative people with diabetes, they haven't been well studied in people living with HIV, particularly those not already using medications for diabetes.

Fifty people living with HIV with metabolic syndrome were recruited for the study, conducted by Kathleen Fitch, NP, and her colleagues at Massachusetts General Hospital in Boston. The study volunteers averaged 46 years of age at study entry; CD4 counts were between 406 and 691 in the four groups; just less than half were cigarette smokers; and most participants in the study had undetectable viral loads.

Four groups were compared in the study. The first group treated patients with 500 milligrams (mg) of Glucophage twice daily, with dose increased up to 850 mg twice daily, without any dietary or exercise interventions. The second group received dietary guidance and structured exercise training, but not Glucophage treatment. The third group received both Glucophage and diet/exercise modification training. The fourth group received neither intervention.

Measures of coronary artery calcification (CAC)—a marker of artery-blocking arteriosclerosis—and cardiovascular fitness were conducted at various time points in the study.

According to Fitch's group, Glucophage-treated patients demonstrated significantly less

progression of CAC than those who received placebo of diet/exercise changes alone. Lifestyle changes did not prove to slow progression of CAC, statistically speaking, though there did appear to be a trend toward more calcification buildup among those who didn't undergo either Glucophage treatment or diet/exercise modifications.

The only group in which there appeared to be an improvement in CAC—not simply slowed progression—involved patients receiving both Glucophage and diet/exercise modifications. While this reduction was statistically significant when compared with those who didn't receive any intervention, it was no statistically significant when compared with data involving those who received Glucophage alone.

There were some important and statistically significant benefits associated with lifestyle modifications alone. These included improvements in "good" HDL cholesterol levels, high sensitivity C-reactive protein (an inflammatory marker associated with CVD) and cardiovascular and respiratory fitness. Conversely, Glucophage treatment had no affect on these markers.

"[This] study is the first to demonstrate the potential utility of metformin to prevent a very significant, progressive increase in the calcified plaque progression among HIV-infected patients with metabolic syndrome," Fitch and her colleagues conclude. "Lifestyle management and training was effective to increase fitness and improve selective metabolic indices, but did not prevent progression of atherosclerosis as much as metformin. Further studies are now needed to understand the mechanisms of metformin to prevent calcified plaque progression and to determine whether metformin, alone or in combination with other strategies, might reduce or prevent CVD events in this population."
