Study indicates diabetes medication may help slow plaque build-up in coronary arteries

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A comparison of two types of medications to treat type 2 diabetes finds that pioglitazone is more effective at lowering the rate of progression of plaque build-up in the coronary arteries than glimepiride, according to a study in the April 2 issue of JAMA. This study is being released early online March 31 to coincide with its presentation at the annual conference of the American College of Cardiology.

Atherosclerosis (process in which plaque builds up in the inner lining of the arteries) in patients with diabetes is particularly aggressive, characterized by higher cardiovascular event rates. Cardiovascular disease is the cause of death in approximately 75 percent of patients with diabetes. Determining the optimal treatment for coronary artery disease for patients with diabetes has important public health implications, according to information in the article.

There is little evidence to support a preference of one class of glucose-lowering medication over any other as a means to reduce the severity of atherosclerotic disease. Sulfonylureas, such as glimepiride, have been available for decades and represent one of the most commonly-used classes of antidiabetic therapy. Thiazolidinediones (TZDs; such as pioglitazone) are a relatively new class of antidiabetic agents.

Steven E. Nissen, M.D., of the Cleveland Clinic, and colleagues conducted the PERISCOPE trial to directly compare the effectiveness of two alternative approaches for treating hyperglycemia, an insulin-providing strategy (glimepiride) vs. an insulin-sensitizing strategy

(pioglitazone), in reducing progression of atherosclerosis in 543 patients with type 2 diabetes and coronary disease. The randomized, multicenter trial included 97 academic and community hospitals in North and South America (enrollment August 2003 - March 2006).

The patients underwent coronary intravascular ultrasonography to measure progression of atherosclerosis and were randomized to receive glimepiride or pioglitazone for 18 months. Atherosclerosis progression was measured by the change in percent atheroma volume (PAV; a measurement of plaque build-up in an artery) with repeat intravascular ultrasonography examination in 360 patients at study completion.

The primary efficacy measure, change in PAV, increased 0.73 percent in the glimepiride group and decreased 0.16 percent in the pioglitazone group. An alternative analysis imputing values for patients who did not have follow-up ultrasound procedures and based on baseline characteristics showed an increase in PAV of 0.64 percent for glimepiride and a decrease of 0.06 percent for pioglitazone. A secondary efficacy measure, change in maximum atheroma thickness increased in the glimepiride group and decreased in the pioglitazone group.

“The observation of a significant benefit for pioglitazone treatment represents, to our knowledge, the first demonstration of the ability of any hypoglycemic agent to slow the progression of coronary atherosclerosis in patients with diabetes. Evidence for a slowing of disease progression has proven a very challenging end point in recent years with the prominent failure of several promising approaches,” the authors write.

“Patients randomized to pioglitazone exhibited a lower rate of progression of coronary atherosclerosis across a wide array of prespecified and exploratory subgroups. These finding may have important implications for defining the optimal strategy for management

of patients with type 2 diabetes and coronary atherosclerosis," the researchers conclude.

Source: JAMA and Archives Journals