

# Gender-based treatment needed for cardiovascular risk factors in diabetes

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Women with type 2 diabetes and high cholesterol are less likely than their male peers to reach treatment goals to lower their "bad" cholesterol, or low-density lipoprotein (LDL) cholesterol, despite access to cholesterol-lowering medication, a Canadian study finds. The results were presented on Saturday at the joint meeting of the International Society of Endocrinology and the Endocrine Society: ICE/ENDO 2014 in Chicago.

Although other research has shown a similar gender gap in reduction of LDL [cholesterol](#) among adults with [diabetes](#), the new study found that access to medication is not responsible for this difference. All patients, who were in a database from pharmacies in four Canadian provinces, had social insurance and could afford their medications, according to the study's principal investigator, Pendar Farahani, MD, MSc, an endocrinologist at Queen's University, Kingston, Ontario.

The finding that women were not able to lower their so-called [bad cholesterol](#) sufficiently is a concern, Farahani noted. Abnormal cholesterol levels are a risk factor for heart disease and stroke, as is diabetes.

"Women with diabetes have a considerably higher rate of cardiovascular-related illness and death than men with diabetes," Farahani said. "This pattern is likely related to poorer control of cardiovascular risk factors."

To evaluate whether biological sex influenced the results of cholesterol-

lowering drug treatment, the investigators included nearly equal numbers of men and women (101 and 97) in their study. The average age for men was 65 years and for women was 63. All patients had Type 2 diabetes and had filled prescriptions for statin medication to treat [high cholesterol](#) between 2003 and 2004.

With treatment, only 64 percent of women lowered their LDL cholesterol to the recommended level compared with 81 percent of men, the investigators reported. The average LDL cholesterol level was 2.39 millimoles per liter (mmol/L) among women and 2.07 mmol/L for men.

At the time of the study, the Canadian Diabetes Association recommended that people with diabetes achieve an LDL cholesterol level of 2.5 mmol/L or less (now 2.0 mmol/L). In the U.S., LDL cholesterol goals are ideally below 100 milligrams per deciliter (mg/dL), the equivalent of less than 2.59 mmol/L, according to the American Diabetes Association.

The study did not explore the reasons why women had poorer LDL cholesterol. However, past research supports that women have poorer adherence to taking their statin medicine. Farahani said statins theoretically appear to have somewhat dissimilar pharmacological properties in a woman's body than a man's, which might explain why women typically have more bothersome side effects such as muscle pain.

Despite their differences in LDL cholesterol, male and female subjects reportedly achieved similar long-term control of their blood glucose, or sugar, as measured by a hemoglobin A1C level of 6.8 percent for each group. Most people with diabetes should have an A1C below 7 percent.

"Additional clinical investigations of the reasons for gender differences are needed to eliminate fundamental inequalities between men and [women](#) in the treatment and prevention of cardiovascular disease in

patients with diabetes," Farahani said. "The findings suggest the need for gender-based evaluation and treatment of [cardiovascular risk factors](#) in these patients."

Provided by The Endocrine Society

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