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Depression in postmenopausal women may increase diabetes and cardiovascular disease risk

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Postmenopausal women who use antidepressant medication or suffer from depression might be more likely to have a higher body mass index (BMI), larger waist circumference and inflammation—all associated with increased risk for diabetes and cardiovascular disease, according to a study led by University of Massachusetts Medical School investigator Yunsheng Ma, PhD, MD, MPH, and published in the June 13 issue of the *American Journal of Public Health*.

The UMass Medical School study investigated whether elevated depressive symptoms and antidepressant use are associated with biomarkers for glucose dysregulation and inflammation, BMI and waist circumference. The three main findings indicate that both elevated depressive symptoms and antidepressant use are each significantly associated with higher BMI and waist circumference; elevated depressive symptoms are associated with increased levels of insulin and insulin resistance; and antidepressant use is associated with increased C-reactive protein (CRP) levels, a marker of inflammation, which increases the risk of type-2 diabetes and cardiovascular disease.

"It may be prudent to monitor post-menopausal women who have elevated depression symptoms or are taking antidepressant medication to prevent diabetes and cardiovascular disease," said Dr. Ma, associate professor of medicine, who with UMMS colleagues analyzed data from the landmark Women's Health Initiative (WHI).

Postmenopausal women were recruited into the WHI from 1993 to 1998, and data for this analysis were collected at regular intervals through 2005. Using data from 1,953 women who completed all relevant WHI assessments, the study found that elevated depressive symptoms were found to be significantly associated with increased insulin levels and measures of insulin resistance. Significantly, throughout the entire 7.6 years on average that women were enrolled in the WHI, those who had elevated depressive symptoms or were using antidepressants had higher average BMI and waist circumference than did women not using antidepressants or without depressive symptoms among 71,809 women. However, the associations were stronger for waist circumference.

Analysis of data from 2,242 women showed that both elevated depressive symptoms and antidepressant use was associated with higher CRP levels, a marker of inflammation.

"Identifying these markers in women is important for diabetes prevention because they can be monitored for possible action before progression to full-blown diabetes," said Ma.

Few studies have examined the association of BMI, waist circumference and biomarkers of glucose dysregulation and inflammation with depression, antidepressant medication use, or both. The UMMS study included a large, racially and ethnically diverse sample of post-menopausal women. Because the analysis was epidemiological, it could not determine a causal relationship, so further study is needed to confirm the results through clinical trials.

"Given that diabetes and cardiovascular disease can be effectively prevented or delayed in high-risk individuals with lifestyle modifications or pharmacological interventions, our findings indicate the prudence of monitoring BMI, waist circumference, along with established biomarkers for diabetes and cardiovascular risk including serum glucose,

insulin resistance, and CRP among women with elevated depression symptoms, or who are taking antidepressant medication, to prevent diabetes and cardiovascular disease," adds Simin Liu, MD, MS, MPH, ScD, professor of epidemiology and medicine at Brown University, a WHI investigator and study coauthor. "Further intervention trial is needed to confirm our findings and identify the specific patterns of change associated with diabetic and cardiovascular disease risk markers and individual antidepressants and depression."

Provided by University of Massachusetts Medical School

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