Diabetes, Depression Bidirectional in Women

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The association between diabetes and depression is bidirectional in middle-age women, with the presence of either disease significantly raising the risk that the other also will develop, according to a report in the journal.

Moreover, diabetes raises the risk of depression, and depression raises the risk of diabetes, independently of other known risk factors such as adiposity that are common to both diseases, said An Pan, Ph.D., of the Harvard School of Public Health, Boston, and his associates.

To date, "only a few" studies have examined the association between diabetes and depression simultaneously, and their results have been inconsistent. To study the bidirectional relationship, the investigators analyzed data in a large prospective cohort – the Nurses' Health Study.

The NHS involved female registered nurses residing in 11 states who were followed every 2 years via health questionnaires. Dr. Pan and his colleagues assessed a subset of 65,381 NHS participants who were aged 50-75 years in 1996 and were followed until 2006.

Depressive symptoms were categorized according to the women's scores on the Mental Health Index 5, whether depression had been diagnosed by a physician and whether they used antidepressants. Diabetes was categorized as requiring no medications, only oral hypoglycemics, or insulin therapy.

During follow-up, 2,844 incident cases of diabetes were documented. The risk of developing diabetes was significantly higher in women who had depressive symptoms than in those who did not. This rise in diabetes risk showed a "dose-response relationship" with worsening depressive symptoms, such that diabetes risk increased significantly as scores on the MHI-5 rose.

This association between depression and diabetes remained significant, although it was markedly attenuated, when the data were adjusted for BMI and lifestyle factors, particularly physical activity.

In a separate analysis of the same data, 7,415 subjects developed incident clinical depression during follow-up. Compared with women without diabetes, women with diabetes had a relative risk of developing clinical depression of 1.44, the investigators said (Arch. Intern. Med. 2010;170:1884-91).

Controlling for hypertension and coronary heart disease attenuated this association, but it remained significant.

The risk of developing clinical depression also showed a dose-response relationship with worsening diabetes symptoms. Women with diabetes who were not taking any medication had a relative risk of 1.36 for developing clinical depression; in those taking oral agents, RR was 1.42; and in those taking insulin, RR was 1.78.

These findings show that depression and diabetes "are closely related to each other, and this reciprocal association also depends on the severity and treatment of each condition. All the associations were independent of sociodemographic, diet, and lifestyle factors," Dr. Pan and his associates said.

Since both depression and diabetes are highly prevalent in the middle-aged and elderly populations, particularly among women, "proper lifestyle interventions including adequate weight management and regular physical activity are recommended to lower the risk of both conditions," they noted.

The reasons for the bidirectional association are not yet clear. It is possible that antidepressants, which exert some clinical effects on glucose homeostasis and are known to cause weight gain, contribute to diabetes risk. However, the link between depression and diabetes was significant independent of BMI, so the possibility that antidepressants might exert some other metabolic effect warrants investigation, the researchers said.

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