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Research shows diabetes drug could reduce dementia risk—here's how the two diseases may be linked

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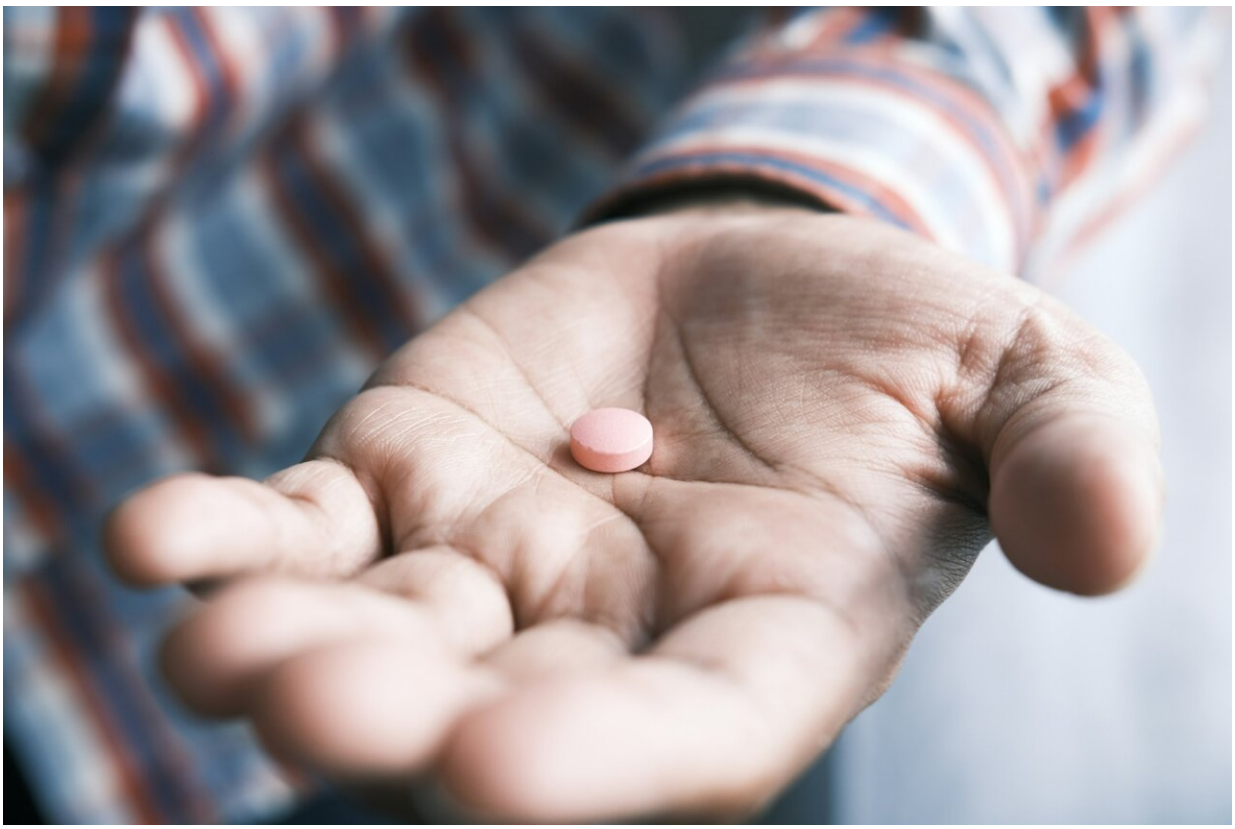

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A Korean study published recently suggests that people with type 2 diabetes who are prescribed a particular class of drug might be at a

significantly lower risk of dementia.

The researchers compared the health outcomes of more than 110,000 people aged 40–69 with type 2 diabetes who had been prescribed a type of drug called SGLT-2 inhibitors with those of another 110,000 patients taking a different class of drug, DPP-4 inhibitors. They followed participants for an average of 670 days.

The researchers found that after accounting for potential confounding factors, those taking an SGLT-2 inhibitor were 35% less likely to develop dementia.

Diabetes is recognized as a risk factor for dementia. So it's not entirely surprising that treating diabetes could reduce the risk of dementia. But why would one drug cut the risk more than another? And how are diabetes and dementia linked anyway?

Diabetes and dementia

Insulin is a hormone produced by the pancreas. Its job is to move glucose (sugar) from our bloodstream into our cells, where it serves as a source of energy. Type 2 diabetes arises when our pancreas fails to produce enough insulin, or our cells develop a resistance to insulin.

Dementia is caused by changes in the brain and encompasses several conditions that affect memory, thinking, mood, and our ability to perform daily tasks.

Diabetes has long been recognized as a risk factor for both Alzheimer's disease and vascular dementia, the two most common forms of dementia. Both are characterized by cognitive decline caused by disease of blood vessels in the brain.

We don't fully understand why diabetes and dementia are linked in this way, but there are a few possible reasons.

For example, diabetes increases the risk of heart disease and stroke, which damage the heart and blood vessels. When blood vessels in the brain are damaged, this may contribute to cognitive decline.

Also, high blood sugar levels cause inflammation, which may damage brain cells and contribute to the development of dementia.

Treating diabetes could mitigate the increased risk

Better control of blood sugar levels in diabetes helps protect blood vessels and reduces inflammation in the brain.

Diabetes may be controlled initially with lifestyle modifications such as diet and exercise, but management may also include medications, such as those taken by participants in the Korean study.

Patients taking either type of drug had comparable blood glucose control. But why did one reduce the risk of people developing dementia compared to the other?

SGLT-2 inhibitors (which stands for sodium-glucose transport protein 2) lower blood glucose by increasing its removal by the kidneys. These drugs are known to have positive effects on other areas of health too, including improving blood pressure, promoting weight loss, and reducing inflammation and oxidative stress (a type of damage to our cells).

Obesity and high blood pressure are themselves risk factors for vascular and Alzheimer's-type dementia, so it may well be that these effects of the SGLT-2 inhibitors lower dementia risk to a greater degree than what could be expected by better blood glucose control alone.

Prevention versus treatment

It's important to emphasize that the benefit of a drug reducing the risk of developing a disease is quite separate from any suggestion that the drug might be useful in treating that disease. The best way to reduce your risk of lung cancer, for example, is to stop smoking. Once you have lung cancer, however, stopping smoking is insufficient to treat it.

Having said this, because of the evidence linking diabetes and dementia, certain diabetes drugs have previously been investigated as treatments for Alzheimer's disease. And they have been shown to provide a degree of benefit to cognition.

Semaglutide, better known by the trade name Ozempic, is a member of yet another class of diabetes drugs (called GLP1 receptor agonists). Semaglutide is currently being studied as a treatment for early Alzheimer's disease in two clinical trials involving more than 3,500 patients.

These studies were themselves sparked by observations during clinical trials of semaglutide for people with diabetes, which showed lower rates of dementia in those who took the drug compared to those who took a placebo.

Similar to the SGLT-2 drugs, the GLP-1 class of drugs is known to reduce inflammation in the brain. GLP-1 drugs also appear to reduce chemical reactions that lead to an abnormal form of a protein called tau, one of the pathological hallmarks of Alzheimer's disease.

What next?

As our knowledge of the mechanisms underlying Alzheimer's disease

and other forms of dementia continues to grow, so will advances in treatment.

It's unlikely that a single drug will be the answer to Alzheimer's disease. Cancer treatments have evolved to the point where the use of "drug cocktails", or a combination of drugs, is now routine.

One possible future for these diabetes drugs is that we may see them used as part of a range of treatments to combat the ravages of dementia or, indeed, help prevent it, even in people without diabetes. But we need more research before we get to this point.

Provided by The Conversation

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