

Study suggests heightened risk of dementia in individuals with type 2 diabetes varies by type of dementia

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It is well known that having type 2 diabetes is associated with an increased risk of dementia, but a large observational study comparing

over 370,000 people with type 2 diabetes with nearly 2 million matched controls over an average of 7 years, now suggests that the risk is highest for vascular dementia and among individuals with poor blood sugar control.

The findings, being presented at The Annual Meeting of the European Association for the Study of Diabetes (EASD), held online this year, indicate that individuals with type 2 diabetes were a third (36%) more likely to develop [vascular dementia](#) and were 9% more likely to be diagnosed with non-vascular dementia compared with their diabetes-free counterparts. In contrast, the risk of Alzheimer's disease was not higher in those with type 2 diabetes.

"A 36% higher risk is in itself an argument for [preventive measures](#) such as healthier lifestyle", says Professor Naveed Sattar from the University of Glasgow, UK, who co-led the study with colleagues from the University of Gothenburg. "Diabetes and dementia share certain [risk factors](#) that might contribute to these associations including obesity, smoking, and lack of physical activity. The importance of prevention is underscored by the fact that, for the majority of dementia diseases, there is no good treatment."

Vascular dementia is caused by vascular damage in the brain from [blood clots](#) or haemorrhages. This distinguishes vascular dementia from the most common dementia subtype, Alzheimer's disease, which is a neurodegenerative disease that accounts for around half of all dementia cases. Previous research has suggested a link between type 2 diabetes and an increased risk of dementia. However, the links to different dementia subtypes has not been clear.

To provide more evidence, researchers examined the incidence of Alzheimer's disease, vascular and non-vascular dementia in 378,299 individuals (average age 64 years) with type 2 diabetes from the Swedish

National Diabetes Register between 1998 and 2013, compared to 1,886,022 gender- and age-matched controls from the general population. They also looked at whether these associations differed by [blood](#) sugar control—as measured by glycated haemoglobin (HbA1c). The researchers adjusted for a range of factors that could have influenced the results including age, sex, education, income, marital status, body mass index and pre-existing health measures such as existing risk factor levels (blood pressure, blood fats, renal and liver function), medication, and existing comorbidities (including prevalent heart diseases).

Over an average of 7 years follow up, 21,651 (nearly 6%) people with type 2 diabetes, and 98,723 (over 5%) controls, were diagnosed with dementia.

Compared to type 2 diabetes patients with well controlled blood sugar (HbA1c of under 52 mmol/mol), those with poor blood sugar control (HbA1c of over 87 mmol/mol), were at almost double the risk of developing vascular dementia.

A landmark analysis at 3-years (taking out all results in the time period to try to lessen some confounding effects) found that the associations remained similar for vascular and non-vascular dementia but disappeared for Alzheimer's disease.

The authors emphasise that although the relative risk of vascular dementia is increased with type 2 diabetes, the absolute risk increase is low.

"Our findings by no means suggest that most who have diabetes will go on to develop vascular dementia in later life", says co-author Dr. Carlos Celis the University of Glasgow, UK. "But with the number of people with type 2 diabetes doubling over the past 30 years, the importance of a

healthy lifestyle is clearer than ever. Moreover, with poor blood sugar control in individuals with type 2 diabetes being associated with an increased risk of developing vascular and non-vascular dementia, our findings underscore the importance of good blood sugar control."

The authors point out that although their study was large, it was observational, so no conclusions can be drawn about direct cause and effect. They also note that they were unable to account for changes in people's lifestyle during the 7-years follow-up that might explain some of the association between type 2 [diabetes](#) and dementia risk.

They add that future studies with longer follow-up are needed to corroborate this finding, especially if the underlying process of [dementia](#) often starts up to 10 years before its formal diagnosis.

Provided by Diabetologia

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