

Diabetes drug may reduce brain damage after stroke

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In a study in mice, scientists at Karolinska Institutet in Sweden have discovered a new potential therapy that may reduce brain damage following stroke in type 2 diabetic patients. The suggested drug is already approved for the treatment of type 2 diabetes. However, the scientists hope that this new results, presented in the scientific journal *Diabetes*, also opens up the possibility to decrease brain injury after stroke in other patient groups with a high stroke risk.

Stroke is when part of the neural tissue in the brain is damaged due to lack of [oxygen delivery](#), either caused by a blood clot (thrombosis) or rupture of a blood vessel. People suffering from diabetes are at higher risk to develop stroke than the average population. The only acute treatment to decrease the consequences (disability) of a stroke commonly available is thrombolysis, which dissolves the blood clot in the occluded vessels of the brain when quickly administered after onset of symptoms.

However, this therapy is only available for approximately 10 per cent of [stroke patients](#) and has potential severe side effects, mainly [brain hemorrhage](#). Furthermore, the effect of thrombolysis treatment is reduced in diabetic patients as diabetes in itself causes a sensitive vessel structure.

The chemical substance at the basis of the current finding is called linagliptin, and is already commercialized as an antidiabetic drug under a trade name. Combined with exercise and special diet, linagliptin lowers

the levels of glucose in the blood in adults with type 2 diabetes. In their study, the scientists administered linagliptin or placebo to [diabetic mice](#), before and after having induced a stroke experimentally. By using this study design, the scientists simulated the situation of type 2 diabetic patients under the treatment of linagliptin.

The results show that linagliptin is able to stimulate neuroprotection and largely reduce the brain damage following stroke, independent of its glucose-lowering effects. This in turn suggests that type 2 diabetic patients, when treated with linagliptin, might have a better prognosis after a stroke than diabetics receiving other treatments.

More information: 'The DPP-4 inhibitor linagliptin counteracts stroke in the normal and diabetic mouse brain: a comparison with glimepiride', Vladimer Darsalia, Henrik Ortsäter, Anna Olverling, Emilia Darlöf, Petra Wolbert, Thomas Nyström, Thomas Klein, Åke Sjöholm, and Cesare Patrone, *Diabetes*, online 4 December 2012.

Provided by Karolinska Institutet

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