

Low levels of natural antibodies behind stroke

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The chances of suffering a stroke are linked to the presence of a certain type of antibody in the immune system, a new study from Karolinska Institutet shows. The researchers hope to be able to develop a vaccine that can mobilise the body's own defence against arteriosclerosis and stroke.

The research group, which was led by Professor Johan Frostegård, has previously demonstrated that high levels of a certain type of antibody (anti-PC) in the immune defence are linked to a reduced risk of arteriosclerosis, a common cause of thrombosis and myocardial infarction.

In the present study, the researchers focused exclusively on stroke - a [blood](#) clot in the brain - and compared 227 individuals who had suffered stroke over a 13-year period with 445 sex and age-matched controls. After controlling for other risk factors (age, sex, smoking habits, cholesterol levels, diabetes, BMI and blood pressure), they were able to show that low levels (below 30 per cent of average) of PC antibodies correlated with a higher risk of stroke, which in women meant an almost three-fold increase.

The researchers have now advanced the hypothesis that low levels of natural PC antibodies, which can be a condition of a poor [immune system](#) - contribute to the development of arteriosclerosis and its consequences, which include stroke.

"We're now examining the possibility of developing new immunological treatments for arteriosclerosis and [stroke](#), either in the form of a vaccine to stimulate the immune defence or immunisation through the injection of antibodies," says Professor Frostegård.

Arteriosclerosis is formed by the accumulation of plaque on the walls of blood vessels, which can rupture and form a blood clot. The researchers believe that the PC [antibodies](#) react to a substance called phosphorylcholine (PC), which is a

component of a class of fat molecules (phospholipids) that go to make up the plaque.

More information: "Low levels of antibodies against phosphorylcholine predict development of stroke in a population based study from Northern Sweden", Roland Fiskesund, Birgitta Stegmayr, Göran Hallmans, Max Vikström, Lars Weinehall, Ulf de Faire, Johan Frostegård, *STROKE*, 11 Feb 2010. Journal web site: stroke.ahajournals.org/

Provided by Karolinska Institutet

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