

Flu vaccination linked with lower risk of death in patients with high blood pressure

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Influenza vaccination in patients with high blood pressure is associated with an 18% reduced risk of death during flu season, according to research presented today at ESC Congress 2019 together with the World

Congress of Cardiology.

"Given these results, it is my belief that all patients with [high blood pressure](#) should have an annual flu vaccination," said first author Daniel Modin research associate of the University of Copenhagen, Denmark.

"Vaccination is safe, cheap, readily available, and decreases influenza infection. On top of that, our study suggests that it could also protect against fatal [heart](#) attacks and strokes, and deaths from other causes."

According to previous research, the stress flu infection puts on the body may trigger heart attacks and strokes. Patients with hypertension (high [blood](#) pressure) are at raised risk of [heart attack](#) and stroke. By stopping flu infection, vaccination could also protect against [cardiovascular events](#), but until now this had not been investigated.

The study used Danish nationwide healthcare registers to identify 608,452 patients aged 18 to 100 years with hypertension during nine consecutive influenza seasons (2007 to 2016). The researchers determined how many patients had received a flu vaccine prior to each season. They then followed patients over each season and tracked how many died. In particular, they recorded death from all causes, death from any cardiovascular cause, and death from heart attack or stroke.

Finally, they analysed the association between receiving a vaccine prior to [flu season](#) and the risk of death during flu season. The analysis controlled for patient characteristics that could impact the likelihood of dying such as age, comorbidities, medications, and [socioeconomic status](#).

After adjusting for patient differences, in a given influenza season, vaccination was associated with an 18% relative reduction in the risk of dying from all causes, a 16% relative reduction in the risk of dying from any cardiovascular cause, and a 10% relative reduction in the risk of dying from heart attack or stroke.

Mr Modin said: "We show that [influenza vaccination](#) may improve cardiovascular outcomes in patients with hypertension. During the nine flu seasons we studied, vaccine coverage ranged from 26% to 36%, meaning that many patients with high blood pressure were not vaccinated. If you have high blood pressure, it would be worth discussing vaccination with your doctor."

Regarding how flu and cardiovascular disease might be connected, Mr Modin noted that when the [influenza virus](#) infects the body it triggers a strong immune reaction and subsequent inflammation. These responses fight the infection and clear the virus from the body but may increase the risk of having a heart attack or stroke.

He said: "Heart attacks and strokes are caused by the rupture of atherosclerotic plaques in the arteries leading to the heart or the brain. After a rupture, a blood clot forms and cuts off the blood supply. It is thought that the high levels of acute inflammation induced by influenza infection reduce the stability of plaques and make them more likely to rupture."

More information: "The flu vaccine and mortality in hypertension. A Danish nationwide cohort study" ESC Congress 2019 together with the World Congress of Cardiology.

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