

Bacterial endocarditis increases stroke risk for extended period

July 14 2015, by Anne Machalinski



Micrograph showing cortical pseudolaminar necrosis, a finding seen in strokes on medical imaging and at autopsy. H&E-LFB stain. Credit: Nephron/Wikipedia

Patients who develop an infection of the heart valves called bacterial endocarditis have an elevated risk of stroke beginning four months before, and up to five months after diagnosis. This is a period significantly longer than previously reported, researchers at Weill Cornell Medical College and NewYork-Presbyterian Hospital report in a

study published July 10 in the journal *Neurology*.

Some 40,000 people are diagnosed each year with endocarditis, a condition that primarily affects the elderly and those who have damaged or artificial heart valves or other heart conditions. Stroke is a complication of the condition, which can occur when clumps of bacteria and cell fragments that have formed at the site of infection in the heart break loose and travel through the bloodstream to the brain.

Earlier research had found that patients face an increased risk for stroke within a few weeks after an endocarditis diagnosis. However, in their study, the Weill Cornell and NewYork-Presbyterian investigators found that the risk for stroke actually extends to nine months, with the greatest risk occurring within a month after diagnosis, during which a patient is 90 times more likely to have a stroke. The study - and the correlation between endocarditis and stroke - could impact how patients are treated.

"Strokes are treated differently if they're from an infective source," said the study's co-first author, Dr. Alexander Merkler, a neurocritical care fellow at NewYork-Presbyterian/Weill Cornell Medical Center.

"Patients who have a stroke due to endocarditis are not candidates for an effective clot-busting drug, called tPA, but they are still eligible for other potentially life-saving measures, like clot retrieval.

"A patient who has a stroke that may be caused by endocarditis really needs a multidisciplinary team of clinicians, including a neurologist, a cardiologist, a cardiothoracic surgeon and an infectious disease specialist," he added.

To better quantify the link between the two conditions, the investigators used a de-identified administrative claims database from California, under the mentorship of Drs. Hooman Kamel and Babak Navi. Kamel and Navi are both assistant professors of neurology and of neuroscience

in the Department of Neurology and the Feil Family Brain and Mind Research Institute at Weill Cornell and neurologists at NewYork-Presbyterian/Weill Cornell.

They selected anyone who was diagnosed with [infective endocarditis](#) in a four-year term between July 1, 2007, and June 30, 2011. Based on diagnosis codes, they found nearly 18,000 patients who fit these criteria.

Next, they looked through that patient pool for anyone who also had a stroke within a one-year period (six months before and six months after they were diagnosed with endocarditis) and found 2,275 people who fit the bill.

To determine the relationship between endocarditis and stroke, they compared the risk of stroke in one-month periods from six months before to six months after the diagnosis of endocarditis to the corresponding period two years earlier, called the baseline risk of stroke. Using this method, each patient served as his or her own control.

The data told a story: Patients who were diagnosed with endocarditis were at a very elevated risk for having a stroke. The risk of stroke was highest in the month following endocarditis diagnosis, when patients were 90 times more likely to have a stroke than if they did not have endocarditis. The risk of stroke was increased four months before a diagnosis of endocarditis and lasted for five months after the [diagnosis](#) of endocarditis.

With further research and further insight into the relationship between [endocarditis](#) and stroke, there may be a way to prevent strokes from occurring in this population, Merkler said. But in the meantime, he advises that [patients](#) should be vigilant for symptoms of [stroke](#) and should immediately call 911 if they occur.

Provided by Cornell University

Citation: Bacterial endocarditis increases stroke risk for extended period (2015, July 14)
retrieved 10 April 2024 from

<https://medicalxpress.com/news/2015-07-bacterial-endocarditis-period.html>

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