



## Stroke History Increases Risks Of Non-Cardiac Surgery



People who undergo elective surgery for non-cardiac procedures have an elevated risk of major heart-related complications if they have previously suffered a stroke. Outcomes are worse for patients whose stroke occurred fewer than nine months prior to surgery. Danish researchers discovered the association between major adverse cardiovascular events (MACE) and recent prior stroke in an analysis of more than 480,000 elective surgery patients.

### The Link Between Cardiac and Non-Cardiac Surgeries

It has been shown that patients with a recent history of heart attack or stent implant who elect to have non-cardiac surgery are more likely to experience perioperative cardiac events, such as blood clots and bleeding, compared with patients whose heart attack or stent procedure occurred in the more distant past. Guidelines and recommendations for patients with a recent history of stroke are more elusive when it comes to the timing of non-cardiac surgeries.

Researchers at the University of Copenhagen, led by Mads E. Jørgensen, MB, analysed data from a group of Danish surgical patients who underwent elective, non-cardiac surgery between 2005 and 2011. Specifically, they were interested in the risk of MACE as it related to the time which had elapsed between the prior stroke and surgery. MACE includes heart attack, cardiovascular death and ischaemic stroke.

### Risk Factors: Stroke History and Timing

A total of 7,137 non-cardiac elective surgery patients whose data contributed to the study had experienced a prior stroke. Compared with patients with no stroke history, the crude incidence rates of MACE were 54.4 versus 4.1 per 1,000 patients. Furthermore, prior stroke was associated with an adjusted 1.8-fold increased risk of 30-day mortality and a 4.8-fold risk of 30-day MACE.

There was a strong relationship between prior stroke and negative postoperative outcomes, amplified for patients whose stroke preceded surgery by less than three months. This risk stabilised for patients who waited more than nine months to have elective non-cardiac surgery, but their outcomes were still worse than surgical patients with no history of stroke.

Interestingly, the type of non-cardiac elective surgery did not factor into MACE outcomes for patients whose surgery was recent. The researchers found the same relative risk of MACE whether the elective operative procedure was low risk, intermediate risk or high-risk.

The study appears in the 16 July issue of JAMA. An audio file of an interview with the study's author is available at JAMA.com.

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