

# Spinal/epidural anesthesia associated with increased survival in leg artery bypass surgery

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Associate scientist and anesthesiologist at The Ottawa Hospital, associate professor at the University of Ottawa, and adjunct scientist at ICES. Credit: The Ottawa Hospital

A new study published in *The BMJ* shows that people who had surgery to improve blood flow in their legs under spinal or epidural anesthesia were less likely to die than those who were given general anesthesia.

General anesthesia involves using drugs to make a patient unconscious and inserting a tube into their windpipe to help with breathing. Spinal and epidural anesthesia directly freeze the nerves to the legs and can be combined with lighter forms of sedation which do not involve a breathing tube.

This study, the largest of its kind, looked at [medical records](#) of 20,988 people who had leg artery bypass surgery in Ontario, Canada, between 2002 and 2015. Approximately two thirds of these surgeries used [general anesthesia](#) and a third used spinal or epidural anesthesia.

The researchers found that 646 of the patients who had general anesthesia (4.4 percent) died within 30 days of their surgery compared to 204 of the patients who had spinal or epidural anesthesia (3.2 per cent). The results remained the same after the researchers adjusted for differences between the groups, such as how sick the patients were before surgery.

"We estimate that this finding could save at least 100 of the patients' lives who undergo leg artery bypass surgeries every year both in Canada and the United States," said lead author Dr. Derek Roberts, a vascular and endovascular surgeon at The Ottawa Hospital and incoming assistant professor at the University of Ottawa. "We hope to conduct a [randomized controlled trial](#) to confirm these results, but in the meantime our findings suggest that we should increasingly perform more of these types of surgeries using spinal or epidural anesthesia techniques."

"We were surprised to find that some hospitals did these types of surgeries under spinal or epidural anesthesia more than 90 per cent of

the time, while in others it was less than one per cent," said senior author Dr. Daniel McIsaac, associate scientist and anesthesiologist at The Ottawa Hospital, associate professor at the University of Ottawa, and adjunct scientist at ICES. "We hope this study will help patients and physicians make more informed decisions about what type of anesthetic is best for each patient."

The study also found that patients who had spinal or epidural anesthesia were able to leave the hospital half a day earlier than those who had general anesthesia.

The researchers estimate that if all leg artery bypass surgeries were done with spinal or epidural anesthesia, it could save \$50 million in health care costs each year in Canada. In Ontario, the vast majority of these surgeries are done in specialty centres that can easily perform spinal or epidural [anesthesia](#).

Close to 20,000 people have leg artery bypass [surgery](#) in Canada and the United States every year.

**More information:** Association between neuraxial anaesthesia or general anaesthesia for lower limb revascularisation surgery in adults and clinical outcomes: population based comparative effectiveness study.

Derek J Roberts, Sudhir K Nagpal, Dalibor Kubelik, Timothy Brandys, Henry T Stelfox, Manoj M Lalu, Alan J Forster, Colin JL McCartney, Daniel I McIsaac. The *BMJ*. November 25, 2020.

[www.bmj.com/content/371/bmj.m4104](http://www.bmj.com/content/371/bmj.m4104)

Provided by The Ottawa Hospital

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