

Myth busted: General anesthesia just as safe as spinal anesthesia after broken hip surgery

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New research shows that the rates of survival, functional recovery, and post-operative delirium are similar for patients whether they underwent general anesthesia or spinal anesthesia for hip fracture surgery. This

work, from the largest randomized study ever conducted to compare the two anesthesia techniques, challenges common thinking that patients who get spinal anesthesia fare better. Led by researchers from the Perelman School of Medicine at the University of Pennsylvania, the study was published in the *New England Journal of Medicine* and presented at Anesthesiology 2021, the annual meeting of the American Society of Anesthesiologists (ASA).

"Available evidence has not definitively addressed the question of whether spinal [anesthesia](#) is safer than [general anesthesia](#) for hip fracture surgery, an important question to clinicians, patients, and families. Our study argues that, in many cases, either form of anesthesia appears to be safe," said lead investigator Mark D. Neuman, MD, MSc, an associate professor of Anesthesiology and Critical Care. "This is important because it suggests that choices can be guided by patient preference rather than anticipated differences in outcomes in many cases."

Every year, 250,000 [older adults](#) undergo hip fracture surgery in the United States. While most hip fracture patients in the U.S. receive general anesthesia, use of spinal anesthesia for hip fracture surgery increased [by 50 percent between 2007 and 2017](#), while spinal anesthesia is used in 50 percent or more of the hip fracture cases [in the United Kingdom and other countries](#).

During general anesthesia, inhaled and intravenous medications are used to make patients unconscious, which often requires temporary breathing tube placement to support the lungs during surgery. For spinal anesthesia, medications are used to numb the lower part of the body through an injection into the spinal column; while patients may receive sedation for comfort, they are typically able to breathe on their own during surgery and rarely require a breathing tube.

Most recent comparisons of general anesthesia versus spinal anesthesia

come from studies that hadn't randomized their populations, some of which have suggested lower rates of cognitive and medical complications with spinal. While some patients may choose spinal anesthesia with the goal of avoiding complications, others opt for general anesthesia to avoid a spinal injection or out of fears of inadequate sedation [during surgery](#).

For their study, Neuman and his co-authors enrolled 1,600 patients from 46 hospitals across the United States and Canada. The patients were all at least 50 years old, had broken a hip, and had previously been able to walk. Hip [fractures](#) are particularly worrisome among older populations, like the patients in the study, since they can [lead to a loss of mobility](#), which is associated with [doubling or even tripling the risk of near-term death](#).

What set Neuman's study apart from past work in the subject area was that it randomly divided the enrolled patients into two equal groups: Those who were set to receive general anesthesia and those who were scheduled for spinal anesthesia. Approximately 800 patients were in each group.

To get a fuller picture of the potential outcomes associated with each form of anesthesia, the researchers combined subsequent patient death rates and whether they regained the ability to walk, whether on their own or with a cane or walker. By 60 days after surgery, 18.5 percent of patients assigned to spinal anesthesia had either died or become newly unable to walk versus 18 percent of patients who received general anesthesia. When looking at mortality at 60 days alone, 3.9 percent of patients who received spinal anesthesia died versus 4.1 percent who got general anesthesia.

Additionally, to examine how the different forms of anesthesia factored into potential cognitive complications, the researchers also examined post-operative delirium. Roughly 21 percent of patients assigned to

spinal anesthesia experienced delirium versus 20 percent of those assigned to general anesthesia.

"What our study offers is reassurance that general anesthesia can represent a safe option for hip fracture [surgery](#) for many patients," said Neuman. "This is information that [patients](#), families, and clinicians can use together to make the right choice for each patient's personalized care."

More information: Spinal Anesthesia versus General Anesthesia for Hip Surgery in Older Adults, *New England Journal of Medicine*, 2021.

Provided by Perelman School of Medicine at the University of Pennsylvania

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