

China-wide study furthers understanding of fatal surgical complication

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China-wide study explores post-operative delirium in older people with a hip fracture. Credit: University of Birmingham

Older patients in hospitals across China took part in a major multi-center open-label randomized clinical trial that showed there was no difference

in post-operative delirium in older people with a hip fracture, if they had a general anesthesia, or a regional anesthesia.

Post-operative [delirium](#) is a common, serious, neurological, complication where people have a sudden change in their brain functions after an operation. It is more common in [older people](#), and leads to increased death, dementia, post-[traumatic stress disorder](#), a longer length of hospital stay, extra nursing requirements and increased healthcare costs.

People with a [hip fracture](#) require an operation to fix the fracture which requires anesthesia—classified as general anesthesia, or regional anesthesia. A general anesthetic technique involves inducing sleep or loss of consciousness through inhaled or intravenous anesthetics. Regional anesthesia involves injecting local anesthetic inside the spine or around the nerves to prevent pain in the leg with the hip fracture.

It was commonly thought that one of the causes of delirium is a general anesthesia. Led by the University of Birmingham and Wenzhou Medical University Second Affiliated Hospital, this randomized trial was the first of its kind in China. 950 older adult took part, from hospitals in Wenzhou, Wuhan, Lishui, Ningbo, Nanchang, and Taizhou.

The trial was set up to provide [clinical evidence](#) with a robust methodology, to help medical professionals select appropriate anesthesia for [older patients](#) to try and reduce the development of delirium.

Researchers in Birmingham and WenZhou today published the findings in *JAMA*. After the hip fracture surgery, delirium occurred in 6.2 percent of the group who had general anesthesia, and 5.1 percent in those who had a regional anesthesia. The difference between the two groups could be explained by chance.

The chief investigator of RAGA trial, Professor Fang Gao, from the

University of Birmingham, NIHR senior investigator, commented: "There is a high incidence of delirium after surgery in hip fracture patients, but we had no robust evidence demonstrating the effectiveness of the two most commonly used anesthetic techniques causing delirium—creating an urgent need to investigate delirium prevention.

"The causes of delirium remain poorly understood, but our trial highlights that factors such as general anesthetic agents, that we thought may be associated with delirium, are in fact unlikely to cause delirium."

"Our trial has also provided clinical evidence on the safety of RA and GA in older patients for hip fracture surgery, helping anesthetists in selecting appropriate anesthesia for these patients—particularly those at high risk of POD."

The older population has grown quickly over the last 20 years in most parts of the world and the number of older people undergoing surgical procedures has increased. Hip fractures are a global health problem, with over 1.6 million patients suffering such injuries worldwide every year. Some 680 000 of these injuries occur among the 70 million elderly people in China and it is predicted that 50 percent of total global hip fractures will occur in Asia by 2050.

Dr. Thomas Jackson, associate professor in geriatric medicine and board member of the European Delirium Association, says, "Delirium is first and foremost a distressing condition for the suffer and their care givers, and to date we have no treatments we know to shorten or stop delirium when it develops.

"This trial is an important step forward in our understanding of how people develop delirium after an operation. By demonstrating that a general anesthetic is not a probable cause of delirium will allow researchers to further study other areas, such as the bodies inflammatory

response to the surgery itself, and how this carries over into the brain."

More information: Ting Li et al, Effect of Regional vs General Anesthesia on Incidence of Postoperative Delirium in Older Patients Undergoing Hip Fracture Surgery, *JAMA* (2021). [DOI: 10.1001/jama.2021.22647](https://doi.org/10.1001/jama.2021.22647)

Provided by University of Birmingham

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