

Sedative may prevent delirium after an operation

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A mild sedative could greatly reduce the risk of people experiencing delirium after an operation, according to new research.

The study, by scientists at Imperial College London and Peking University First Hospital, suggests sedating [patients](#) after they undergo an operation may reduce the risk of post-operative delirium by up to 65 per cent.

The condition may affect up to one in three people who have a major operation, causing confusion and hallucinations - with the over-65s particularly at risk.

The team, who publish their study tomorrow in *The Lancet*, believe the sedative may help the brain 'recover and reset' after surgery.

Post-operative delirium usually strikes within the first two days of a person waking from general anaesthetic.

The symptoms range from relatively mild, such as a person not knowing their name or where they are, to more severe, such as aggressive behaviour, believing people are trying to harm them, or even hallucinations.

Professor Daqing Ma, co-lead author of the new study from the Department of Surgery and Cancer at Imperial College London, said: "Post-operative delirium is a huge challenge for the medical community

- and incredibly distressing for patients and their families. In many cases patients become almost child-like, and do not understand where they are, what is happening, and become very upset. Hospital staff have also been injured by delirious patients becoming aggressive. However we currently have no treatments options available for this condition."

The causes are unknown, but one theory is that major surgery can trigger inflammation throughout the body, which in some cases can spread to the brain.

The risk of the condition increases with age, and it seems to strike more often when patients undergo major, lengthy operations.

The delirium can last from a few hours to a couple of days, and some research suggests it may be linked to an increased risk of elderly patients later developing dementia.

In the new study, co-led by Professor Dongxin Wang at Peking University First Hospital, researchers assessed 700 patients age 65 or older who were about to undergo major surgery at the Beijing hospital.

Half received a low dose of a type of sedative called dexmedetomidine after the operation, as an infusion directly into a vein in their arm, while half received a placebo salt-water infusion.

The patients received the infusion of sedative or placebo around an hour after surgery, and for the next 16 hours.

This sedative, which is commonly used for medical procedures and in veterinary medicine, leaves a patient relaxed and drowsy, yet conscious. The drug is considered safe as it doesn't affect breathing.

Both groups received the same general anaesthetic before undergoing

their operation. They were then assessed for symptoms of delirium every day for a week after their procedure.

The results revealed that nearly one in four patients in the placebo group - 23 per cent - developed delirium. However only just under one in ten patients - 9 per cent - who received the sedative developed the condition.

Scientists are still unsure how the sedative works, but one theory is it allows the brain to rest and recover immediately after surgery, explained Professor Ma.

"Previous studies have shown that patients who struggle to sleep after their operation - perhaps because they are in pain or on a busy, noisy ward - are at increased risk of delirium."

He added that the sedative dexmedetomidine seems to not only trigger sleep, but actually mimics the natural state the brain enters during sleep.

"Although other sedatives induce sleep, they do not trigger the natural 'sleep state' the brain requires to rest, reset, and recover."

Professor Ma added that previous research have suggested the sedative may help prevent delirium, but this is the largest study to show such beneficial effects. The study also confirmed there were no side effects of the sedative.

Further results showed the patients given the sedative had fewer post-operative complications than the [placebo group](#), and were discharged from hospital earlier.

The team will now assess if the sedative has long-term benefits, beyond the seven-day study period.

Professor Ma added: "There is still much more work to do around post-operative delirium, as we still don't fully understand what is happening in the brain, and why some patients are more at risk.

However these findings suggest this sedative may be a potential method of preventing post-operative delirium in some patients."

CASE STUDY:

"I thought I was sailing down the River Trent on a hospital ship"

Professor Michael Wang, a clinical psychologist from the University of Leicester, suffered post-operative delirium after major heart surgery in 2012.

He recalled: "I first woke around 18 hours after my operation at a Leicester hospital. A doctor was speaking with a nurse about my operation at the foot of my bed, and I asked them where we were. I thought the doctor replied Nottingham, which confused me as I thought we were in Leicester.

I formed the conclusion I was on a hospital ship, sailing down the River Trent. My operation took place over the Christmas period, and I thought perhaps the ship was a private facility allowing surgeons and anaesthetists to earn extra money.

I looked out of the window and saw trees moving past on the 'river bank', which confirmed my suspicion. I also thought I heard the sound of other ships' fog horns in the distance, which I now realise was the sound of other patients' bedside call buttons.

I kept trying to pull out the tubes in my arm and chest, which were providing vital fluid, antibiotics and monitoring as I didn't believe I needed them.

The staff, who were incredibly patient and to whom I subsequently apologised - said to me: "We know you believe this is all part of a conspiracy, but if you pull out your lines you will die."

Shortly after this, I believed I was moved into a dark room filled with rolled-up carpets. This, of course, didn't happen and I now know I stayed in my bed on the [intensive care unit](#) the whole time.

However, I was convinced I had been placed in this room, and when friends came to visit, I was puzzled by why they needed to squeeze through the gaps between the carpet rolls. I also saw a nurse nearby keeping an eye on me, perched among the rolls of carpet.

Later I awoke to find myself in a sinister Chinese mausoleum under the intensive care unit (or so I thought). It felt like some kind of nightmare, with dark recesses and glowing Chinese symbols. I have since realised these symbols were based on the illuminated heart monitor buttons on the wall opposite my bed.

Once I was discharged from intensive care (approximately three days after my operation) most of the delusions cleared.

Although my hallucinations sound frightening, I felt strangely detached from them. I think this is because of my familiarity, through my work, with the intensive care unit environment and the experiences of patients - and so part of me knew I was suffering from delusions. Indeed, I have researched post-operative delirium and I know that most patients find their experiences far more terrifying than I found mine.

However, the experience allowed me a crucial insight into what patients experience in post-operative delirium, and why it's so important to gain understanding to improve treatment and prevention of this condition."

Provided by Imperial College London

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