

Anaesthesia and cognitive decline in adults

Deterioration in memory, thinking ability and concentration – collectively referred to as cognitive decline – has been reported to follow anaesthesia and surgery. This particularly affects the elderly.

This is different to the normal recovery period after general anaesthesia or sedation when you are advised not to drive a vehicle, operate machinery or make significant decisions for 24 hours while the effects of the medications wear off.

Cognitive decline was first reported after heart surgery, but changes have been detected in some patients after many types of surgery, including minor procedures.

In most cases this cognitive decline is very minor and short lived – often only present for a few days after a procedure. It may be due to residual effects of the surgery, anaesthetic drugs and ongoing painkillers, as well as sleep disturbance and stress.

Cognitive decline that remains weeks or months after surgery may be of more concern. There is considerable ongoing research in this area.

Frequently asked questions:

1. Is cognitive decline after anaesthesia and surgery serious?

Most cognitive decline after anaesthesia and surgery is minor and very subtle and can only be detected by a trained assessor administering neuropsychological tests. In other words, the individual can carry on with normal daily life unaffected. In a small number of cases, the cognitive decline may be more severe and interfere with things such as short-term memory and concentration, which may impact daily life.

2. Who does it affect?

The main risk factor is age. The older the individual the more likely he or she is to suffer from post-operative cognitive decline. It is extremely uncommon under the age of 65 years and, even at 65 years it affects fewer than 20 per cent of individuals three months after anaesthesia and surgery. As individuals get older the percentage affected tends to increase, however most recover after one year. In extreme cases, deterioration may persist and worsen, but this is very rare.

3. If it occurs, how long does cognitive decline after anaesthesia and surgery last?

Cognitive decline usually resolves over time. It may persist for at least three months after anaesthesia and surgery, but cognition usually will be back to normal within a year. In rare cases it may continue and possibly deteriorate over ensuing years.

4. What is the cause of cognitive decline?

The exact cause is unknown. There may be subtle cognitive decline before the surgery and anaesthesia, which is unnoticed, and this may increase the likelihood of further decline. It may be exacerbated by the anaesthesia, the surgery or a combination of both. No particular type of anaesthetic or surgery is strongly associated with cognitive decline. Even spinal anaesthesia or sedation may be followed by cognitive decline.

5. Will I be affected?

Your risk depends mostly on your age and some aspects of your health. Even for the elderly the risk remains low. However, many elderly individuals already have some cognitive decline (often so slight it is not obvious) before they undergo anaesthesia and surgery. These people may exhibit further deterioration under the stress of anaesthesia and surgery. It is highly likely that hospital procedures merely bring into prominence cognitive decline that has been present in the background. This also is seen in elderly patients who are hospitalised with medical conditions, such as pneumonia or urinary tract infections, or when a life-change stress occurs, such as moving to new accommodation.

6. Should I avoid anaesthesia and surgery?

In most cases you should not avoid anaesthesia and surgery. Surgery is usually recommended to treat or help diagnose a condition and the benefits of improving your health may translate to benefits in your thinking and cognition. If you are not elderly and do not have a pre-existing cognitive complaint, then the likelihood of lasting change is extremely rare. It is very rare that the risk of cognitive decline after anaesthesia and surgery would be severe enough to contraindicate a surgical procedure. You should discuss this with your healthcare practitioner. If you are extremely worried, you should attend a memory clinic for assessment prior to your operation, which will assist doctors identifying any change after your surgery.

7. What if I need to have multiple anaesthetics?

It is not known how multiple anaesthetics affect the likelihood or severity of cognitive change. If you have fully recovered from your previous anaesthetic, the impact of subsequent procedures is likely to be minimal.

8. What about confusion after anaesthesia and surgery?

It is very disturbing to experience a period of confusion or even hallucinations after a procedure, or to see it happen to a loved one. This can occur immediately afterwards or over the next few days. If it has occurred previously, it is more likely to happen again. Older age and a known, existing cognitive problem both increase the likelihood. It is important to discuss these concerns with your anaesthetist prior to the procedure. Certain anaesthesia techniques may reduce confusion. The longer-term effects of these events are unclear.

9. Bottom line

Talk with your anaesthetist. They are medical specialists who can consider your circumstances, give you the best available advice and tailor your care accordingly. Anaesthesia is extremely safe, and researchers are working hard towards understanding these issues to make it even safer.

Authors

Associate Professor Brendan Silbert, FANZCA
Associate Professor Lisbeth Evered, PhD
Associate Professor David A Scott, PhD, FANZCA

Centre for Anaesthesia and Cognitive Function,
St. Vincent's Hospital Melbourne, November 2015