Royal College of Anaesthetists

Risks associated with your anaesthetic

Section 7: Becoming confused after an operation

Summary

This leaflet explains that confusion is a common risk following anaesthesia and surgery. Behaviour and memory can be affected and there may be some deterioration in more complex mental functions such as the ability to get dressed or do the crossword.

This leaflet explains the different types of confusion. Most people can be treated and improve, though they may have to be in hospital longer than expected. However, it helps if you can be as healthy as possible before the operation, with a good diet and sensible exercise.

Types of confusion

There are two types of confusion that can happen after surgery and an anaesthetic.

- Delirium (postoperative delirium) happens very soon after an operation. It has a number of causes that are usually treatable.
- Cognitive dysfunction (or postoperative cognitive dysfunction or POCD) can develop later. The cause of this is not well understood and there is evidence that in a few people its effects may be permanent.

Neither of these is the same as dementia. Dementia is a progressive disease of the brain. It is unrelated to having an operation and an anaesthetic. However, people with previous dementia are more likely to get both delirium and POCD. Also, it may be that mild early dementia has not been noticed by the patient or by friends and family. It may seem to have been related to the operation and anaesthetic, whereas in fact the changes were there beforehand.

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Postoperative delirium and POCD are described in more detail in this article. They are different, but some elements (for example poor memory) can happen in both and also happen in dementia.

Delirium

What is postoperative delirium?

Delirium is a state of confusion. It can happen during an illness as well as after an operation. After an operation the person usually wakes up behaving normally. The confusion appears during the first few days after the operation. The severity of symptoms varies and tends to fluctuate over the course of the day, being better in the mornings and worsening in the evening and at night. It can be frightening – certainly for the person who is affected – but also for the patient's relatives and friends.

What is it like to have delirium?

Symptoms vary a lot in different people. Some people become agitated and confused. Others become quiet and withdrawn. Here are some typical symptoms:

- not knowing your own name or where you are
- not knowing what has happened to you or why you are in hospital
- loss of memory – being unable to recognise family members
- reversal of sleep patterns – sleeping during the day and being awake at night
- being incoherent, shouting and swearing
- emotional changes such as tearfulness, anxiety, anger or aggression
- trying to climb out of bed and pulling out drips and tubes
- appearing indifferent to whatever is going on
- becoming paranoid and thinking that people are trying to harm you – this can be particularly distressing for friends and relatives
- occasionally, there may be visual or auditory hallucinations (seeing and hearing things that do not exist).

Why does postoperative delirium develop?

In the first few days and weeks after your operation, your body is repairing itself. The physical challenges associated with this process affect the way that the brain is working. Some specific causes, many of which can be effectively treated, are listed below:

- infections, such as wound, urine and chest infections
- poor pain control
- side effects of the medicines for pain relief
- other medicines
- dehydration

- low oxygen levels due to:
  - effects of the anaesthetic
  - effects of medicines on breathing, especially medicines for pain relief
  - a chest infection
  - other lung problems
- inadequate nutrition
- prolonged constipation
- sleep disturbance
- not taking the drugs that you were taking before the operation
- loss of vision and hearing makes the symptoms and behaviours of delirium worse – sometimes simply due to lack of glasses or hearing aids.

Nurses and doctors on wards where people have had an operation understand what causes delirium. Treatment may include oxygen therapy, antibiotics, adjusting any medicines being given, good nutrition and relief of constipation. They will also be keen to provide a quiet environment for good sleep at night although this can be difficult in a busy ward. Friends and relatives can help by making sure that glasses and hearing aids are available, and by quietly reassuring the person about who they are and what has been happening.

Who is at risk of developing delirium?

Some people are more likely to develop delirium. This includes people with:

- previous dementia or brain disorders
- advanced age
- high alcohol intake
- poor mobility (unable to walk about easily)
- previous surgery, especially hip or heart surgery
- depression
- poor eyesight or hearing
- heart failure
- a medical condition requiring surgery to be done as an emergency.

Does delirium improve and go away?

Most people who develop delirium are treated for any identified causes and improve greatly. However, they are more likely to stay in hospital days or weeks longer than people who do not become confused. There is a slightly increased risk that people who have had severe delirium will end up living in a more supported environment, less independently, than before.

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Postoperative Cognitive Dysfunction (POCD)

What is POCD?

POCD involves experiencing difficulty with the higher mental tasks that people use every day. For example, concentrating on a story or film, recalling what was recently heard or said, completing several tasks at the same time, doing a crossword, or making a shopping list. At first, recovery from the operation may seem to be going well, and symptoms either do not exist or are not noticed. Then, during the weeks or months after the operation, the person or their families and carers may gradually notice that tasks, which were easy before the operation, are increasingly difficult. For example, people may find they cannot make decisions or complete difficult calculations at work, or play chess as well as before.

Does POCD ever recover?

POCD tends to fade away as healing from the operation continues, but the process may take months or years to happen. It is difficult to measure the symptoms of POCD, which is why doctors are not certain how often it happens. One study suggests that 10% of people have POCD three months after the operation, but only 1% have it after one year.

What is it like to have POCD?

Most people with POCD feel quite normal when they first come out of hospital. However, as they return to normal life, they start to notice what is wrong. Memory problems are one of the first signs noticed by patients. For example, they go to the shops and then cannot remember what they wanted to buy. Items are misplaced around the house, and it may be difficult to remember the names of people they do not see very often. There can be difficulty learning to use a new gadget and the ability to calculate and problem-solve can be affected. This can be a frightening period and independence and confidence generally may be reduced. However, with support, people with POCD can develop strategies to cope – for example using calendars and lists to help with everyday activities.

Why does POCD develop?

The cause of POCD is unclear. Problems with the blood vessels of the brain, reduced blood pressure during and after surgery, stress levels whilst in hospital, genetic susceptibility, and increased inflammation in the body and brain have all been suggested as causes. Some medicines given in hospital seem to be more likely to be associated with POCD, but it is unclear whether these medicines actually cause POCD.

The anaesthetic technique used does not appear to be an important cause of POCD. Studies have compared regional anaesthesia (for example spinal or epidural injections) with general anaesthesia. They do not show a significant difference in the number of people who get POCD afterwards. Regional anaesthesia may reduce the chance of getting delirium, but probably not POCD.

The type of pain relief medicines used also does not seem to affect the chance of getting POCD. It might seem that having an epidural for pain relief would reduce the chance of getting POCD, as people who have an epidural receive less strong pain relief medicine. However this has not been proved.

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Who is at risk of developing POCD?

The problem with studies on POCD is that it is difficult to measure with certainty the types of mental function that are affected. This list shows who is probably more likely to be affected, although many people with these risk factors go through surgery without developing POCD.

- People having major surgery or who need to have a second operation before they leave hospital.
- People over the age of 60, although some studies show it can happen to younger people as well.
- People having longer operations.
- People who have a serious infection or breathing difficulty after surgery.
- People with a lower level of education – the reason for this is not known.
- People having open heart surgery – this increases the chance of POCD more than other types of major surgery.

Confusion after an operation: can I do anything to help?

If you have decided to have an operation, then you are accepting the risk that you may develop delirium or POCD, or both. The risk of both is low and in general should perhaps not put you off having important life-saving or life-altering surgery.

Here are some things that you can do which may help prevent becoming confused, and also may help you deal with it if it happens to you.

- Before the operation, try and be as healthy as possible. Eat a good diet and take a sensible amount of exercise. It is a good idea to give up smoking, and to lose weight if you are overweight.
- Ask your anaesthetist if there are any alternatives to a general anaesthetic such as a spinal anaesthetic or a nerve block. These will not guarantee that you will not suffer from delirium, but they may help. You can find out more about these on **www.rcoa.ac.uk/patientinfo**.
- If you are having a minor or intermediate operation and you have someone at home to look after you, you may be able to go home on the same day. This reduces the risk of becoming confused.
- Make sure that you have your glasses and hearing aids with you, and that spare batteries are available if needed.
- Make sure that you bring all your medications into hospital with you so that your doctors know what you are taking and so that these medications can be continued.
- If you drink a lot of alcohol you should take advice about how to cut down safely. Your GP or practice nurse will be able to help you with this. You should also tell your doctors in hospital how much you drink.
- It can help if friends and family understand that you may become confused afterwards. Some ideas on how they can help are given below.

- Motivation is important. Your nurses and physiotherapists will tell you when you can start exercises and looking after yourself. You should aim to be increasingly independent.
- As you recover, you may feel upset and sad about what has happened to you and worry that you may never get back to normal. Remember that some degree of confusion is very common and most people make a good recovery.

How can friends and family help while I am confused?

- They should speak softly and use simple words or phrases.
- They can remind you of the day and date.
- They can tell you what has been happening day by day.
- They can talk about family and friends.
- They can make sure you have your glasses and hearing aids.
- When you are back at home, they can help with lists, calendars, pictures of family and helping you get out and about if you lack confidence.
- They can remind you when your favourite TV or radio show is on.

What will the hospital do to help me?

The team caring for you on the ward is trained to consider how to help people with all kinds of confusion. They will be keen to provide a regular routine, a visible clock and natural daylight. They will try to look after glasses and hearing aids, and allow as much visiting as seems appropriate. They will try to have the same staff caring for you, whenever possible, and that you know who is who on the staff. They will try to keep the ward quiet at night, although this cannot always be achieved.

Whom can I talk to before my operation about the possibility of being confused afterwards?

Most patients are called to a pre-assessment clinic before surgery. At this clinic, you will be able to talk to an experienced surgical nurse, and perhaps to your anaesthetist. They will be able to tell you if you have a high risk of confusion after surgery, and what you can do to help.

It can also help to talk to family and friends about the possibility of becoming confused after the operation. They will be important in helping you make a full recovery.

Who can help me after my operation?

People with delirium are likely to stay in hospital longer than normal after an operation. When you are well enough to be at home, you may require extra help at home – usually for a fixed period of time. A social worker may need to help set this up. Some people need to go to a convalescent home for a little while, or stay with family or friends as the confusion resolves.

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Further reading

1 Rasmussen LS et al. Does anaesthesia cause postoperative cognitive dysfunction? A randomised study of regional versus general anaesthesia in 438 elderly patients. Acta *Anaesthesiol Scand* 2003;**47**:260–266.

2 Moller JT et al. Long-term postoperative cognitive dysfunction in the elderly: ISPOCD1 study. International Study of Postoperative Cognitive Dysfunction. *Lancet* 1998;**351**:857–861.

3 Monk TG, Price CC. Postoperative cognitive disorders. *Curr Opin Crit Care* 2011;**17(4)**:376–381.

4 Crocker et al. Long-Term Effects of Postoperative Delirium in Patients Undergoing Cardiac Operation: A Systematic Review. *Ann Thorac Surg* 2016;**102(4)**:1391–1399.

5 Siddiqi et al. Interventions for preventing delirium in hospitalised non-ICU patients. *Cochrane Database Syst Rev* 2016;**11**;3:CD005563.

6 Deiner S, Silverstein JH. Postoperative delirium and cognitive dysfunction. *Br J Anaesth* 2009;**103**:i41-i46.

7 Murthy et al. Controversies in anaesthesia for noncardiac surgery in older adults. *Br J Anaesth* 2015;**115**:ii15–25.

Further information

Anaesthetists are doctors with specialist training who:

- discuss the type or types of anaesthetic that are suitable for your operation. If there are choices available, your anaesthetist will help you choose what is best for you
- discuss the risks of anaesthesia with you
- agree a plan with you for your anaesthetic and pain control
- are responsible for giving your anaesthetic and for your wellbeing and safety throughout your surgery
- manage any blood transfusions you may need
- plan your care, if needed, in the intensive care unit
- make your experience as calm and pain free as possible.

Common terms

General anaesthesia – This is a state of controlled unconsciousness during which you feel nothing and may be described as 'anaesthetised'.

Regional anaesthesia – This involves an injection of local anaesthetic which makes part of your body numb. You stay conscious or maybe sedated, but free from pain in that part of your body.

You can find out more about general and regional anaesthesia in the patient information booklet Anaesthesia explained, which is available from the RCoA website via:

www.rcoa.ac.uk/document-store/anaesthesia-explained

Risks and probability

In modern anaesthesia, serious problems are uncommon. Risk cannot be removed completely, but modern drugs, equipment and training have made anaesthesia a much safer procedure in recent years.

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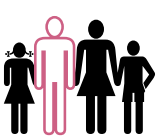
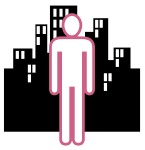
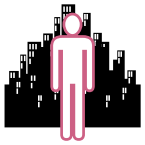
The way you feel about a risk is very personal to you, and depends on your personality, your own experiences and often your family and cultural background. You may be a 'risk taker', a 'risk avoider', or somewhere in between. You may know someone who has had a risk happen to them, even though that is very unusual. Or you may have read in the newspapers about a risk and be especially worried about it.

People vary in how they interpret words and numbers. This scale is provided to help.



Very common	Common	Uncommon	Rare	Very rare
1 in 10 Someone in your family	1 in 100 Someone in a street	1 in 1,000 Someone in a village	1 in 10,000 Someone in a small town	1 in 100,000 Someone in a large town

Your anaesthetist will give you more information about any of the risks specific to you and the precautions taken to avoid them. There are some rare risks in anaesthesia that your anaesthetist may not normally discuss routinely unless they believe you are at higher risk. These have not been listed in this leaflet.

You can find more information leaflets on the College website **www.rcoa.ac.uk/patientinfo**.

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This leaflet has been reviewed by the RCoA Patient Information Group which consists of patient representatives and experts in different areas of anaesthesia.

Royal College of Anaesthetists

Tell us what you think

We welcome suggestions to improve this leaflet.

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This leaflet will be reviewed within five years of the date of publication.