When you have a general anaesthetic, you become unconscious. The anaesthetist decides how much anaesthetic you need to keep you unconscious during your operation. Awareness is when a patient becomes conscious or partly conscious during a general anaesthetic and can remember things that happened. This is uncommon, but it can be very distressing. This article tells you more about how it can occasionally happen, what steps are taken to prevent it and what to do if you think it has happened to you.

What is awareness?
Awareness is becoming conscious during some part of your operation under general anaesthetic. The majority of patients who are aware do not feel any pain, but may have memories of events in the operating theatre. Dreaming around the time of an operation is very common (6 in 100) but this is not awareness. Some patients recall events from the recovery room after their operation and mistakenly believe them to be memories of the surgery.

How and why does it happen?
Your anaesthetist is present throughout the whole operation and he/she uses clinical judgement and experience to ensure that you are receiving enough anaesthetic to keep you unconscious, but not so much that you suffer serious side effects.

Anaesthetics have side effects that increase as more anaesthetic is given. These include falling blood pressure and reduced breathing. Anaesthetists sometimes use a muscle relaxing drug as part of the anaesthetic. These drugs stop your breathing and your anaesthetist will use a ventilator (breathing machine) to do the breathing for you. For some operations these drugs are essential as they allow the surgeon access to parts of your body that he/she could not reach without muscle relaxants. These drugs also allow lighter levels of anaesthetic to be used, and this reduces dangerous side effects. Muscle relaxants also prevent movement, and your anaesthetist uses information coming from monitors (heart rate, blood pressure, anaesthetic gas levels etc) to judge whether you are unconscious or not.

Awareness occurs if you are not receiving enough anaesthetic to keep you unconscious. It can also happen if the equipment that delivers the anaesthetic to your body is malfunctioning, or there may be a combination of these.

How likely is it?
Careful studies have been done, mainly in the USA and Scandinavia, which include interviews with many thousands of patients. Several studies suggest that around one or two people per 1,000 patients under anaesthetic experience some kind of awareness. Only one third of these people feel pain, although the experience can still be very distressing. Awareness with on-going psychological effects afterwards is more likely (but still uncommon) if you receive a muscle relaxant.

Another study of over 80,000 patients given an
anaesthetic according to a strict protocol, found that only 1 in 14,000 people having a general anaesthetic experience awareness. Most of the cases they found happened to people who had certain risk factors. If no risk factor is present, the risk was 1 in 42,000 anaesthetics. The risk factors they recorded were having open heart surgery, Caesarean section (delivering a baby), or surgery after a major accident. Awareness remained uncommon even for these procedures.

A recent survey of anaesthetists in the UK estimates that around 1 person per 15,000 patients reports awareness to their anaesthetist.4

What does it feel like if it happens to me?

Over half of aware patients recollect sounds and conversations within the operating theatre.1,2,4 They are unable to move and have feelings of anxiety and panic.1,4 Approximately a quarter of aware patients are aware of the insertion or presence of the breathing tube in their throats1,5,6 and about a third experience pain.1,2,5,6

Are there any long-term effects?

Some people who have been aware during a general anaesthetic suffer long term effects.2,5 These include anxiety, sleep disturbances, flashbacks and nightmares. A post-traumatic stress disorder can develop. There is also likely to be fear of anaesthesia should another anaesthetic be needed.

If I think I have been aware, what should I do?

You will benefit from talking to an anaesthetist about it and understanding how it might have happened. You can contact your original anaesthetist or any anaesthetist through the anaesthetic department at your hospital. If you are still in hospital you can ask your nurses to make contact. If you are already at home, you or your GP can contact the anaesthetic department at the hospital.

Studies have shown that some people do not realise that they have been aware until several days later. You can report the fact that you think you have been aware, days or months later. The anaesthetist who conducted the anaesthetic, or another anaesthetist, will talk to you. He/she will ask you to explain exactly what you remember. He/she will talk to you about your memories and try to work out if you have been aware or if your memories are dreams or relate to things that happened while you were waking up after your operation. If you have been aware when you should not have been aware, the anaesthetist will explain to you how this might have happened.

It can be helpful to see a Psychologist who has experience of working with people with who have had awareness during a general anaesthetic. The anaesthetic team can set this up for you. You will also be offered details of how to contact the psychology services in the future, if you do not think that you need help right away. Help is also available on the internet.7,8

Can awareness be avoided?

Awareness happens when a general anaesthetic is used and an insufficient amount of anaesthetic is given. Not all operations require general anaesthetic. Some operations can be carried out using a local or regional anaesthetic to numb part of the body. If you have this kind of anaesthetic, you will be awake. You will not be able to feel anything, and if you are anxious, some light sedation may be used to keep you calm and relaxed. You can find out more about these anaesthetics in the booklet Anaesthesia Explained on the Royal College of Anaesthetists website. Your anaesthetist will be able to tell you if these anaesthetics are suitable for you.
How is awareness prevented during a general anaesthetic?

At the start of the day, your anaesthetist will check all equipment to ensure it is functioning properly. Misconnections and disconnections of the breathing tubes can cause awareness. All anaesthetists are trained to spot these problems, hopefully before awareness occurs. Before the start of your anaesthetic you will be connected to a monitor that tells the anaesthetist how you are responding during the operation. Another monitor will usually be used which shows the amount of anaesthetic in your body. This monitoring equipment helps the anaesthetist judge whether you are having the right amount of anaesthetic.

Monitors, which try to detect awareness by analysing brain activity, have been developed. These have been studied in a number of trials of varying size and quality. These monitors may reduce the possibility of awareness, particularly in patients who are at higher risk, but they cannot prevent awareness completely. At the present time these monitors are not in routine use in British hospitals nor are they generally recommended for routine use in America. NICE, the National Institute for Health and Clinical Effectiveness, published guidance in 2012 for their use in the UK.

If I have had an episode of awareness, is it more likely to happen during my next anaesthetic?

Yes, you are at a slightly increased risk during your next anaesthetic. It is very important you tell your anaesthetist about your previous episode of awareness. He/she will try to ensure that you receive adequate doses of anaesthetic throughout surgery.

Are there any circumstances in which awareness is more or less likely?

If you are very ill, awareness is more common. Very ill patients have a low blood pressure and anaesthetics can decrease the blood pressure further which may cause harm (e.g. heart attack or stroke). The anaesthetist may use a lighter general anaesthetic to reduce the risks to you. However, the risk of you being aware of what is going on is increased.

In some types of surgery the side effects of anaesthetic drugs may be particularly dangerous to you (or, if you are pregnant, to your unborn child). The risk of awareness is increased because your anaesthetist may need to use less anaesthetic. For example:

- cardiac surgery (the risk may be 1 in 100)
- emergency caesarean section under a general anaesthetic (4 in 1,000).

If you take certain medications you will require more anaesthetic. These include alcohol (prolonged, heavy use), some types of sleeping tablets and morphine-like drugs. It is very important that you inform the anaesthetist of all your regular medications.

Most cases of awareness leading to serious psychological upset occur in people who have received muscle relaxants. People who have not had muscle relaxants, and are breathing for themselves, very rarely become aware during anaesthesia, and if they do become aware, serious psychological upset does not generally follow. Anaesthetists will avoid muscle relaxants and allow patients to breathe for themselves whenever it is possible and safe to do so. However for many types of surgery, muscle relaxants are essential.
Is there anything I can do to prevent it from happening?

You could ask your anaesthetist if it is possible to avoid having a general anaesthetic and have your operation performed with a local anaesthetic. You can have sedation as well to help you feel drowsy and mentally relaxed.

Tell the anaesthetist about all your regular medications or drugs, especially those mentioned above, and about your alcohol intake. Also tell him/her if you think you may have been aware during any previous anaesthetic.

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