

You will shortly undergo surgery. Your treating physician has informed you of this. During the surgery, a form of anaesthesia (narcosis or sedation) is required. This brochure provides further information on the various forms of anaesthesia, and what you can expect on the day of surgery. If you have further questions after reading this, please speak to your anaesthesiologist or the nurse.

The anaesthesiologist

You will meet the anaesthesiologist or the specialised anaesthesia assistant at the Anaesthesia Outpatient Clinic. This is the physician/person who specialises in various forms of anaesthesia, pain relief and intensive care relating to the surgery. The anaesthesiologist may ask you some questions about your health, which medicines you use, or whether you are allergic to certain medicines. You can also expect questions on previous surgeries and how you responded to anaesthesia. If you are under the care of a specialist, such as a cardiologist, lung specialist, neurologist or pacemaker technician, it is a good idea to bring any recent information (letters, ultrasound scan, lung function) in beforehand. This will give your anaesthesiologist a better impression of your health condition.

During the surgery the anaesthesiologist or his/her assistant, the nurse anaesthetist, will be with you constantly. If necessary, the anaesthesiologist can adjust the anaesthesia at any time. The anaesthesiologist also ensures that your fluid levels are maintained and that you receive a blood transfusion in the event of severe blood loss during surgery.

Various types of anaesthesia

There are various types of anaesthesia or sedation. The most well-known type is general anaesthesia or sedation, where your entire body is sedated and you temporarily lose consciousness. Local anaesthesia is also commonly known, in which a small piece of skin is 'locally' anaesthetised – to suture a wound, for example.

With regional anaesthesia, a larger part of the body, such as an arm, a leg or the entire lower body is temporarily anaesthetised. With regional anaesthesia, you remain conscious throughout the surgery but, if you prefer, you can ask for a sedative. You will not see anything of the surgery: everything is covered with cloths.

Which form of anaesthesia is suitable for you?

The most suitable anaesthesia for you depends on various factors, such as your age, physical condition and the type of operation. You can discuss your wishes with the anaesthesiologist, who will take these into account when deciding on the type of anaesthesia. The anaesthetist may suggest that you combine anaesthesia with an epidural anaesthesia. The benefit of this is the option of better pain relief after the surgery.

Preparation for the surgery

You will receive information on fasting during the presurgical consultation with the anaesthesiologist. This information can also be found in the leaflet 'Instructions for admission'.

The anaesthesiologist might request that you shave off your beard as it can complicate the administration of oxygen via a mask while you are under anaesthesia. On the day of the surgery you are not allowed to smoke. The respiratory tract of smokers is often irritated and therefore more susceptible to inflammation. In addition, coughing after the surgery may be very painful.

Instead of a pyjama, you will receive a surgical shirt to wear. During the surgery, you cannot wear any jewellery as well as any piercings. You are also requested to come to the surgery without any make-up, nail polish or gel nails. Discuss with the nurse whether your valuables can be kept in a safe location. You must also leave your glasses/contact lenses and dentures at the nursing department.

In preparation for the anaesthesia, you may receive a tablet. This will make you a little drowsy before the nurse will take you to the surgical ward. There you will see the anaesthesiologist and his/her assistant.

After the surgery

After the surgery, the anaesthesiologist and the anaesthesiologist's assistant will transfer you to the recovery room. This is a separate area close to the operating theatre. Specialised nursing staff will ensure that you recover peacefully after the surgery. Here you will also be connected to monitoring equipment. Sometimes you will have a tube running through your nose to relieve your stomach, or to give you extra oxygen.

As soon as you are sufficiently awake and pain free you will return to the ward. You may also have to stay in a special monitoring ward for a while if the nature of the surgery requires some longer intensive care. You will then go to intensive care. You can receive visitors in intensive care and in the nursing ward.

If you can return home the same day, make sure that you are accompanied by an adult and that you are not home alone. Organise transport by taxi or in your own vehicle but do not drive yourself, as your response time may be affected up to 24 hours after the surgical procedure. Take it easy the first 24 hours after the surgery. Do not operate machinery. Do not make any important decisions. Eat and drink easily digestible meals.

It is quite normal not to feel very well for a while after your surgery. This is due not only to the anaesthesia, but also to the fact that every surgery is indeed a major event. Your body must recover at its own pace. This takes time.

General anaesthesia or sedation

Before you receive anaesthetics, you will be connected to monitoring equipment. You will receive patches on your chest to measure your heart rate and a clamp on your finger to monitor the oxygen levels in your blood. Your blood pressure will be measured on your arm. A needle will be inserted in your hand or arm; an IV is sometimes connected to this. Via this needle, the anaesthesiologist injects the anaesthetics. You will fall into a deep sleep within one minute.

Small children are often afraid of injections. They are therefore usually sedated by breathing from a cap with an anaesthetic gas flowing through it. It is also possible to sedate the skin with an ointment, so that the injection is barely felt.

To monitor breathing during the anaesthesia, a plastic tube is inserted into your throat in many cases before the surgery starts. You won't notice this at all: you are completely anaesthetised.

During the surgery, the anaesthesiologist or his/her assistant will be with you constantly. The anaesthesiologist monitors and controls your body's functions during the surgery. Thanks to the monitoring equipment, it can be determined exactly how your body responds to the surgery. The respiratory and circulatory system may be adjusted if necessary, and medications are administered to maintain the anaesthesia.

Waking up from anaesthesia

Shortly after the surgery, you will feel sleepy and may even keep nodding off. You may also experience pain at the surgical site. The nurse will give you a pain reliever for this. The intensity of your pain will be monitored with the aid of a score table. Some patients experience nausea after undergoing surgery. You will also receive medication for this, if so required.

Adverse reactions to anaesthesia

Back at the ward you may still feel a little drowsy. You may also be nauseous and vomit and experience pain. The nurse knows exactly what to give you. You are welcome to ask for this. If you have a heavy or tingly feeling in the back of your throat, this is from the tube that was placed in your throat during the anaesthesia, to regulate your breathing. This irritation will disappear by itself within a few days. Many people are thirsty after surgery. If you are allowed to drink, do this very carefully. If you are not allowed to drink, the nurse can wet your lips to take away the worst of your thirst.

Is anaesthesia safe?

Due to improvements in monitoring equipment, the availability of modern drugs and proper training of the anaesthesiologist and his/her assistants, anaesthesia is now very safe. Despite all due care, complications are not always preventable. Various types of allergic reactions to medicine can occur. When inserting the breathing tube, your teeth might be damaged. It is, therefore, important to inform the anaesthesiologist about any loose elements in your mouth (prosthetic crowns, bridges or loose teeth or molars etc.). Due to an unfortunate position during surgery, a nerve in the arm or leg can become clenched, which could cause tingling and loss of strength.

The occurrence of severe complications due to anaesthesia is almost always due to an accident, or related to the condition of your health prior to surgery. Ask your anaesthesiologist if the anaesthesia could result in particular risks for you.

Birth control

If you use hormonal contraception (the pill, a hormonal shot or a hormonal IUD), bear in mind that it may not be reliably effective around the time of the surgery. To prevent pregnancy, it is advisable to use additional contraceptives (e.g. a condom). Read the package leaflet of your contraceptive to find out what you should do.

Local anaesthesia

With local anaesthesia a part of the body, such as an arm, a leg or the entire lower body, is temporarily sedated, as a result of which that part will not feel anything or be able to move. By injecting an anaesthetic around a nerve, nerves or nerve fibres can be temporarily disabled.

In the back, there are large nerves from the spinal cord to the lower body and legs. These nerves tracts are numbed with an epidural. The prick does not come close to the spinal cord, which therefore cannot be damaged: An arm can be anaesthetised by temporarily eliminating the ganglion (plexus) leading to the arm, by injecting an anaesthetic around the nerves in the armpit or in the neck, for example. A leg can also be partially anaesthetised by an injection in the groin.

With local anaesthesia, the nerves that respond to pain are turned off as completely as possible. Sometimes the feeling does not fully disappear. It is normal to feel it when you are being touched. Often, pain nerves run together with the nerves that make your muscles work. These are also temporarily disabled during anaesthesia. The muscles then become paralysed: they temporarily do not work. Once the anaesthesia has fully worn off, you will have normal power and control of your muscles.

The epidural or spinal anaesthesia

You will also be connected to the monitoring equipment. Your blood pressure will be measured. An infusion needle will be inserted in your hand or forearm. Depending on the anaesthesiologist's preference, you will be asked to sit or lie on one side. Epidural or spinal anaesthesia is no more painful than a normal injection. When the anaesthesia is injected, you will first notice that your legs become warm and start to tingle. Later they will lose feeling and become weak, just like the rest of the lower body. During the surgery, the anaesthesiologist or the anaesthesiologist's assistant will remain with you. You will remain conscious. You will not see anything of the surgery: everything is covered with cloths. If you prefer to sleep, you can ask for a light sedative.

Depending on the medicine used, it could take three to six hours before the anaesthesia has fully worn off. Once the anaesthesia has worn off, you may also start to feel pain from the operation. Don't wait too long to ask the nurse for a painkiller.

Adverse reactions during epidural or spinal anaesthesia:

- **Insufficient analgesia**
It is possible that the anaesthesia does not work sufficiently on you. Sometimes the anaesthesiologist can administer a little extra anaesthesia. In other cases it is better to choose a different form of anaesthetic – general anaesthesia, for example. The anaesthesiologist will discuss this with you.
- **Low blood pressure**
A side effect of an epidural or spinal anaesthesia may be low blood pressure. The anaesthesiologist is aware of this and may take measures to prevent it.
- **Extension upwards**
It could occur that the anaesthetised area extends further upward than intended. You will note this if your hands start to tingle. You may experience some difficulty breathing. The anaesthesiologist will administer some extra oxygen. Usually, this will resolve the conditions.
- **Difficulties urinating**
The anaesthesia extends to your bladder. It could be a little more difficult to urinate than normal. It may be necessary to empty the bladder using a catheter. You can return home only once you are able to urinate without issues.

Adverse reactions and complications after the epidural or spinal anaesthesia has worn off:

- **Back pain**
Some patients develop back pain at the site of injection. This may have to do with the medication administered or with the position you were in during the surgery. These complaints will usually disappear within a few days.
- **Headaches**
After an epidural, you may experience a headache. This headache can be distinguished from a 'normal' headache because the pain decreases when lying down and gets worse when sitting up. Usually, this headache disappears by itself within a week. If the complaints are so severe that you have to stay in bed, contact your anaesthesiologist. He/she can help to speed up the natural recovery.

Nerve or nerve plexus anaesthesia

A single nerve or nerve bundle can be temporarily numbed by injecting an anaesthetic around it. This technique may be used for a limb or for breast surgeries. The anaesthetic is administered prior to the surgery in a preparation area under the guidance of an ultrasound machine. To provide you with additional medication should this prove necessary, an IV needle will be inserted into your hand or forearm.

Try not to move if you feel pain or irritation during nerve anaesthesia, but do tell the anaesthesiologist about this. Once the needle is correctly situated, the anaesthetic will be injected.

A short time later, you will notice that the part of the body to be anaesthetised will tingle and feel warm. This feeling will disappear, and you will no longer be able to move the body part. Once the

anaesthetic has worn off, both the movement and the feeling will return. The anaesthetic must work for 15 to 30 minutes before the effect is optimal. During the surgery you will be awake, but if you prefer, you can ask for a sedative. You will not see anything of the surgery: everything is covered with cloths.

Depending on the medicine used, it could take three to more than 24 hours before the anaesthesia has fully worn off. When the anaesthesia has worn off, you could also start feeling pain from the operation. Don't wait too long to ask the nurse for a painkiller.

Sometimes, after a plexus anaesthesia of an arm or foot/lower limb, you need not stay in hospital until the anaesthesia has worn off completely. This depends on the surgery that was performed. As long as your arm is sedated, you will have to carry it in a canvas (sling).

Pain control

Pain medication after the surgery

The anaesthesiologist will maintain pain control during your stay in the recovery room and organise pain medication for the first 24 hours after the surgery.

Pain control after surgery at the Outpatient Clinic

After the surgery, you will receive pain control according to a schedule. This is done to limit the pain as much as possible. When you are operated at the Outpatient Clinic, it is important to ensure that you have paracetamol at home.

Pain control when you have been admitted

After the surgery, you will receive pain control according to a schedule. This is done to limit the pain as much as possible. If the pain control is not sufficient, report this right away so that the schedule can be amended.

Extra pain medication

If the pain is unacceptable for you, you will receive extra pain medication. This could be tablets, suppositories or injections.

Other forms of pain control

There are also options other than pain medication in the form of tablets, suppositories or injections. These are discussed here.

- Pain medication via an epidural: In consultation with you, the anaesthesiologist can decide to insert a thin tube in your back before the surgery. The tube is inserted between two vertebrae by means of a so-called epidural. Pain medication will be administered to you continuously via this tube.
- Pain medication via a PCA pump: PCA is the abbreviation for patient-controlled analgesia. This means that you as a patient can control the pain medication yourself via connection to the PCA system on your IV. By pressing on a button you can administer pain medication yourself as soon

as you feel pain. The concentration and the quantities are calculated in such a way that it is impossible for you to administer too much to yourself.

Pain measurement

The nurse of the ward will regularly ask you about your pain. You can indicate this using a 'pain indicator' or by giving the pain a number, whereby 0 means 'no pain' and 10 indicates 'the worst pain imaginable'.

Adverse reactions and complications

Insufficient analgesia

It is possible that the anaesthesia does not work sufficiently on you. Sometimes the anaesthesiologist can administer a little extra anaesthesia.

Hypersensitivity reactions

Hypersensitivity to the anaesthetics used sometimes occurs. This could be experienced as tightness in the chest, skin rash and/or low blood pressure. Proper treatment is usually quite possible.

Toxic reactions

The nerves that are to be anaesthetised run close to large blood vessels. It is possible for narcotic drugs to enter directly into the bloodstream. This is experienced as a metallic taste, tingling around the mouth, drowsiness, heart rhythm disturbances, spasms and ultimately unconsciousness. Proper treatment is usually quite possible.

Example of pain measurement:

