

Leaflet about anesthesia

It is natural that you worry about anaesthesia when your operation is scheduled. This booklet is intended to offer you some information about anaesthetic procedure at our hospital and relieve you from anxiety.

If you have any question about anaesthesia, please feel free to ask. We can work together to make your experience as calm and pain free as possible.

What is anesthesia?

The word 'anesthesia' is derived from 'loss of sensation'. Anesthesia stops you to feel pain and other sensations. It can be given in various ways and does not always make you unconscious.

Who is anesthesiologist?

Anesthesiologists are doctors who have been well trained in anesthesia, in treatment of pain, in care of very ill patients, and in emergency care.

We are responsible for:

- Your wellbeing and safety throughout operation
- Agreeing a plan with you for your anesthesia
- Giving you anesthesia
- Planning pain control with you

Types of anesthesia

① General anesthesia

General anesthesia is a state of controlled unconsciousness during operation.

Anesthetic drugs injected into a vein, or anesthetic gases taken into the lungs, are carried to the brain by the blood flow. They stop the brain recognizing messages coming from nerves. As anesthetic drugs wear off, consciousness starts to return.

② Epidural anesthesia

An epidural anesthesia is one of regional anesthesia which is used during and/or after operation for pain relief. It is often done in combination with general anesthesia.

③ Spinal anesthesia

A spinal anesthesia is used in operation below waist. Depending on operation you're your condition, Spinal anesthesia is safer and suits you better than general anesthesia.

You stay conscious but free from pain.

Health check before anesthesia

Before your anesthesia, we need to know about your conditions.

You are kindly asked about:

- Your general health and fitness
- Serious illness you have had
 Tell us about when, where and how you were treated
- Problems with previous anesthesia
- Whether you know of any family members who have had problems with anesthesia
- Medicines you are taking
 This information is important to prevent undesirable interaction between your medicines and anesthetic drugs. You may be required to stop taking some of those several days before your operation.
- Allergies you might have
- Loose teeth, caps, crowns or bridges
- Whether you smoke
- Whether you drink alcohol

We look at the results of the health check and ask you more questions about your health. We may also need to listen to your chest with a stethoscope, examine your neck and jaw movement, and look in your mouth.

The choice of anesthesia depends on:

- Your operation
- Your answers to the questions you have been asked
- Your physical condition
- Your requests and reasons for them
- Our recommendations and the reasons for them

Having talked about the benefits, risks and your requests, we can decide together what would be best for you.

Why do we postpone operation?

Occasionally, we might find something about your conditions that could have adverse effect on your operation. It might then be better to delay the operation until the problem is resolved. Our main concern is your safety.

Nothing to eat or drink - fasting

We give you clear instruction about fasting, which is important to follow. If there is any food or liquid in stomach just before anesthesia, it could come up into throat and fall into trachea, which results in serious damage to lung. You are asked to stop eating and drinking by 9 p.m. the day before the operation.

If your medicines are too important to skip, you can take those with a small amount of water in the early morning. We will advise you.

Premedication

Premedication (a 'pre-med') is a tranquillizer which is given orally before anesthesia. It can reduce or relieve anxiety. If you think a pre-med would help you, you can ask us about having one.

Other preparation

For safety of your operation, you are supposed to take off glasses, contact lenses, hearing aids, dentures and get rid of lipsticks and manicure, which may hinder accurate monitoring. They will be returned to you as soon as you want after operation.



In the operating room

When the operating room is ready, your nurse will come with you to the operating theatre. You need to get onto a theatre trolley at the reception, or walk into the operating room. Theatre staff will check your identification bracelet.

In the room, you are kindly asked to move to the operating table and take off your hospital gown.

To monitor you, we will attach some monitoring patches to pay attention on

- Your heartbeat: sticky patches will be placed on your chest
- Your blood pressure: a blood-pressure cuff will be placed on arm
- The oxygen concentration in blood: a clip will be placed on finger

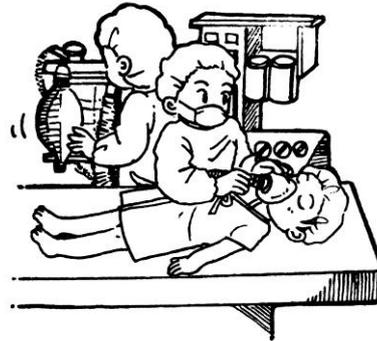
To give you anesthetic drug. A thin plastic tube (a 'cannula') will be put into your vein in arm. Everything is ready for anesthesia.

We describe the anesthesia methods which we think are best for you. See the booklets of 'general anesthesia', 'epidural anesthesia' and 'spinal anesthesia'.

□ General anesthesia

Anesthesia takes place in the operating room.

First of all, a mask where oxygen comes out is placed over your mouth. Anesthetic drugs are given through the cannula. You will become unconscious before you realize as induction happens quickly. We tilt your head back and lift your chin. You have an air tube placed in your airway. Keeping airway open is essential for the safety. Muscle relaxants, which intentionally



stops breathing, are necessary. The air tube is connected a machine (a ventilator) to 'breathe' for you. After that, the operation starts.

We will stay with you and will constantly pay attention on your condition, checking the monitors, adjusting the anesthetic.

There are some of the drugs you may be given during anesthesia:

- Anesthetic drugs or gasses to keep you 'anesthetized'
- Pain-relieving drugs
- Muscle relaxants to relax or temporarily paralyze muscle
- Other drugs depending on your condition as it changes.

When the operation is finished, we turn anesthetic gas down to zero. If muscle relaxant is used, a drug that eliminates its effect will be given. You regain consciousness as the anesthetic effect fades, which normally takes 10 minutes. We are sure that you are recovering normally by confirming you can

- Breathe on your own without any difficulty
- Make a tight fist
- Open your mouth and stick out your tongue

When you are able to follow these directions, the air tube is moved out. Then you are taken to a recovery room where we carefully watch you.

In the recovery room, room staff and we will be with you to monitor your condition as well as in the operating room.

- You have already received pain relieving drugs before you regain consciousness, but if you are still in pain, tell us so we can give you more.
- If you feel sick, you may be given drugs.

- Depending on the operation you have had, you may have a urine catheter. This is a thin soft tube put temporarily into the bladder to drain urine.
- You may shiver with cold after operation. You will be warmed with blanket.

When we are totally satisfied that you have safely recovered from anesthesia, you are taken back to the ward.

Pain relief

Good pain relief is important. It can prevent suffering and helps you recover more quickly.

- It is natural that some people need more pain relief than others. It differs from person to person.
- Pain relief can be increased, given more often, or given in a different way.
- Occasionally, pain is a warning that all is not well, so we should be told about it.
- If you can breathe deeply and cough easily after operation, you are less likely to develop a chest infection.
- If you can move around freely, you are less likely to get blood clots.

Ways of giving pain relief

Injection; these may be given through a cannula.

Nerve block; this can be very useful for relieving pain after operation. You can see more details in the page of ‘Epidural anesthesia’

Drugs you may receive

Opiates

These are the drugs often used for pain. They may be given by injections or added to a spinal anesthesia or an epidural anesthesia to give longer and better pain relief.

Some people have side effects – the most common are feeling sick, vomiting, itching, constipation, and drowsiness. Make sure that overdose can produce breathing disorder and low blood pressure. These side effects can be treated with other drugs.

Non-steroidal anti-inflammatory drugs

Drugs such as paracetamol or ibuprofen may be given. They must be carefully used for people with asthma, kidney disease, heartburn or stomach ulcers.

Benefits and risks of anesthesia

We’d like you to understand that anaesthesia has made much of today’s surgery possible, and has brought great benefits.

The benefit of anaesthesia is that it will remove pain and sensation. This benefit needs to be weighed against the risks of the anaesthetic procedure and the drugs used. The balance will vary from person to person. It is difficult to separate these risks from anaesthesia and operation.

The risk to you as an individual will depend on:

- Whether you have any other illness
- Personal factors
- Surgery which is complicated, long or done in an emergency

We may use many drugs or combinations of drugs. Many of the drugs used by anaesthetists have been successfully used for a long time. But, the more complicated the anaesthesia and surgery are, the more chance there is of complications and side effects.

Index of side effects and complications

Feeling sick and vomiting after surgery

Some operation, anaesthetics and pain-relieving drugs are more likely to cause sickness than others. Sickness can be treated with anti-vomiting drugs, but it may last from a few hours to several days.

Sore throat

If an air tube is placed to help you breathe, it may give you a sore throat. The discomfort or pain lasts for a few hours to days.

Shivering

You may shiver if you get cold during operation. Care is taken to keep you warm. A hot air blanket may be used. However, shivering can happen even when you are not cold, due to the effects of anaesthetic drugs.

Itching

This is a side effect of opiates (such as morphine), but can be caused by allergic reaction (for example, to drugs, sterilizing fluids or stitches or dressings). If you have itchiness, it can be treated with other drugs.

Chest infection

A chest infection is more likely to happen to people who smoke, and may lead to breathing difficulties. This is why it is important to give up smoking for as long as possible before anaesthesia.

Damage to teeth, lips or tongue

Minor damage to your lips or tongue is common. Damage to your teeth is uncommon, but may happen as we place a tube in your airway. It is more likely if you have weak teeth, small mouth, stiff neck or small jaw.

An existing medical condition getting worse

We will always make sure that you are as fit as possible before operation. However, if you have had a heart attack or stroke, it is possible that it may happen again.

Serious allergy to drugs

Allergic reaction will be noticed and treated quickly. Very rarely, these reactions lead to death even in healthy people. We want to know about any allergies in yourself or your family.

Death

Death caused by anesthesia is very rare. In Japan, we happen to see this worst case about one in two hundred thousand.

When any of the complications are suspected to occur, every effort to minimize complications will be instantly made.

If you have some questions, please feel free to ask. We are obliged to reply your worries whatever they are.



□ Epidural anesthesia

Epidural anesthesia (an “epidural”) is commonly used not only for operation, but also for pain relief after operation **in combination with general anesthesia or spinal anesthesia.**

What is epidural anesthesia?

The nerve from spine to body pass through area called “epidural space” in your back close to your spine.

- To establish the epidural, we inject skin anesthetic through a fine plastic tube (an epidural catheter) into the epidural space. As a result, the nerve messages are blocked. This causes numbness.
- An epidural pump allows local anesthetic to be given continuously through the epidural catheter after operation. That means you don't have to feel strong pain.
- Other pain relieving drugs can be added in small quantities.
- When the epidural is stopped, full feeling will return.

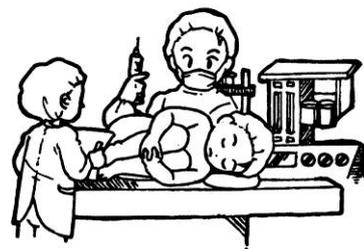
How is epidural anesthesia done?

The Epidural can be put in when you are conscious. When in combination with general anesthesia, the epidural is done first.

Preparations for the epidural are as same as for a general anesthesia. See the page of ‘general anesthesia’.

In the operating room, you are asked to lie on your side on the operating table, bending your back backwards as possible, having your knees tucked up towards your chest. It is important to keep still while the epidural is put in.

Skin anesthetic is injected into a small of the skin of your back. An epidural needle is pushed through this numb area and a thin plastic catheter is passed through the needle into your epidural space. The needle is then removed, leaving only the catheter in your back.



We will explain what is happening throughout the process so that you are aware of what is taking place ‘behind your back’.

Can anyone have the epidural?

No. the epidural may not always be possible if the risk of complications is too high. We

will ask you if:

- You are taking blood thinning drugs, such as warfarin
- You have an allergy to local anesthetic
- You have severe arthritis or deformity of the spine
- You have an infection in your back

In this case, general anesthesia is better to avoid unwanted complications.

What will I feel?

- Skin anesthetic stings briefly, but usually allow an almost painless procedure.
- It is common to feel slight discomfort in your back as the catheter is inserted.
- Occasionally, an electric shock-like sensation or pain occurs during needle or catheter insertion. If this happens, you must tell us immediately.
- A sensation of warmth and numbness gradually develops, like a sensation after dental anesthetic injection. You may still be able to feel touch, pressure and movement.
- Your legs feel heavy and become increasingly difficult to move.
- You may only notice these effects for the first time when you recover consciousness after operation in general anesthesia.
- Overall, most people do not find these sensations to be unpleasant, but a bit strange.
- The numbness and weakness gradually fades over the first day after operation.

What are the benefits?

- If the epidural is working, you will have better pain relief than other methods.
- There may be quicker return to eating, drinking and full movement, possibly a short stay in hospital compared to other methods of pain relief.

When will the epidural be stopped?

- Basically, the epidural will be stopped 48 hours after operation to minimize the risk of infection through the catheter.
- If signs of infection are seen, the catheter should be removed as soon as possible even though it works.

Side effects and complications

- **Low blood pressure;** As the epidural takes effect, it can lower your blood pressure and make you feel faint or sick. This can be controlled with the fluids given by the

drip and by giving you drugs to raise your blood pressure.

- **Pain during the injection;** You should immediately tell us if you feel any pain or pins and needles in your body because this may indicate damage to nerve. The needle or the catheter will need to be repositioned.
- **Headache;** Severe headache can occur after epidural anesthesia. Most headaches get better within a few days and can be treated with pain relieving medicines.
- **Nerve damage;** This is a rare complication of epidural anesthesia. Temporary loss of sensation, pins and needles and muscle weakness may last for a few days or even weeks but almost all of these make a full recovery in time.
- **Catheter infection;** The epidural catheter can become infected and have to be removed. It is rare for the infection to spread any further than the insertion site in the skin.

Frequently asked questions

What if I decide not to have the epidural?

If you are unhappy about having an epidural anesthesia, you do not have to have the epidural. There are several alternative methods of pain relief with morphine that work well. You will never be forced to have any anesthesia that you do not want.

□ Spinal anesthesia

For many operations, patients receive a general anesthesia which produces a state of controlled unconsciousness during operation. A spinal anesthesia (a 'spinal') is used instead for some operations below waist. Depending on operation and condition, Spinal anesthesia is sometimes safer rather than general anesthesia.

What is spinal anesthesia?

Anesthetic drug, called bupivacaine hydrochloride, is injected through a needle into the small of your back to numb the nerve from waist to toes. You do not feel any pain below waist so that operation can be done. The effect of the spinal will fade in several hours.

Can anyone have the spinal?

No, the spinal is not always possible if the risk of complications is too high. We will ask you if:

- You are taking blood thinning drugs, such as warfarin
- You have an allergy to local anesthetic
- You have severe arthritis or deformity of the spine
- You have an infection in your back

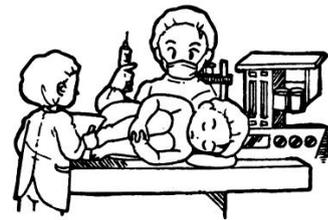
A general anesthesia is better to avoid unwanted complications.

How is the spinal done?

Preparations for spinal anesthesia are as same as for general anesthesia. See the page of general anesthesia.

You are kindly asked to lie on your side on the operating table, bending your back backwards as possible, having your knees tucked up towards your chest.

We will explain what is happening throughout the process so that you are aware of what is taking place 'behind your back'. We will give you the spinal injection. After the spinal begins to take effect, we will check how it works.



What will I feel?

Usually, the spinal should cause you no unpleasant feelings and should take only a few minutes to perform.

- As the injection is made, you may feel pins and needles or a sharp tingle in one of your legs. If you do, try to remain still, and tell us about it.
- When the injection is finished, you lie flat as the spinal works quickly and is usually effective within 5~10 minutes.
- The skin feels numb to touch and the leg muscle are weak
- When the injection is working, you will be unable to move your legs or feel any pain and sense of coldness below waist. But, make sure that the sensation such as being touched or pressed usually remains.

Why have the spinal?

Advantages, there may be:

- less risk of chest infections
- less effect on the heart and lung
- excellent pain relief
- less sickness and vomiting
- earlier return to drinking and eating after operation
- less confusion after operation in older people

However, you may still need general anesthesia if:

- the spinal does not work
- the operation is more complicated and longer than expected

Basically, your consciousness is clear during operation. Alternatively, you may decide that you wish to have tranquillizer while operation is in progress.

Side effects and complications

- **Low blood pressure:** As the spinal takes effect, it can lower your blood pressure and make you feel faint or sick. This can be controlled with the fluids given by the drip and by giving you drugs to raise your blood pressure.
- **Pain during the injection:** You should immediately tell us if you feel any pain or pins and needles in your legs as this may indicate damage to a nerve and the needle will need to be repositioned.
- **Headache:** Severe headache can occur after spinal anesthesia. Most headaches get better within a few days and can be treated with pain relieving medicines.
- **Nerve damage:** This is a rare complication of spinal anesthesia. Temporary loss of sensation, pins and needles and muscle weakness may last for a few days or even weeks but almost all of these make a full recovery in time.

After the spinal

- It takes about 4 hours for feeling to return to the area of your body that is numb.
- You may experience some tingling in the skin as the spinal wears off. At this point, you may become aware of some pain from the operation site and you can ask for more pain relief.
- As the spinal wears off, please ask for help when you first get out of bed.

Frequently asked questions

Must I stay fully conscious?

You and I can decide whether you remain fully awake during operation or would prefer to be sedated so that you are not aware of the whole process.

Can I refuse to have the spinal?

Yes. If you are unhappy about having spinal anesthesia, you can always say no. You will never be forced to have any anesthesia that you do not want.

Will I feel anything during operation?

We will not permit surgery to begin until we are convinced that the spinal is working properly. You will be tested several times to make sure of this. You should not feel any pain during operation. You may well be aware of other sensations such as being touched and pressured.

Should I tell us anything during operation?

Yes, we want to know about any sensations or other feelings you experience during operation. We will make adjustments to your care throughout operation.