



Information brochure nerve block for operations of the upper limb (shoulder, arm, elbow or hand)

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Jan Yperman Ziekenhuis • Briekestraat 12 • 8900 Ieper
www.yperman.net • 057 35 35 35
info@yperman.net •     



This brochure provides more information on regional anaesthetics (nerve block) during shoulder, arm or hand surgery.

A regional anaesthetic means that part of the body - for example a shoulder or arm - is temporarily made insensitive to pain and numb, and/or made immobile by injecting anaesthetic medication close to a nerve or group of nerves.

A regional anaesthetic will ensure that you do not feel pain at a particular region, and

may be applied as the only form of anaesthetic during the operation, or together with a full or partial anaesthetic as pain-prevention after the operation.

The purpose of this nerve block is to reduce the need for other anaesthetics, or to dispense with a general anaesthetic completely. This technique also aims to provide better pain-control after the procedure with fewer pain-killers. Therefore you will suffer less from the side-effects of these (powerful) pain-killers: you will be less nauseous and dizzy. This also means you will have to stay in bed for less time, that you will be able to get up and eat and drink sooner, and that your hospital stay will be shortened.

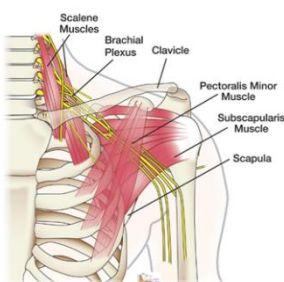
Practical

This regional anaesthetic or nerve block provides excellent pain-relief for 3 to 24 hours, depending on the type of local anaesthetic used. (If longer pain relief is required, the effect can be prolonged by repeating the injection at a later time or by sliding a catheter (fine plastic tube) next to the nerve and connecting it to a pain pump).

It rarely affects the rest of the body, and therefore has many advantages for patients at increased risk under a general anaesthetic, and is extremely useful for many patients as an anti-pain treatment after the operation. (Careful: regional anaesthesia is not possible or useful for all types of procedure).

The nerve-block injection can, depending on the operation, take place in different parts of the upper limb.

For operations on the shoulder or collar-bone, the injection is often given in the neck (plexus brachialis block). For operations on the arm or hand it will most likely be at the collar-bone, in the armpit, at the elbow or forearm, wrist or hand.



A local anaesthetic is injected close to a nerve or a group of nerves and ensures that all information passing through that nerve is blocked. This is not just about pain, but also about muscle movement, temperature and posture.

If a nerve block is the only anaesthetic applied, not all sensation will be lost. In some cases you will still feel as if you are being touched.

The pain nerves often coincide with the nerves that make the muscles work. Those muscle nerves are also deactivated with the anaesthetic and the muscles they control will temporarily not work, and will appear to be

paralysed.

You will also often lose any sense of where your limb is located. Patients may wonder for example if it is their arm being lifted up to be disinfected.

After the injection, your arm will start to tingle, feel warm, and it will gradually be sedated and temporarily 'paralysed'.

Your anaesthetist can explain which anaesthetic is most suitable for you.

The injection

You should always have an empty stomach before surgery. Clear instructions can be found in the anaesthetic information leaflet.

Before the nerve block, you will be taken to a room near the operating theatre, in which all monitoring is first switched on: blood pressure, oxygen saturation and heart activity.

Sometimes a mild sedative (minor anaesthesia) will be given in advance: your anaesthetist will give you medication to help you relax.

In cases where a nerve block is combined with a general anaesthetic, the anaesthetic will often be given after the nerve block is injected.

The skin around the injection site is always disinfected, after which the injection site is locally anaesthetised with a minor prick.



N = nerve

The nerves are located by means of an ultrasound and/or nerve stimulator.

By means of the ultrasound, we can see the nerves, the needle and the injected product. The nerve stimulator is a device that stimulates the nerve in question with a low electrical current through the tip of the needle. This helps to ensure that we are close enough, but not too close to, the nerve. You will find that the arm or leg may make small involuntary movements (twitches) as a result. However, this does not hurt. In this way, we ensure the best chance of a successful block and reduce the risk of complications.

Most people experience the injection as being no more painful than inserting an infusion.



The sedated region will often feel warm, heavy and numb as a result of the regional anaesthetic. This sensation will start after about 15 to 30 minutes.

The anaesthetic may sometimes not have sufficient effect. This can have different causes. In that case, the anaesthetist may give some additional anaesthetic or switch to a different type of anaesthetic, such as a general anaesthesia, to ensure you are comfortable at all times.

During the operation

In cases where no general anaesthetic is used, you will still NOT see the procedure because surgical drapes are used for the purpose of sterility.



You are welcome to bring your smartphone or headphones. Some patients find music very pleasant and comforting during a surgical procedure.

If a tourniquet is used, you may sometimes feel this if it is placed outside the sedated region.

An operating theatre is a busy place. On average 5 to 8 people will be walking around the room, each with their own role in your care.

An anaesthesia nurse will be with you throughout the procedure. Uw anesthesist is vlakbij.

If you have been sedated, you will feel relaxed and sometimes a little sleepy. You may be given extra oxygen through a plastic

mask or nasal cannula. You will probably not remember everything that happened in the operating room.

If you were under general anaesthesia, you will of course not remember anything that happened during the operation.

Advantages of a regional anaesthetic / nerve block

- A general anaesthetic, with its typical risks and complications, can sometimes be dispensed with. Its effects may include:
 - o Nausea
 - o Sore throat or injury to the tongue or lips
 - o Dizziness, headache, shivering, blurred vision
 - o Breathing may be a bit laboured at first.
 - o Difficulty urinating (a temporary urinary catheter may be required) or, on the other hand, bed-wetting.
 - o Confusion and impaired memory frequently occurs in elderly persons, but this is usually of short duration.
- Better pain-relief afterwards. It generally reduces the need for powerful pain-killers (morphinates) which have their own side-effects (nausea, itching, upset stomach, constipation, etc.).
- Often you will need to remain in the recovery room for only a short period.
- There is less risk of nausea, therefore you will be able to eat and drink sooner.
- You also tend to be able to get up and leave the hospital sooner.

Side-effects and complications of regional anaesthesia

Serious problems are rare in modern anaesthetics. Although risks cannot be completely excluded, modern medicines, equipment and training have made your anaesthesia a much safer procedure in recent years.

Your anaesthetist will take all possible precautions to prevent the risks listed below. He/she can give you more information about each of these risks, and the precautions that are taken.

Potential risks are shown in this figure:



Often	Sometimes	Hardly ever	Rarely	Very Rarely
1 in 10: Someone in your family.	1 in 100: Someone in your street.	1 in 1,000 Someone in a village.	1 in 10,000 Someone in a small city.	1 in 100,000 Someone in a large city.

Frequently occurs when injections are administered into the side of the neck (plexus brachialis block):

- Hoarseness
- Drooping eyelid
- A certain degree of breathing problems

These side-effects disappear once the nerve block wears off.

Bleeding by puncturing a blood vessel

- In some cases a blood vessel may be punctured. This is usually remedied by applying pressure to stop the bleeding.

Rare to very rare: pneumothorax

- Up to 4 in every 10,000 nerve blocks around the collar-bone can cause a pneumothorax by puncturing the pulmonary membrane. Depending on the severity, a drain will either be placed or not placed between the pulmonary membranes.

Rare to very rare: Nerve injury

- There is a certain degree of risk of nerve injury after any operation, irrespective whether you have received a nerve block. This risk is difficult to measure exactly, but studies show that it occurs in 9 patients for every 10,000 operations 6 months after surgery.
- It can occur as a result of the procedure, your posture during the operation, direct nerve trauma caused by the needle or by excessive pressure around/in the nerve when injecting the medication. Swelling around the operation site, or a pre-existing condition such as diabetes, smoking or high blood pressure, can also contribute to nerve injury after surgery.
- A nerve block should not hurt more than the injection itself. If you suddenly experience a sharp pain, it is essential to tell your anaesthetist immediately.
- What will you notice in cases of nerve injury? Some people experience a slightly different sensation. For example, an area of numb skin or tingling can be noticed. Some patients describe a changing sensation or even pain at a particular region. In rare cases, muscle weakness in one or more muscles can occur.

Rare to very rare: a seizure or other life-threatening situation

- A seizure (8/100,000 nerve blocks) or another life-threatening situation may occur. Your anaesthetist will treat these immediately. He/she will give you more information about this complication.

Your anaesthetist will obviously make every endeavour to avoid and/or treat these complications.

Alternatives

Various anaesthesia techniques are often available for each operation. As well as a regional anaesthetic (nerve block), these can range from a local anaesthetic, either with or without a sedative, through to a general anaesthetic.



Various techniques are available for pain-killing after an operation. Every patient will receive a combination of pain-killers through the catheter or in tablets.

In addition, a pain pump can be started up instead of, or together with, a nerve block

There are three types of pain pumps for procedures on the upper limb. One technique gives a pain-killer intravenously (through the infusion), a second technique through a catheter (fine plastic tube) which is left behind next to the nerve.

With these two pain pumps, you are literally 'attached' (by the plastic tubes between you and the pump) to your hospital bed.

A last type of pain pump works by administering a pain-killing tablet under the tongue (Zalviso).

After the operation

Providing the nerve block works, you will not (or not fully) be able to move your arm or hand. You may get a shoulder brace, in which your arm can rest.

You should take a pain-killer before the block wears off completely, ensuring that it can start working before pain actually occurs.

Once the block starts to wear off, you may feel tingling in your leg. This is normal.

Aftercare

Be sure, in the case of a sedated arm, to keep your arm in the shoulder brace for support and protection for as long as the block works. You will not be fully aware of the position of your arm, therefore your arm could be injured without you feeling it.

Be especially careful around heat sources, because you will not feel the heat while the block works. You may suffer burns without feeling anything.

Avoid the use of machines or household devices as long as the block is effective.

Special situations

You need to seek special medical help if you experience inexplicable shortwindedness or serious pain that does not go away with medication.

Also, if the block does not wear off after 48-72 hours, you should contact the anaesthetist.

You can reach the anaesthetist through the reception of Jan Yperman Hospital at 057 35 35 35.

Further information

Anaesthetists are doctors who specialise in sedation and pain- control, who:

- Explain to you with type or types of anaesthesia are suitable for your surgery. If there are several options, he or she will help you make the right choice.
- Will discuss the risk of sedation with you.
- Will discuss a pain control plan with you after the operation.
- Are responsible for the administration of medication in cases of anaesthesia.
- Are responsible for your comfort and safety during and after the operation.
- Take care of a blood transfusion if necessary.
- Arrange for admission to intensive care if necessary.
- Make sure that your experience before, during and after your surgery is as peaceful and pain-free as possible.

Information video on regional anaesthetics

Would you like more information about anaesthesia? Watch the video on our YouTube channel *vzw Jan Yperman Ziekenhuis* or scan the QR code below with your smartphone.



