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Anesthesia



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Fasting Guidelines

Please observe these guidelines regardless of which type of anesthesia you will receive:

On the day of surgery, solid food (incl. gum, candy, etc.) and dairy or other non-clear liquids may be consumed **up to 6 hours before surgery**; clear liquids such as tea, black coffee (also with sweetener), syrup and water may be consumed **up to 2 hours before your scheduled procedure**. Do not eat or drink anything thereafter.

These guidelines must be strictly observed.



Dear Patient

You are scheduled for a surgical intervention. In order to perform the operation successfully and without pain, you will be put under anesthesia. As a first step, we would like to give you information on this subject now. This will allow you to better envision the procedures during your surgery and to give you peace of mind.

Within the context of a phone interview or anesthesia consultation, your anesthesiologist will discuss your general health and explain to you which type of anesthesia is best for your planned procedure.

Types of Anesthesia

Basically, there are two types of anesthesia:

- _ **General anesthesia**
- _ **Regional anesthesia**

In this brochure, we describe these two types of anesthesia along with their respective applications as well as – a special case – the so-called **sedoanalgesia** (twilight sleep).



General Anesthesia

General anesthesia is applicable for both children and adults and is similar to a state of deep sleep during which one's consciousness as well as pain sensation is completely turned off.

General anesthesia process



_ Anesthesia induction

Inhalation: Anesthesia is administered through inhalation of anesthetic agent in gas form which is delivered via facemask. This method is especially applicable for children and adults for whom it is impossible to establish venous access while awake. Venous access is established once the patient is anesthetized.

Intravenous: Anesthesia is administered via liquid anesthetic agents that are infused through a previously established venous access.



_ Anesthesia maintenance

During the entire length of the surgery, anesthesia is maintained through continuous administration of anesthetic agent via venous access, in rare cases via anesthetic gas, while patient's cardiopulmonary status, breathing, and level of consciousness are continually monitored.

Since all anesthetic agents affect the patient's spontaneous breathing (the ability of the patient to breathe on his/her own), this must be supported artificially during general anesthesia. Depending on duration of the surgery, patient ventilation is achieved via facemask, laryngeal mask, or intubation once the patient is unconscious.



_ Anesthesia emergence

At the end of surgery, administration of anesthetic agent is stopped. Once the patient is able to adequately breathe on his or her own, artificial airways (face-mask, laryngeal mask, or breathing tube) can be removed and the patient wakes up shortly thereafter.



_ Patient monitoring following intervention

After emerging from anesthesia, the patient is monitored until he or she reports feeling well, is without pain, breathing adequately, and in stable cardiopulmonary condition. Patient is then transferred to his or her room or, in the event of outpatient surgery, discharged to his/her home.



_ Conduct within first 24 hours after surgical intervention with general anesthesia

- _ Do not operate a vehicle or enter traffic as a pedestrian. After discharge, have a designated driver or taxi take you home.
- _ You should not be home alone to ensure that you can get immediate help should problems arise (sudden onset of feeling unwell, weakness, or dizziness).
- _ Do not make any important decisions during this timeframe and do not negotiate any contracts.



_ Safety of general anesthesia

Today, modern general anesthesia is very safe. Associated risks depend primarily on the age, lifestyle, and prior illnesses of the patient, as well as the type and duration of the surgery.

Specific prior illnesses, rare genetic diseases, and other serious preconditions can be gleaned from the patient's medical history, and procedures for anesthetic administration, specific medications used, and other factors thus modified accordingly.

Feared complications such as cardiac or pulmonary failure with resulting injury to organ function or even death are very rare today and can generally be avoided through careful patient monitoring.



_ Side effects and complications associated with general anesthesia

General side effects include:

- _ Hematoma (bruise) in area of injection site
- _ Difficulty swallowing and/or mild hoarseness as a result of intubation
- _ Irritation of/injury to nasal or throat mucosa as a result of intubation
- _ Chills
- _ Nausea and vomiting

Rarer side effects include:

- _ Vomiting during induction of anesthesia (risk of lung damage)
- _ Hypersensitivity or allergic reaction to medications used or to latex articles
- _ Damage to skin or nerves due to patient positioning

Specific, but rare side effects and complications associated with general anesthesia:

- _ Damage to teeth or dental work during intubation
- _ Adverse effects on spontaneous breathing/patient ventilation during anesthesia due to prior respiratory illness
- _ Injury to tonsils during tube advancement in nasal intubation (especially in children)



Regional Anesthesia

Regional anesthesia is different from local anesthesia. In local anesthesia (LA), pain is suppressed through injection of a medication (local anesthetic) in the direct area to be surgically treated by the surgeon. In regional anesthesia, pain is suppressed through injection of an anesthetic near a nerve or nerve plexus. Pain sensation to the body part to be surgically treated is thus blocked. Generally, all processes of regional anesthesia are carried out without pain since the injection site is locally anesthetized first.

Application: Regional anesthesia is only rarely used with children. For teens and adults, the above-referenced procedures can be applied depending on the type of surgery, health status of the patient, and ultimately the request of the patient.

_ Risk of all procedures

- _ A certain risk of thrombosis or embolism (blood clot in blood vessel or lung)
- _ With all regional anesthesia procedures, there is a risk of inadequate effectiveness, for example, due to incomplete distribution of the injected anesthetic. Depending on the planned intervention, general anesthesia may become necessary in such cases.
- _ Rare occurrence of an allergic reaction to the injected anesthetic.
- _ Rare occurrence of damage to nerves through direct injury, hematoma, or infection. Permanent paralysis or sensory disorders of the affected area are possible.
- _ Rare occurrence of excitation (agitation), cramping, and heart or pulmonary failure upon accidental injection of anesthetic into a blood vessel.



Processes and risks of IV regional anesthesia (IV-RA, IV-Block)



1 For an IV block, a tourniquet cuff is applied to the arm or leg to be surgically treated.



2 An injection canula is placed.



3 After the arm or leg is drained of blood through holding it elevated and wrapping it with a rubber bandage, the tourniquet cuff is inflated. This interrupts blood perfusion of the limb.



4 An anesthetic is injected into the already placed injection canula and is distributed within the vascular system. It travels through adjacent tissue to the nerves. This impairs the conductivity of nerves in the area to be surgically treated and the operation can be carried out without pain. For longer surgical procedures, the patient receives continual medication pain therapy so that the pressure of the tourniquet and the loss of perfusion can be well tolerated.

5 As soon as the surgery is completed, the tourniquet is loosened. The anesthetic agent (chloroprocaine HCL), that now reaches the body is quickly metabolized. Sensory and motor function return in 5 to 10 minutes.



– Potential associated risks and side effects

- Rare occasion of pressure points on the skin
- One small hematoma at injection site is possible. Only on rare occasions is more than one injection required
- Rare occurrence of injury to nerves or vessels through pressure of tourniquet cuff
- An initial sensation that ranges from warmth to heat that dissipates quickly
- IV pain therapy may result in drowsiness
- Rare occasion of dizziness with nausea upon release of tourniquet cuff

Axillary brachial plexus block



How it works: In an axillary brachial plexus block (numbing of nerve bundle in axilla), an anesthetic agent is injected in the vascular/nerve sheath of the axilla and the nerves innervating the arm are thus numbed. The desired effect is attained within 20 - 40 minutes.

Interscalene block



How it works: In this type of anesthesia, the anesthetic is injected prior to surgical intervention in the vascular sheath on the side of the neck (on the side to be surgically treated), either as a single dose (single shot) or via catheter placement (for repeat injections at certain intervals). Both techniques serve to eliminate pain following surgery.

To ensure correct placement of injection, both procedures are guided by an electric nerve stimulator or ultrasound.

_ Potential associated risks

- _ Very rare occasion of pneumothorax: upon injection into nerve region, the pleura may be damaged. This results in air entering the space between the chest wall and lungs
- _ In rare cases, one-sided paralysis of vocal cords (hoarseness), elevated diaphragm, or drooping eye lid. All these symptoms generally regress over time.
- _ Rare occasion of injury or dilation of brachial artery



Spinal and epidural anesthesia



How it works: Spinal and epidural anesthesia in the lumbar region are applicable for interventions in the areas of the lower abdomen, pelvis, and legs. While patient is sitting up or lying down on his/her side, the midline of the back is punctured at waist level using a specialized needle following prior local anesthesia.

Spinal anesthesia

The anesthetic is injected into the subarachnoid space (the cerebrospinal fluid-filled space around the spinal column). The nerve tracts innervating the lower half of the body are numbed in this manner. This technique results in rapid desensitization, a sensation of warmth, and limited range of motion of the legs that can last for several hours following injection.

Epidural anesthesia

In epidural anesthesia, the injection needle is not inserted into the subarachnoid space, but just outside the fluid-filled sac around the spine (epidural space). Before or after injection of anesthetic, a catheter (small tube) may be placed in this space for extended anesthetic administration or for pain therapy following surgery.

Important note: Anticoagulation medication (blood thinners) must be suspended prior to surgery that involves spinal or epidural anesthesia. Please discuss specific measures regarding anticoagulation with your treating family physician. Pathological tendency to bleed or develop hematomas must also be communicated to the anesthesiologist prior to surgery.



_ Potential associated risks

- _ Occasionally, there are reports of temporary drop in blood pressure, slowing heart rate, as well as nausea, headache, dizziness, problems with vision or hearing, and back pain.
- _ Very rare occasion of problems with emptying of the bladder which may lead to temporary catheterization of the bladder.

Femoral block for numbing of thigh nerve



How it works: In this technique, a catheter (small tube) is inserted in the vascular/nerve sheath in the area of the groin on the side to be operated prior to surgery to provide continuous pain block following surgery. The catheter is generally used in the first 48 hours following surgery. This technique is often used in knee joint surgeries such as knee replacements or cruciate ligament reconstruction. To ensure correct catheter placement, a nerve stimulator or ultrasound is used for guidance.

_ Potential associated risks

_ Typical accompanying symptoms include sensation of numbness in the front and lateral side of the thigh and occasional reduction in muscle strength in this area. Respective reduction in pain confirms effectiveness of inserted catheter.

Obturator nerve block for interventions in the area of the urinary bladder



How it works: While the patient is in the supine position, an anesthetic is injected near the pubis bone next to the nerve innervating the thigh (obturator nerve). You will not feel this as this blockade is generally carried out in conjunction with spinal anesthesia. During removal of bladder wall tumors for instance, this procedure ensures that there are no involuntary movements of the thigh. A nerve stimulator is used to locate the obturator nerve.

_ Potential associated risks

_ Potential injury to bladder wall through surgery due to insufficient blockade.
_ Damage of the nerve through direct injury is very rare.



Sedoanalgesia

How it works: Sedoanalgesia (twilight sleep) is a specialized process in which the patient's consciousness and pain sensation are dampened to such a degree that unpleasant stimuli are perceived in a weakened form; however, the patient never falls asleep and remains responsive. In sedoanalgesia, the same medications that are customarily used for general anesthesia are employed, however, in a much-reduced dose. The patient is consistently able to regulate his/her own breathing and airways. In addition to sedoanalgesia, the surgeon also applies local anesthesia to ensure complete pain block during the intervention.



_ Potential associated risks

Fundamentally, the same general side effects and potential complications that are associated with general anesthesia apply to sedoanalgesia (with the exception of potential consequences of intubation). Fasting guidelines (please see page 1) must also be observed with sedoanalgesia. It is important to note that pain blockade may occasionally not be complete with this procedure in certain interventions. A switch to general anesthesia is generally possible but associated with greater risk depending on the intervention and surgical site.



Additional information



_ Registration form

Please fill out the anesthesia registration form – provided to you electronically or in paper form – and provide detailed information regarding your medical history and health status. For prior illnesses and/or previous surgeries, we require a written report from your family physician. An uncertain health status must be cleared prior to surgery. This is primarily for our own safety.



_ Consultation

If you wish to speak with one of our anesthesiologists in a consultation prior to an intervention, please contact us:

- | | |
|---|--|
| » Limmatklinik Zürich | Tel: 044 448 30 30 |
| » NE Switzerland and Zürich-Winterthur | Tel: 052 320 01 20 |
| » Central and NW Switzerland | Tel: 041 379 70 30 |
| » Tessin | Tel: 091 980 44 04 |
| » Email | info-winterthur@narkose.ch |

Should a consultation with one of our anesthesiologists become necessary based on your completed registration/medical history form or reports submitted by your family physician, we will take the liberty of requesting such a consultation with you.



_ Telephone interview

The anesthesiologist responsible for you will contact you 24 - 48 hours prior to the scheduled intervention to discuss anesthesia procedures and to answer any questions you may have. Please take notes.

Please note your availability on the registration form (best time to reach you, telephone number, mobile number). Generally, we contact patients between 1:00 PM und 8:00 PM. If you prefer another timeframe, please let us know.



_ Fasting Guidelines

Please observe these guidelines regardless of which type of anesthesia you will receive.

On the day of surgery, solid food (incl. chewing gum, candy, etc.) as well as dairy or other non-clear drinks may be consumed **up to 6 hours prior to surgery**; clear liquids such as tea, black coffee (also with sweetener), syrup and water may be consumed **up to 2 hours prior to your scheduled surgery**. Do not eat or drink anything thereafter.

These guidelines must be strictly observed.



_ Important details for the day of surgery

- _** Some medications may be taken as usual prior to surgery, unless otherwise discussed and planned with your doctor or anesthesiologist (for example, anticoagulants).
- _** Please remove rings, other jewelry and hair pieces.
- _** Please do not wear cosmetics (face cream or make-up) on your face.
- _** Please notify us of any hearing aids, contact lenses, removable dentures, or piercings you may have.
- _** Please bring all medical alert cards, e.g. for allergies, pacemaker, or anticoagulation therapy with you.
- _** Wear comfortable, loose-fitting clothing.



_ First 24 hours at home following an intervention with general anesthesia

- _** Do not operate a vehicle or enter traffic as a pedestrian. After discharge, have a designated driver or taxi take you home.
- _** You should not be at home alone to ensure that you can get immediate help should problems arise (for example, sudden onset of feeling unwell, weakness, or dizziness).
- _** Do not make any important decisions in this timeframe and do not negotiate any contracts.



_ Availability following surgical intervention

If you have any questions regarding the anesthesia you underwent or any associated problems such as pain, nausea, or vomiting, you can reach us at **telephone number 052 320 01 20.**



_ Billing

Generally, you will receive a separate invoice from narkose.ch for the anesthesia that was carried out unless other arrangements were made with the surgeon, surgery center, or clinic. Please contact us anytime if you have questions regarding billing.



_ Your satisfaction is important to us

Please notify us if you were not satisfied with our work or aspects thereof. Your feedback allows us to continually improve. Of course, your praise also motivates us to do our best.

You can provide us feedback via phone, mail, or email at the addresses listed below. We strive to process your feedback as soon as possible, pass the information on to the respective quality control personnel, and respond back to you.

You can contact narkose.ch at the following locations:

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