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Local anaesthesia

Local anaesthesia (anesthesia) is the reversible loss of sensation in a defined area of the body and is achieved by the topical application or injection of agents that block the generation and/or journey of nerve impulses in tissue.

Regional anaesthesia or "field block" is essentially local anaesthesia but covering a larger area of subcutaneous tissue or larger peripheral nerves.

Tumescent anaesthesia is carried out by injecting large amounts of fluids containing diluted local anaesthetic and adrenaline (epinephrine). It is used for liposuction and other plastic, cosmetic and dermatological procedures involving large areas of skin surgery.

Local anaesthesia is used in many dermatological [procedures and surgical operations](#). The aim is to minimise pain and suffering and maximise patient comfort.

What types of local anaesthetics are there?

There are basically 2 classes of local anaesthetics, the aminoamides (amide ethers) and aminoesters (amine esters). Some of these are available in many different formulations including topical sprays, patches, ointments and injections. Duration of action depends on the agent and formulation chosen.

Class	Agent	Available formulations
Aminoamides	Lignocaine (lidocaine)	Spray, patch, ointment, injection
Bupivacaine	Injection	
Mepivacaine	Injection	
Prilocaine	Injection	
Aminoesters	Procaine	Injection
Chloroprocaine	Injection	
Tetracaine (amethocaine)	Injection	

Lignocaine (lidocaine) is the local anaesthetic most frequently used as it is effective, acts rapidly and is relatively free from toxicity and sensitivity. It is the local anaesthetic by which all other anaesthetics are compared. It is also the only local anaesthetic available in many different formulations.

Painless dermal local anaesthesia can be achieved with the topical anaesthetic Emla®. This is a combination of lignocaine (lidocaine) and prilocaine and comes in the form of cream or patches. It is particularly useful for numbing areas that require injection, especially in children. Emla® is also used in many dermatological procedures, including [curettage](#), [split-skin grafts](#), and different laser techniques.

Adrenaline (epinephrine) is sometimes added to local anaesthetic formulations. It is used to:

- prolong duration of anaesthesia
- reduce systemic absorption
- reduce surgical bleeding
- increase the intensity of blockade.

Can I be allergic to local anaesthetics?

True allergy to local anaesthetics is rare, the estimated rate of allergic reactions caused by these agents is less than 1%. Often an adverse reaction is the result of the rapid rise in circulating local anaesthetic, or the absorption of adrenaline, or an allergy to the preservative (most local anaesthetics contain parabens preservative).

Aminoesters are more allergenic than aminoamides because of their cross-reactivity to other drugs of the para-aminobenzoic acid ester type. Patients with a history of allergy to [benzocaine](#), sulphonamides, [paraphenylenediamine](#) or other para-type substances should avoid using aminoester local anaesthetics.

Prior exposure to parabens or para-aminobenzoic acid may sensitize you to local anaesthetics containing these substances. In such cases, preservative-free aminoamide local anaesthetics such as lignocaine (lidocaine) can be used.

Are there any other side effects or complications?

Local side effects such as bruising and a temporary sensation of stinging or burning are common.

When administered correctly the chances of more serious side effects occurring are minimal. Signs and symptoms of systemic toxicity include:

- severe numbness or tingling
- dizziness and drowsiness
- tinnitus (ringing in the ears)
- slurred speech
- metallic taste in mouth
- mental status change
- muscle twitching
- seizures

Any facility that provides local anaesthesia should be well equipped to deal with these problems should they occur.

Which local anaesthetic is right for me?

The choice of which anaesthetic to use depends on a number of factors:

- Patient factors
 - Age
 - Pregnancy status
 - History of allergies
 - Other medical conditions such as renal or hepatic failure, cardiac problems
 - Current medications
- Procedure being performed
 - Consider site
 - Consider area involved
 - Consider duration of operation
- Doctor's own preference and experience.

After consideration of all necessary factors your doctor will be able to make an informed decision about which local anaesthetic will be best for the situation.

Related information

Reference:

- Book: Textbook of Dermatology. Ed Rook A, Wilkinson DS, Ebling FJB, Champion RH, Burton JL. Fourth edition. Blackwell

Scientific Publications.

On DermNet NZ:

Other websites:

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DermNet does not provide an on-line consultation service.

If you have any concerns with your skin or its treatment, see a [dermatologist](#) for advice.

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