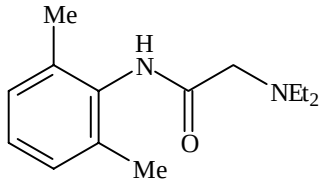
Product Information
LIGNOCAINE 2% GEL WITH CHLORHEXIDINE 0.05%

Product Name
Lignocaine 2% gel with Chlorhexidine 0.05%

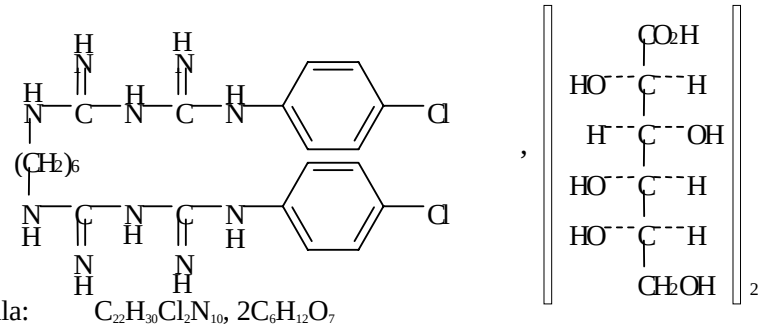
Name of drug
Lignocaine and Chlorhexidine gluconate (as Chlorhexidine Gluconate Solution).

Description
Lignocaine belongs to the amide group. Its chemical name is 2-diethylaminoaceto-2', 6' xylidide. It is a white to almost white crystalline powder that is practically insoluble in water, very soluble in dichloromethane and in ethanol and freely soluble in ether.
The structural formula is represented below:



Molecular Formula: $C_{14}H_{22}N_2O$
Molecular Weight: 234.3
CAS Number: 137-58-6

Chlorhexidine gluconate is 1,1'-hexamethylenebis[5-(4-chlorophenyl)biguanide] di(D-digluconate). It is an almost colourless to pale yellow liquid. It is miscible with water, soluble in alcohol and acetone.
The structural formula is represented below:



Molecular Formula: $C_{22}H_{30}Cl_2N_{10}$, $2C_6H_{12}O_7$
Molecular Weight: 898
CAS Number: 18472-51-0

Lignocaine and chlorhexidine gel is a sterile, colourless, water-soluble gel containing Lignocaine 20mg/mL, Chlorhexidine 500µg/mL, Polypropylene Glycol, Hydroxyethyl Cellulose NF, Glacial Acetic Acid, Sodium Hydroxide (for pH adjustment) and Water for Injections.

Pharmacology
Lignocaine is a local anaesthetic of the amide type. It produces a reversible loss of sensation by preventing or diminishing the conduction of sensory nerve impulses near the site of application. It is readily absorbed from mucous membranes and damaged skin producing rapid, local anaesthesia in these areas. Absorption from intact skin is poor. The rate of absorption and amount of dose absorbed is

dependent upon concentration, the total dose administered, the specific site of application and the duration of exposure.

Lignocaine is metabolised rapidly by the liver, with both metabolites and unchanged drug excreted by the kidney. Approximately 90% of lignocaine is excreted as metabolites and less than 10% is excreted as unchanged drug. Excessive blood levels of lignocaine may cause changes in cardiac output, total peripheral resistance and mean arterial pressure. These changes may be attributed to a direct depressant effect of the anaesthetic agent on various components of the cardiovascular system. The pharmacological/ toxicological actions of the metabolites are similar to, but less potent than those of lignocaine. The plasma binding of lignocaine is dependent on drug concentration, and the fraction bound decreases with increasing concentration. At concentrations of 1 to 4 microgram free base/mL, 60 to 80% of lignocaine is protein bound. Binding is also dependent on the plasma concentrations of the alpha1-acid glycoprotein. Lignocaine crosses the blood brain and placental barriers.
Studies of lignocaine metabolism following IV bolus injection have shown that the elimination half-life is usually 1.5 to 2 hours. The half-life may be doubled in patients with hepatic dysfunction. Renal dysfunction does not affect lignocaine kinetics, but may increase the accumulation of metabolites.
Acidosis and the use of CNS stimulants and depressants affect the CNS levels of lignocaine required to produce systemic effects. Adverse reactions become increasingly apparent with venous plasma levels above 6.0 microgram free base/mL.

Chlorhexidine is an antiseptic effective against a wide range of Gram-positive and Gram-negative organisms, some viruses and some fungi. It is ineffective against bacterial spores at room temperature and acid-fast bacteria are inhibited but not killed. It is more active against Gram-positive than Gram-negative bacteria and some species of *Pseudomonas* and *Proteus* are relatively less susceptible. Chlorhexidine is most active at a neutral or slightly acid pH and its activity is reduced in the presence of blood or other organic matter.

Indications

- local anaesthesia and lubrication during catheterisation, exploration by sound and other endourethral operations and examinations.
- cystoscopy and symptomatic treatment of painful cystitis and urethritis.

Contraindications

- known hypersensitivity to either of the active ingredients, lignocaine and chlorhexidine
- known hypersensitivity to any of the excipients.
- hypersensitivity to other amide type local anaesthetics.

Precautions

Not for injection.

- Excessive dosage, or short intervals between doses, can result in high serum levels of lignocaine or its metabolites and serious adverse effects, therefore the recommended dosage and administration guidelines should be strictly followed. Where possible the lowest dose that results in effective anaesthesia should be used to avoid high plasma levels and serious adverse effects.
- As tolerance to elevated blood levels varies with the status of the patient, use with caution in patients with severely traumatised mucosa and/or sepsis in the region of proposed application. Care is also required with elderly, acutely ill patients and children who should be given reduced doses relative to their age and physical status.

- If the dose or site of administration is likely to result in high blood levels, lignocaine, in common with other local anaesthetics, should be used with caution in patients with epilepsy, impaired cardiac conduction, bradycardia, impaired hepatic function, severe shock and patients with severe renal dysfunction.

Driving, operating machinery and other activities requiring mental alertness: Depending on the dose administered, local anaesthetics may have a very mild effect on mental function and may temporarily impair locomotion and coordination.

Use in pregnancy: Category A. Lignocaine crosses the placental barrier and may be taken up by foetal tissues. When used for surface anaesthesia, lignocaine blood levels following normal administration are low thus minimal drug is available for placental transfer. No specific disturbances to the reproductive process have so far been reported.

Use in lactation: Lignocaine enters the breast milk, but in such small quantities at therapeutic dose levels that there is generally no risk when breastfeeding.
Although it is not known whether chlorhexidine is excreted in breast milk, problems in humans have not been documented.

Interactions with other drugs:
Cimetidine has been shown to reduce clearance of IV administered lignocaine. Caution should be taken if administered concurrently with lignocaine.
Antiarrhythmic drugs: Lignocaine should be used with caution in patients receiving antiarrhythmic drugs such as mexiletine, since the toxic effects are additive.
Antiepileptic drugs: Phenytoin and other antiepileptic drugs such as phenobarbitone, primidone and carbamazepine appear to enhance the metabolism of lignocaine but the significance of this effect is not known. Phenytoin and lignocaine have additive cardiac depressant effects.

Incompatibilities: Chlorhexidine is incompatible with soaps and other anionic materials.

Adverse reactions

Systemic adverse reactions are rare and may result from high plasma levels due to excessive dosage or rapid absorption, or from hypersensitivity or reduced tolerance on the part of the patient. Such reactions are systemic in nature and involve the central nervous and/or cardiovascular system.

- **Central nervous system:** CNS reactions are excitatory and/or depressant and may be characterised by light-headedness, nervousness, apprehension, euphoria, confusion, dizziness, drowsiness, tinnitus, blurred vision, vomiting, sensation of heat, cold or numbness, twitching, tremors, convulsions, unconsciousness and possibly respiratory arrest. The excitatory reactions may be very brief or may not occur at all, in which case the first manifestations of toxicity may be drowsiness, progressing to unconsciousness and respiratory arrest.
- **Cardiovascular:** Cardiovascular reactions are depressant and may be characterised by hypotension, myocardial depression, bradycardia and possibly cardiac arrest.
- **Allergic reactions:** Allergic reactions may occur as a result of sensitivity either to the local anaesthetic agent (lignocaine) or to chlorhexidine or to other ingredients in the formulation.
  Allergic reactions as a result of sensitivity to lignocaine are extremely rare. The detection of sensitivity by skin testing is of doubtful value. The extremely rare cases of allergy to local anaesthetic preparations have included bronchospasm, chest pain, dyspnoea, pruritus, rash, oedema, rhinitis, increased sweating, urticaria, sleepiness, dizziness, paraesthesia and, in the most severe instances, anaphylactic shock.

Chlorhexidine can occasionally cause skin reactions. General allergic reactions, including anaphylaxis, to chlorhexidine have also been reported but are extremely rare.

- **Effects on the blood:** Methaemoglobinaemia may occur, probably due to the metabolism of lignocaine to an aniline-like structure. Infants (during the first 3 months of life) are particularly susceptible to induced methaemoglobinaemia, probably due to their limited enzyme capacity.

Dosage and administration

When lignocaine is used for surface anaesthesia it should be remembered that it may be rapidly absorbed via the mucous membranes and systemic effects may occur.
Reactions and complications are best avoided by employing the minimum effective dosage. Debilitated or elderly patients and children should be given doses relative to their age and physical condition.
The dose of topical lignocaine should be taken into consideration in estimating the total dose of lignocaine if parenteral lignocaine is to be administered concomitantly.
The following dosage recommendations should be regarded as a guide. The clinician's experience and knowledge of the patient's physical status are of importance in calculating the required dose.

- **Males:** The usual dose required for adequate analgesia is 20 mL (equiv. lignocaine 400 mg).
  The gel is instilled slowly into the urethra until it reaches the external sphincter, proximal to the prostate, where a certain resistance is felt. Compression is then applied for several minutes at the corona. The remaining gel is administered, filling the length of the urethra.
  For procedures such as sounding or cystoscopy, a larger quantity of gel (up to 40 mL) may be required. This amount should be instilled in three to four portions and anaesthesia allowed to take effect for five to ten minutes before insertion of the instrument.
- **Females:** Instil 5 to 10 mL in small portions to fill the whole urethra. In order to obtain adequate anaesthesia, three to five minutes should be allowed prior to performing urological procedures.
- **Children:** In children under the age of 12 years up to 6mg/kg can be used.

Overdosage

Lignocaine is absorbed from mucous membranes and serious toxicity has been reported following the use of lignocaine preparations for urethral anaesthesia. Lignocaine intoxication affects the CNS and cardiovascular system. Overdose symptoms include: severe hypotension, asystole, bradycardia, apnoea, cardiac arrest, respiratory arrest, seizures, coma and possibly death.

Management of local anaesthetic emergencies: The first consideration is prevention, which is best accomplished by careful and constant monitoring of cardiovascular and respiratory vital signs and the patient’s state of consciousness after each local anaesthetic administration. At the first sign of change, oxygen should be administered.

Treatment: If convulsions occur, immediate attention is required for the maintenance of a patent airway and assisted or controlled ventilation with oxygen. Adequacy of the circulation should then be evaluated, bearing in mind that drugs used to treat convulsions depress the circulation when administered intravenously.
Should convulsions persist despite adequate respiratory support, and if the status of the circulation permits, appropriate anticonvulsant medication such as an ultra short acting barbiturate (e.g. thiopentone) or a benzodiazepine (e.g. diazepam) may be administered intravenously.

Hypotension may be initially managed by the use of intravenous fluids and by vasopressors if the problem persists.

Dialysis is of negligible value in the treatment of acute overdosage with lignocaine.

If poisoning occurs contact the Poisons Information Centre (phone 13 11 26).

Presentation

AUST R 10854 Lignocaine 2% Gel with Chlorhexidine 0.05% (sterile) 10mL Syringe.

The syringe is supplied with an applicator nozzle for easy application. It is contained in an outer, sterile bag to allow assembly of syringe and nozzle under aseptic conditions.

Storage

Store below 25˚C.
Single use only. Discard unused portion.

Poison Schedule

Australia - S2.

Sponsor in Australia:

Pfizer Australia Pty Ltd
ABN 50 008 422 348
38-42 Wharf Road
West Ryde NSW 2114
Australia

Manufacturer:

Pfizer (Perth) Pty Limited
ABN 32 051 824 956
15 Brodie Hall Drive,
Bentley WA 6102 Australia

This information was approved by the TGA on 19 September 2007.

Date of last amendment: 3 June 2010