

# LAVOISIER PROCAINE HYDROCHLORIDE 1 % - 2 %, injectable solution

## QUALITATIVE AND QUANTITATIVE COMPOSITION

SPECIALTY EXCIPIENT DOSE	1 %	2%
<b>HYDROCHLORATE OF PROCAINE</b>	1.00 g	2.00 g
Sodium chloride	0.90 g	0.90 g
Diluted hydrochloric acid	s.q. pH 3.5	3.5
Water for injectable preparations	s.q. 100 ml	100 ml

in each 100 ml of injectable solution

## PHARMACEUTICAL FORM

Injectable solution

## THERAPEUTIC INDICATIONS

Local infiltration anaesthesia and conduction anaesthesia (plexic and troncular blocks)

## POSOLOGY AND ADMINISTRATION

- Concentration varies depending on indication and objective to attain, patient's age and pathological state.
- The anaesthesia obtained is usually determined by the total dose administered.
- The dose of injection is dependent on the anaesthetic technique used with this product.

### Administration method:

Intradermal, subcutaneous, perineural routes.

### Posology:

As suggested indication in adults,

- Infiltration anaesthesia: 200 to 600 mg in intradermal or subcutaneous injection.
- Conduction anaesthesia: 100 to 400 mg in injection in the vicinity of the nervous trunks.

## CONTRA-INDICATIONS

This drug is CONTRAINDICATED for use in patients with:

- allergy (asthma, hay cold, urticaria...),
- hypersensitivity to ester-group local anaesthetics, substitute products in para of parahydroxybenzoates type,
- epilepsy unstable under treatment,
- second and third-degree AVB node blocks, not implanted with pacemaker
- deficiency in cholinesterase, treatment by anticholinesterasics,
- children under 30 months,
- intravascular injection,
- contraindications to the technique of anaesthesia used: hemostasis disorder, infection or inflammation of the site of injection.

## SPECIAL WARNINGS AND PRECAUTIONS FOR USE

### Warnings

Use of ester-group local anaesthetics is susceptible to induce an allergic reaction including a risk of anaphylactic shock.

A former sensitization to procaine may lead to severe anaphylactic reactions (anaphylactic shock) when administered again, but also compromises subsequent use of substances containing a group of amine in para (sulphamide, some local anaesthetics, colorings, preservatives...). Crossed allergy may occur, with type of reactions of delayed hypersensitivity, between procaine and anti-infectious sulphamides, and resulting in dermatoses of contact. This anaesthetic should not be administered to patients with known allergic antecedents to these medications.

Overdosage or rapid accidental intravascular injection, may cause toxic reactions. (see Adverse Reaction)

For sportsmen, attention should be drawn to the active ingredient contained in this specialty susceptible to induce a positive reaction in the tests performed in anti-doping controls.

### Precautions for use

- Use of procaine requires:
  - a questionnaire meant to know patient's history, current therapies and antecedents,
  - if necessary, a premedication by benzodiazepine using moderate dose,
  - a preliminary test of tolerance by injection of a dose test between 5 and 10 % from the total dose to be given,
  - injection should be delivered strictly away from the vessels, slowly with repeat aspirations to check the absence of intravascular injection,
  - a resuscitation equipment should be available (especially facilities for oxygen administration).
- Furthermore, in conduction anaesthesia:
  - a venous route and a complete resuscitative equipment should be available,
  - as well as anaesthetics with anticonvulsant properties (thiopental), myorelaxing properties (benzodiazepines), atropine and vasopressors.
  - Continuous electrocardiographic (cardiostachometer) and blood pressure monitoring,
  - patient's constant clinical monitoring until the effects of anaesthesia disappear totally
- To be used with caution and in reduced dose in elderly patients and those with hepatic insufficiency.
- Because of its cardiac toxicity, procaine should be used with caution in patients with prolonged QT interval: indication, posology adjustment and administration method must be discussed to avoid the risk of very high concentrations in plasma which might cause severe ventricular arrhythmias.
- Procaine is not recommended for use in children.

## PREGNANCY AND LACTATION

### Use in Pregnancy

Studies in animals have not shown to be teratogenic. Since studies in animals showed no teratogenicity, a malformative effect in humans is not expected to occur. Indeed up to now, the substances causing malformations in humans have proved to be teratogenic in animals in studies well conducted on two species.

In clinical trials, analysis of a significant number of pregnancies with exposure to procaine, have not revealed any particular malformative or foetotoxic effect. However, only epidemiologic studies would give evidence to the absence of risk.

Consequently, procaine may be prescribed in pregnancy if absolutely necessary.

During labour to delivery, bradycardia possibly associated with foetal acidosis, cyanosis, transient drop in neonatal neurobehavioral responses (atony, reflex of suction) have been observed again, mainly with lidocaine and mepivacaine. These effects are all the more obvious as anaesthesia is close to delivery. Vital functions of the neonate should then be monitored.

#### Use in lactation

The lactation may be continued 4 hours after local anaesthesia by procaine.

#### **Effects on ability to drive vehicles and use machines.**

This product may impair the ability to react in operating vehicle or machinery.

#### **ADVERSE REACTION**

- Lipothymia,
- Allergic manifestations from simple allergic symptoms (skin irritation, prurit..), to severe cutaneous manifestations (rash, urticaria, edema...), including anaphylactic shock,
- Toxicity by overdosage may appear either immediately after accidental intravascular injection, or later by actual overdosage.

#### Effects on central nervous system:

Nervousness, agitation, yawns, tremors, apprehension, nystagmus, logorrhea, headache, nausea, vomiting, tinnitus, dizziness. These warning signals must be closely monitored to prevent potential aggravation with: convulsions, CNS depression.

#### Effects on respiratory system:

Tachypnea leading to apnea.

#### Effects on cardiovascular system:

Tachycardia, bradycardia, cardiovascular distress with hypotension which may result in a collapse, arrhythmias (ventricular extrasystole, ventricular fibrillation), conduction disorders (auriculoventricular block). These cardiac manifestations may lead to heart failure.

#### **OVERDOSAGE**

Neurological toxic manifestations are treated by injection of a barbiturate with short-term action or a benzodiazepine, oxygenation, assisted ventilation.

The signs of myocardic and hemodynamic toxicity should be treated by appropriate cardiac resuscitation (antiarrhythmics, inotropic drugs, vascular filling, oxygenation).

#### **CLINICAL PHARMACOLOGY**

##### **Pharmacodynamics**

LOCAL ANESTHESICS (N: central nervous system)  
Ester-group local anaesthetics

##### **Pharmacokinetics**

- Procaine coefficient of variation is 0.02 and Acid Dissociation Constant (pKa) 8.9.
- After injection, the diffusion is extremely wide and rapid, providing an optimal effect within 1 to 2 minutes during 20 to 40 minutes.
- Procaine is acetylated into liver then hydrolyzed in plasma by a pseudocholinesterase in acid para-aminobenzoic and diethylaminoethanol.
- The plasmatic proteins binding accounts for about 6 %.
- 80% of acid para-aminobenzoique whether combined or not are excreted in urine, 20% metabolized in liver.

- 30% of diethylaminoethanol are excreted in urine, the remainder being metabolized in liver.
- Elimination half-life lasts a few minutes.
- Procaine crosses the placenta.

#### **PHARMACEUTICAL DATA**

**Shelf life:** 30 months

#### **Storage special precautions**

To be stored at controlled temperature not exceeding 25 °C (77°F).  
Store primary packaging in outer package, in a dark place.

#### **Nature and contents of container**

2 ml, 5 ml ampoule bottle, colorless glass (type I) 10 units pack.

#### **PACKAGING AND PRODUCT LICENSE NUMBER**

Ampoule bottle (glass)

#### **PROCAINE 1 %**

**MA 362 537-3:** 2 ml - 10 units pack - Reimbursed by French Health Care Security 35% - Public Price including VAT: 2,28 € - Approved for institutions

**MA 362 539-6:** 5 ml - 10 units pack - Reimbursed by French Health Care Security 35% - Public Price including VAT: 2,53 € - Approved for institutions

#### **PROCAINE 2 %**

**MA 362 540-4:** 2 ml - 10 units pack - Reimbursed by French Health Care Security 35% - Public Price including VAT: 2,33 € - Approved for institutions

**MA 362 541-0:** 5 ml - 10 units pack - Reimbursed by French Health Care Security 35% - Public Price including VAT: 2,61 € - Approved for institutions

#### **HOW SUPPLIED**

List II.

#### **DATE OF REVISION**

February 2004

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