

Pivacain-L[®]

Levobupivacaine Hydrochloride

Description

Pivacain- L[®] is a preparation of Levobupivacaine which is a member of the amide local anesthetics. Levobupivacaine block the generation and conduction of nerves impulses by increasing the threshold for electrical excitation in the nerve, by slowing propagation of the nerve impulse, and by reducing the rate of rise of the action potential. In general, the progression of anesthesia is related to the diameter, myelination, and conduction velocity of affected nerves fibers. The plasma concentration of levobupivacaine following therapeutic administration depends on dose and also on route of administration, because absorption from the site of administration is affected by the vascularity of the tissue. Peak levels in blood were reached approximately 30 minutes after epidural administration. Levobupivacaine is extensively metabolized no unchanged Levobupivacaine detected in urine or feces. Following intravenous administration, recovery of the radiolabelled dose of Levobupivacaine was essentially quantitative with a mean total of about 95% being recovered in urine and feces in 48 hours. Of this 95%, about 71% was in urine while 24% was in feces. The mean elimination half-life of Levobupivacaine is 4 hours.

Indications and usages

Pivacain-L[®] is indicated for surgical anesthesia and postoperative pain management.

Adults Levobupivacaine is indicated in adults for:

Surgical Anaesthesia

Major: Epidural (including for caesarean section), intrathecal, peripheral nerve block.

Minor: Local infiltration, peribulbar block in ophthalmic surgery

Pain Management

For continuous epidural infusion, single or multiple bolus administration for post-operative, labour or chronic pain

For continuous epidural analgesia, levobupivacaine may be administered in combination with epidural fentanyl, morphine or clonidine.

Children

Levobupivacaine is indicated in children for infiltration analgesia (ilioinguinal/ iliohypogastric blocks).

Dosage and Administration

The dose of any local anaesthetic differs with the anaesthetic procedure, the area to be anaesthetised, the vascularity of the tissues, the number of neuronal segments to be blocked, and the intensity of the block, the degree of muscle relaxation required, the duration of the anaesthesia desired, individual tolerance, and the physical condition of the patient.

The recommended dosage guidelines of Pivacain- L[®] are given below:

Dosage Recommendations		
	% Concentration	Dose
Surgical Anaesthesia		
Epidural for surgery	0.5-0.75	10 -20 ml (50-150 mg) solution over 5 minutes, maximum 375 mg
Epidural for caesarean section	0.5	15 - 30 ml (75 - 150mg) solution over 15-20 minutes
Peripheral Nerve block	0.25-0.5	1- 40 ml (maximum 150mg)
Intrathecal	0.5	3 ml (15mg)
Ophthalmic (Peribulbar block)	0.75	5 - 15 ml (37.5 - 112.5mg)
Local Infiltration : Adults	0.25	1-60 ml (maximum 150mg)
Local Infiltration : Children < 12 yrs	0.25 -0.5	0.25 - 0.50 ml/kg (1.25 - 2.5mg/kg)
Pain Management ¹		
Labour analgesia (epidural bolus)	0.25	6-10 ml (15-25 mg), the minimum recommended interval between intermittent injections is 15 minutes
Labour analgesia (epidural infusion)	0.125	4-10 ml/ hour (5-12.5 mg/h)
Post-operative pain (epidural infusion)	0.125	10-15 ml/ hour (12.5 - 18.75 mg/hour), maximum 400 mg in 24 hours
	0.25	5-7.5 ml/ hour (12.5 - 18.75 mg/hour), maximum 400 mg in 24 hours
¹ In pain management levobupivacaine can be used epidurally with fentanyl, morphine or clonidine and repeated intermittent boluses may be used. The levobupivacaine dose should be reduced and use of a lower concentration (e.g. 1.25 mg/ml or 0.125%) is preferable.		

Compatibility and Admixtures

Levobupivacaine may not be compatible with alkaline solutions having a pH greater than 8.5. Levobupivacaine is compatible with 0.9% sodium chloride injection and clonidine 8.4 µg/ml, morphine 0.05 mg/ml and fentanyl 4 µg/ml have been shown to be compatible with levobupivacaine in 0.9% sodium chloride solution for injection.

Dilution Stability

Levobupivacaine diluted to 0.625 - 2.5 mg levobupivacaine per ml in 0.9% sodium chloride injection is physically and chemically stable for up to 24 hours at room temperature. Aseptic technique should be used to prepare the diluted products. Admixtures of levobupivacaine should be prepared for single patient use only and used within 24 hours of preparation. The unused portion of diluted levobupivacaine should be discarded after each use.

Note: Parenteral products should be inspected visually for particulate matter and discolouration prior to administration whenever solution and container permit. Solutions that are not clear and colourless should not be used.

Shelf life after first opening: The product should be used immediately.

Shelf life after dilution: Chemical and physical in-use stability has been demonstrated for seven days at 20 - 22°C. Chemical and physical in-use stability with clonidine, morphine or fentanyl has been demonstrated for 40 hours at 20 - 22°C.

From a microbiological point of view, the product should be used immediately. If not used immediately, in use storage times and conditions prior to use are the responsibility of the user and would normally not be longer than 24 hours at 2 to 8°C, unless reconstitution/dilution has taken place in controlled and validated aseptic conditions.

Use in pregnancy and lactation

Levobupivacaine is pregnancy category B. There were no adequate and well-controlled studies in pregnant women of the effects of levobupivacaine on the developing foetus. Levobupivacaine should only be used during pregnancy if the benefits outweigh the risks. The excretion of levobupivacaine or its metabolites in human milk has not been established. Some local anaesthetic drugs are excreted in breast milk and caution should be exercised when levobupivacaine is administered to a nursing woman.

Side effects

Adverse reactions to levobupivacaine are characteristic to those seen with bupivacaine and other local anesthetics in the amide class. The most common side effects are hypotension, nausea, postoperative pain, fever, vomiting, anemia, pruritus, pain, headache, constipation, dizziness, and fetal distress. Other less common side effects are respiratory insufficiency, hypokinesia, involuntary muscle contraction, generalised spasm, tremor, syncope, decreased cardiac output, ECG changes indicative of heart block, bradycardia or ventricular tachyarrhythmias that may lead to cardiac arrest.

Contraindications

Levobupivacaine are contraindicated in those with a known sensitivity to local anaesthetic amide agents. Levobupivacaine also should not be used for intravenous regional anaesthesia (e.g. Bier block). Levobupivacaine solutions are contraindicated for use in paracervical block in obstetrics.

Precaution

Levobupivacaine should be used with caution for regional anaesthesia in patients with impaired cardiovascular function e.g. serious cardiac arrhythmias. Levobupivacaine is metabolised in the liver, it should be used cautiously in patients with liver disease or with reduced liver blood flow e.g. alcoholics or cirrhotics. The introduction of local anaesthetics via either intrathecal or epidural administration into the central nervous system in patients with preexisting CNS diseases may potentially exacerbate some of these disease states. Epidural anaesthesia with any local anaesthetic may cause hypotension and bradycardia. All patients must have intravenous access established. When a large dose is to be injected, e.g. in epidural block, a test dose of 3-5 ml lidocaine with adrenaline is recommended. The rapid injection of a large volume of local anaesthetic solution should be avoided. Small doses of local anaesthetics injected into the head and neck area, including retrobulbar, dental and stellate ganglion blocks, may produce adverse reactions similar to systemic toxicity seen with unintentional intravascular injections of larger doses. The injection procedures require the utmost care. Reactions may be due to intraarterial injection of the local anaesthetic with retrograde flow to the cerebral circulation. They may also be due to puncture of the dural sheath of the optic nerve during retrobulbar block with diffusion of any local anaesthetic along the subdural space to the midbrain. Patients receiving these blocks should have their circulation and respiration monitored and should be constantly observed. Prior to retrobulbar block, as with all other regional procedures, the immediate availability of equipment, drugs, and personnel to manage respiratory arrest or depression, convulsions, and cardiac stimulation or depression should be assured. As with other anaesthetic procedures, patients should be constantly monitored following ophthalmic blocks for signs of these adverse reactions.

Drug Interactions

Levobupivacaine should be used with caution in patients receiving anti-arrhythmic agents with local anesthetic activity, e.g., mexiletine, or class III anti-arrhythmic agents since their toxic effects may be additive.

Overdose

Acute emergencies from local anaesthetics are generally related to high plasma levels or high dermatomal levels ("high spinal") encountered during therapeutic use of local anaesthetics or to unintended intrathecal or intravascular injection of local anaesthetic solution. The first consideration of management of overdose is prevention, best accomplished by incremental injection of levobupivacaine, careful and constant monitoring of cardiovascular and respiratory vital signs and the patient's state of consciousness after each local anaesthetic injection and during continuous infusion. At the first sign of change, oxygen should be administered and further measures as warranted.

Pharmaceutical precautions

Store in a cool & dry place. Protect from light.

Presentation

Pivacain- L[®] 0.25% Injection: Each ml contains Levobupivacaine Hydrochloride INN 2.5mg.

Pivacain- L[®] 0.5% Injection: Each ml contains Levobupivacaine Hydrochloride INN 5mg.

Packaging quantities

Pivacain- L[®] 0.25% Injection: Carton of 20ml vial

Pivacain- L[®] 0.5% Injection: Carton of 20ml vial

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