℞ Lignocaine Hydrochloride and Dextrose Injection I.P.

NumbOn Heavy Injection

For the use of a Registered Medical Practitioner or a Hospital or Laboratory only.

Composition:

Each ml Contains:

Lignocaine Hydrochloride IP	53.3 mg
Dextrose IP (monohydrate)	75.0 mg
Water for Injection IP	Q.S.

Description:

Lignocaine Hydrochloride and 7.5% Dextrose Injection, IP is a sterile, nonpyrogenic solution prepared from lignocaine hydrochloride and dextrose in water for injection. Lignocaine hydrochloride is designated chemically as 2 (Diethylamino) - 2', 6' - acetoxylidide monohydrochloride. The solution serves as a cardiac antiarrhythmic agent intended for intravenous use.

Clinical Pharmacology:

a) Mechanism of Action

Lignocaine hydrochloride exerts an antiarrhythmic effect by increasing the electrical stimulation threshold of the ventricle during diastole. In usual therapeutic doses, lignocaine hydrochloride produces no change in myocardial contractility, in systemic arterial pressure, or in absolute refractory period. Central nervous system adverse reactions become apparent with increasing venous plasma levels above 6.0 µg free base per mL.

b) Pharmacokinetics:

The plasma protein binding of lignocaine is dependent on drug concentration, and the fraction bound decreases with increasing concentration. At concentrations of 1 to 4 micrograms of free base per milliliter 60 to 80 percent of lignocaine is protein bound. Binding is also dependent on the plasma concentration of alpha-1-acid glycoprotein. Lignocaine crosses the blood-brain and placental barriers, presumably by passive diffusion. Approximately 90% of lignocaine administered is excreted in the form of various metabolites, and less than 10% is excreted unchanged. Biotransformation includes oxidative N-dealkylation, ring hydroxylation, cleavage of the amide linkage, and conjugation. CYP1A2 and CYP3A4 mediated N-dealkylation, a major pathway of biotransformation, yields the metabolites monoethyl glycine xylidide (MEGX) and glycine xylidide (GX). The pharmacological/toxicological actions of these metabolites are similar to, but less potent than, those of lignocaine. The primary metabolite in urine is a conjugate of 4-hydroxy-2,6-dimethylaniline. The elimination half-life of lignocaine following an intravenous bolus injection is typically 1.5 to 2.0 hours.

Renal Impairment:

Mild or moderate renal impairment does not affect lignocaine kinetics; while in patients with severe renal dysfunction, lignocaine clearance is decreased by half and the accumulation of GX increased 1.5-fold. Lignocaine toxicity is related to systemic blood levels. The decreased clearance and longer half-life of lignocaine should be taken into consideration with prolonged (24 hour) infusions. Constant rate of infusion may result in toxic accumulation of lignocaine.

Precautions

General:

If malignant hyperthermia develops, discontinue administration immediately and institute therapeutic countermeasures as clinically indicated. Lignocaine hydrochloride should not be added to blood transfusion assemblies because of the possibilities of pseudoagglutination or hemolysis.

Laboratory Tests:

Clinical evaluation and periodic laboratory determinations are necessary to monitor changes in fluid balance, electrolyte concentrations, and acid-base balance during prolonged parenteral therapy or whenever the condition of the patient warrants such evaluation.

Carcinogenesis, Mutagenesis, and Impairment of Fertility:

Long term animal studies have not been performed to evaluate carcinogenic potential, mutagenic potential or the effect on fertility of lignocaine hydrochloride.

Pregnancy:

Teratogenic Effects:

Reproduction studies have been performed in rats at doses up to five times the maximum human dose and have revealed no significant findings. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, physicians should carefully consider the potential risks and benefits for each specific patient before prescribing lignocaine hydrochloride. Lignocaine may cross the placental barrier.

Nursing Mothers:

Lignocaine is present in human milk. Published studies have reported a range of lignocaine milk: plasma ratios between 0.4-1.1. Limited data available on lignocaine's effects on the breastfed child have not revealed a consistent pattern of associated adverse events. The development and health benefits of breastfeeding should be considered along with the mother's clinical need for lignocaine and any potential adverse effects on the breastfed infant from lignocaine or from the underlying maternal condition.

Pediatric Use:

Safety and effectiveness in pediatric patients have not been established.

Geriatric Use:

Clinical studies of Lignocaine Hydrochloride did not include sufficient numbers of subjects aged 65 and over to determine whether they respond differently from younger subjects. Other reported clinical experience has not identified differences in responses between the elderly and younger patients. In general, dose selection for an elderly patient Reference ID: 4052672 should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or other drug therapy.

Adverse Reactions:

Systemic reactions of the following types have been reported:

Nervous System Disorders: respiratory depression and arrest; unconsciousness; convulsions; tremors; twitching; vomiting; blurred or double vision; drowsiness; dizziness; light-headedness; tinnitus; sensation of heat, cold or numbness; euphoria; apprehension; agitation; confused state; paresthesia; dysarthria.

Cardiovascular System: cardiovascular arrest; bradycardia which may lead to cardiac arrest; hypotension, Ventricular fibrillation, Ventricular tachycardia, Ventricular arrhythmia, Asystole. Gastrointestinal Disorders: Hypoesthesia oral, Nausea.

Hematologic Effects: methemoglobinemia.

Psychiatric Disorders:

Disorientation

Allergic reactions, including anaphylactic reactions, may occur but are infrequent. There have been no reports of cross sensitivity between lignocaine hydrochloride and procainamide or between lignocaine hydrochloride and quinidine.

Overdosage :

Signs and symptoms of overdose may include:

Central nervous system effects, e.g., coma, loss of consciousness, CNS depression, seizure, tonic-clonic muscle jerks, tremor, nystagmus, tingling of tongue and lips, tinnitus, drowsiness, disorientation, and lightheadedness.

Cardiorespiratory effects, e.g., cardiovascular collapse and cardiorespiratory arrest (sometimes fatal), respiratory depression and arrest, hypotension, myocardial depression, arrhythmias, including asystole, heart block, ventricular arrhythmias, tachycardia, and bradycardia.

Discontinue lignocaine administration in the event of an overdose.

There is no specific antidote for overdose of lignocaine. The risk of overdose can be minimized by close monitoring during treatment. Emergency procedures should include appropriate corrective, resuscitative, and other supportive measures (See Warnings).

Dosage and Administration:

Therapy of ventricular arrhythmias is often initiated with a single IV bolus of 1.0 to 1.5 mg/kg at a rate of 25 to 50 mg/min. of lignocaine hydrochloride injection. Following acute treatment by bolus in patients in whom arrhythmias tend to recur and who are incapable of receiving oral antiarrhythmic agents, intravenous infusion of Lignocaine Hydrochloride and 7.5% Dextrose Injection, USP is administered continuously at the rate of 1 to 4 mg/min (0.020 to 0.050 mg/kg/min in the average 70 kg adult). The 0.4% solution (4 mg/mL) can be given at a rate of 15 to 60 mL/hr (0.25 to 1 mL/min). The 0.8% solution (8 mg/mL) can be given at a rate of 7.5 to 30 mL/hr (0.12 to 0.5 mL/min). Precise dosage regimen is determined by patient characteristics and response.

Infusion rate should be reduced by approximately one-half to compensate for decreased rate of clearance after prolonged infusion (24 hours) (see Clinical Pharmacology). Failure to adjust the rate of infusion in keeping with this altered ability to eliminate lignocaine may result in toxic accumulation of the drug in the patient's serum.

Intravenous infusions of lignocaine hydrochloride must be administered under constant ECG monitoring to avoid potential overdosage and toxicity. Intravenous infusion should be terminated as soon as the patient's basic cardiac rhythm appears to be stable or at the earliest signs of toxicity (see OVERDOSAGE). It should rarely be necessary to continue intravenous infusions beyond 24 hours. As soon as possible and when indicated, patients should be changed to an oral antiarrhythmic agent for maintenance therapy.

Caution: When administering lignocaine hydrochloride by continuous infusion, it is advisable to closely monitor the infusion rate. Administer Lignocaine Hydrochloride and 7.5% Dextrose Injection, USP only with a calibrated infusion device.

Pediatric: Clinical studies to establish pediatric dosing schedules have not been conducted. The usual dosage is a bolus dose of 1 mg/kg followed by an infusion rate of 20 mcg to 50 mcg/kg/min. The bolus dose should be repeated if infusion is not initiated within 15 minutes of the initial bolus dose.

Hepatic impairment is likely to decrease clearance and increase exposure level of lignocaine. Administer lignocaine at lower maintenance infusion rate with close monitoring of toxicity in patients with hepatic impairment.

Renal Impairment: In patients with severe renal impairment (eGFR less than 30 mL/min/1.73 m 2), administer lignocaine at lower maintenance infusion rate with close monitoring of toxicity. Lignocaine is incompatible with the following due to precipitate formation (includes but is not limited to):

Amphotericin

Cephazolin sodium

Phenytoin sodium

Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration whenever solution and container permit. Do not administer unless solution is clear, the seal is intact, and the container is undamaged. Some opacity of the container plastic due to moisture absorption during the sterilization process may be observed. This is normal and does not affect solution quality or safety. The opacity will diminish gradually. Use of a final filter is recommended during administration of all parenteral solutions, where possible.

Lignocaine must not be infused simultaneously through the same tubing with other medicinal products without first verifying their compatibility.

Set the vent to the close position on a vented intravenous administration set to prevent air embolism.

Storage: Store below 25°C do not refrigerate.

Protect form light.

Improper storage may deteriorate the product.

Marketed by:

AMERICAN REMEDIES©
Care & Cure with Research

American Remedies Healthcare Pvt. Ltd.
(An ISO 9001-2015 Certified Company)

Gala No. 105 to 111, 1st Flr., Bldg. No. E-15/A,
Harihar Complex, Bhiwandi, Mumbai - 421302
E-mail: info@americanremedies.in
ICO: American Remedies LLC, DE, USA
© Copyright