

## **Lidocaine (systemic)**

**Class:** Antiarrhythmic Agent, Class Ib; Local Anesthetic

**Indications:** Local and regional anesthesia by infiltration, nerve block, epidural, or spinal techniques; acute treatment of ventricular arrhythmias from myocardial infarction or cardiac manipulation (eg, cardiac surgery)

**Note:** The routine prophylactic use of lidocaine to prevent arrhythmia associated with fibrinolytic administration or to suppress isolated ventricular premature beats, couplets, runs of accelerated idioventricular rhythm, and nonsustained VT is not recommended (Antman, 2004).

Unlabeled : ACLS guidelines: Hemodynamically stable monomorphic ventricular tachycardia (VT) (preserved ventricular function); polymorphic VT (preserved ventricular function); drug-induced monomorphic VT; when amiodarone is not available, pulseless VT or ventricular fibrillation (VF) (unresponsive to defibrillation, CPR, and vasopressor administration)

PALS guidelines: When amiodarone is not available, pulseless VT or VF (unresponsive to defibrillation, CPR, and epinephrine administration); consider in patients with cocaine overdose to prevent arrhythmias secondary to MI

I.V. infusion for chronic pain syndrome

**Available dosage form in the hospital:** LIDOCAINE 1% + ADRENALINE 50ML VIAL

LIDOCAINE 1%, PLAIN 50 ML VIAL

LIDOCAINE 2% (40MG/2ML) AMP

LIDOCAINE 2% + 1:8000 ADRENALINE CARTRIDGES (1.8/2ML)

LIDOCAINE 2% + ADRENALINE 50ML VIAL

LIDOCAINE 3% + ADRENALINE 50ML VIAL

LIDOCAINE 3% CARTRIDGE INJ

LIDOCAINE 2%, PLAIN 50ML VIAL

LIDOCAINE HCL 2%, 10 ML AMP

LIDOCAINE2%+ADRENALINE 20ML VIAL

**Trade Names:**

**Dosage: Antiarrhythmic (ACLS, 2010):**

**VF or pulseless VT (after defibrillation attempts, CPR, and vasopressor administration) if amiodarone is not available:** I.V., intraosseous (I.O.): Initial: 1-1.5 mg/kg. If refractory VF or pulseless VT, repeat 0.5-0.75 mg/kg bolus every 5-10 minutes (maximum cumulative dose: 3 mg/kg). Follow with continuous infusion (1-4 mg/minute) after return of perfusion. Reappearance of arrhythmia

during constant infusion: 0.5 mg/kg bolus and reassessment of infusion (Zipes, 2000)

**Endotracheal (loading dose only):** 2-3.75 mg/kg (2-2.5 times the recommended I.V. dose); dilute in 5-10 mL NS or sterile water. **Note:** Absorption is greater with sterile water and results in less impairment of PaO<sub>2</sub>.

**Hemodynamically stable monomorphic VT:** I.V.: 1-1.5 mg/kg; repeat with 0.5-0.75 mg/kg every 5-10 minutes as necessary (maximum cumulative dose: 3 mg/kg). Follow with continuous infusion of 1-4 mg/minute (or 14-57 mcg/kg/minute).

**Note:** Reduce maintenance infusion in patients with CHF, shock, or hepatic disease; initiate infusion at 10 mcg/kg/minute (maximum dose: 1.5 mg/minute or 20 mcg/kg/minute).

Renal impairment: No dosage adjustment provided in manufacturer's labeling. However, accumulation of metabolites may be increased in renal dysfunction. Not dialyzable (0% to 5%) by hemo- or peritoneal dialysis; supplemental dose is not necessary.

Hepatic impairment: Use with caution; reduce maintenance infusion. Initial: 0.75 mg/minute or 10 mcg/kg/minute; maximum dose: 1.5 mg/minute or 20 mcg/kg/minute. Monitor lidocaine concentrations closely and adjust infusion rate as necessary; consider alternative therapy.

**Common side effects:** Effects vary with route of administration. Many effects are dose related.

Frequency not defined.

Cardiovascular: Arrhythmia, bradycardia, arterial spasms, cardiovascular collapse, defibrillator threshold increased, edema, flushing, heart block, hypotension, sinus node suppression, vascular insufficiency (periarticular injections)

Central nervous system: Agitation, anxiety, apprehension, coma, confusion, disorientation, dizziness, drowsiness, euphoria, hallucinations, headache, hyperesthesia, hypoesthesia, lethargy, lightheadedness, nervousness, psychosis, seizure, slurred speech, somnolence, unconsciousness

Gastrointestinal: Metallic taste, nausea, vomiting

Local: Thrombophlebitis

Neuromuscular & skeletal: Paresthesia, transient radicular pain (subarachnoid administration; up to 1.9%), tremor, twitching, weakness

Otic: Tinnitus

Respiratory: Bronchospasm, dyspnea, respiratory depression or arrest

Miscellaneous: Allergic reactions, anaphylactic reaction, anaphylactoid reaction, sensitivity to temperature extremes

Following spinal anesthesia: Positional headache (3%), shivering (2%), double vision (<1%), cauda equina syndrome, hypotension, nausea, peripheral nerve symptoms, respiratory inadequacy

Postmarketing and/or case reports: Asystole, disorientation, methemoglobinemia, skin reaction

**Pregnancy Risk Factor: B**