In the past, Lidocaine has been the most commonly used drug to treat life threatening ventricular arrhythmias. It is a class Ib (sodium channel blocker) anti-arrhythmic, and treats arrhythmia by suppressing automaticity and elevating the electrical stimulation threshold of the ventricles. However, its use as an anti-arrhythmias largely been supplanted by amiodarone. Lidocaine is also used as an anesthetic and to prevent nerve stimulation during certain procedures.

Indications and Administration

1. For pain relief prior to infusion of medications or fluids into an IO.
    a. **Adult and Pediatric** – 0.5 mg/kg (max 50 mg) slow push IO. Wait 20 seconds, then infuse fluids or medications as needed.
    b. Use with caution in children with a history of seizures.
2. Prior to intubation during RSI, for the purpose of limiting increases in intercranial pressure. (Fentanyl is preferred due to faster onset)
    a. **Adult** – 1 to 1.5 mg/kg IV or IO.
    b. **Pediatric** – 1 mg IV or IO.
3. For treatment of cardiac arrhythmias if amiodarone is unavailable.
    a. Cardiac arrest due to ventricular fibrillation (VF) or ventricular tachycardia (VT)
        i. **Adult** – 1 to 1.5 mg/kg IV or IO. Repeat every 3-5 minutes up to a maximum total dose of 3 mg/kg.
        ii. **Pediatric** – 1 mg/kg IV or IO. Repeat every 10 minutes to a maximum total dose of 3 mg/kg
    b. Following successful conversion of VF or VT
        i. **Adult** – If not given prior to conversion, bolus as above. Then begin a maintenance infusion of 2-4 mg/min.
        ii. **Pediatric** - f not given prior to conversion, bolus as above. Then begin a maintenance infusion of 20-50 mcg/kg/min.
    c. Stable, wide complex tachycardia.
        i. **Adult** – 1 to 1.5 mg/kg IV or IO slow push. Repeat with ½ the original dose every 5-10 minutes until rhythm converts. Maximum total dose 3 mg/kg.
        ii. **Pediatric** – 1 mg/kg. Repeat every 10 minutes until rhythm converts. Maximum total dose 3 mg/kg.

d. Control of PVCs in suspected myocardial infarction, when the PVCs are greater than 6/minute, multifocal, runs (2 or more in a row), or close coupled (potential for R on T).

   i. **Adult** – 1 to 1.5 mg IV or IO slow push. Repeat with ½ the original dose every 5-10 minutes until PVCs resolve. Maximum total dose 3 mg/kg.

Notes

1. Use with extreme caution in the presence of high degrees of block (2nd and 3rd degree), or in cases of multiple blocks (example: RBBB coupled with a hemi block).
2. May cause CNS disturbances, sleepiness, dizziness, disorientation, confusion, or seizures.
3. Patients with hepatic disease with process the drug more slowly. Reduce follow up doses and drip rates of infusions.
4. If a tachycardia becomes unstable or pulseless during treatment, use electrical therapy immediately.