Use of SC lidocaine

Extract from:

Isle of Wight Palliative Care Symptom Control Guidelines

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SC lidocaine# infusion for refractory pain **(Specialist-physician-initiated)**

Indication: neuropathic or ischaemic pain that is refractory to usual treatments.

Prior to commencing lidocaine

- Check BP, heart rate, ECG (looking particularly for PR abnormalities such as AV block or Wolf-Parkinson-White syndrome) and cardiac Hx (→ either contraindications or requiring cardiological advice).
- Check electrolytes (including sodium, potassium and magnesium), look for history of cardiac conduction problems (e.g. Stokes Adams attacks) (→ contraindications) and potential drug interactions
- Look for history suggestive of renal, liver or heart failure (→ the starting dose is generally halved)
- Look for history of seizures (sodium channel blockers can have both anti- and pro-convulsant effects)

Discuss with a consultant or pharmacist if any abnormalities, concerns, or possible drug interactions found.

Dose initiation

Initiation and titration are discussed with a consultant in palliative medicine. The SC lidocaine infusion is usually added alongside existing analgesia (including other opioids). A typical regimen is as follows:

- Check BP, heart rate, and ECG at baseline
- Start lidocaine 500mg/24hrs (500mg = 25ml of lidocaine 2% w/v solution for injection) via S/C syringe driver (diluent = sodium chloride 0.9%; this starting dose is halved in the presence of frailty, renal, liver or heart failure)

- Check BP, heart rate after 0.5, 1, 1.5, 2, 4 and 8 hours and the following day. Monitor more frequently if results abnormal/change.
- Repeat the ECG after 4 hours *and* the following day.

Dose titration

If pain persists, but the infusion is well tolerated (including BP and ECG PR interval) the dose can be increased in 250-500mg increments every 24 to 48 hours (repeat BP, ECG and heart rate). The maximum dose is 2000mg/24hrs, but the volume precludes delivering this dose of lidocaine with a single pump.

Monitoring: key points

If pain significantly improves, consider a trial withdrawal of treatment: benefit often persists once the lidocaine is stopped. Reduce in 250mg increments every 24 to 48 hours. Continue to reduce until either pain recurs (increase back to the previously effective dose) or until the lidocaine is stopped.

Drugs with potentially relevant interactions include CYP 3A4 inhibitors (e.g. erythromycin, clarithromycin, some anti-retrovirals, some anti-fungal azoles).

Likely adverse effects are described in the table above. For a full list of adverse effects, see SPC. If in doubt about the possible presence of toxicity, seek urgent advice from a palliative care consultant. If advice or medical review is likely to be delayed by more than 60 minutes, stop the infusion.

Lidocaine toxicity		
Risk factors		Older age; liver, renal or cardiac impairment; cardiac conduction problems
Recognition	Neurologic features	Mild-moderate: peri-oral numbness, drowsiness, dizziness, tinnitus, confusion, dysphoria, dysarthria, auditory disturbances, metallic taste. Severe: seizures, loss of consciousness, agitation.
	Cardiovascular features	Sinus bradycardia, heart block, asystole, hypo- or hypertension, ventricular ectopics or tachyarrhythmia, wide QRS complex, ST-segment changes
Management	Supportive care	Stop the lidocaine infusion If hypoxic, give oxygen If hypotensive, give parenteral fluids If fitting, give midazolam as per seizures guidance, p42 (avoid phenytoin) Consider whether transfer to a critical care area is appropriate

	IV lipid emulsion (Intralipid 20%)	***Allergies: cross-reactivity occurs with egg, soy and peanut allergies***
		For severe symptoms (e.g. seizures, severe cardiovascular instability) give:
		• Give 500ml of Intralipid 20% IV at the following rate:
		  ○ an initial bolus of 1.5ml/Kg over 1 minutes (e.g. 100ml for a 70Kg person)
		  ○ followed by the remainder as an IV infusion at 15ml/Kg/hr (e.g. 400ml over 25 minutes for a 70Kg person)
		• If seizures and/or cardiovascular instability persist after 5 minutes, repeat the IV bolus[1] at the same dose and double the infusion rate to 30ml/Kg/hr
		• For further advice, call the Emergency Department (who can access further information from the National Poisons Information Service)
		If intralipid used:
		• report via datix
		• monitor for hyperthermia (supportive care), pancreatitis (check serum amylase if new epigastric+back pain occur), and venous thromboembolism (causes hypercoagulability)

1. Give a maximum of 3 IV boluses (including the initial bolus dose); leave at least 5 mins between boluses