

CLINICAL GUIDELINE

GUIDELINES FOR THE PRESCRIPTION & ADMINISTRATION OF LIGNOCAINE

TARGET AUDIENCE

All Peter Mac Clinical staff.

STATE ANY RELATED PETER MAC POLICIES, PROCEDURES OR GUIDELINES

Subcutaneous Infusion Devices

CLINICAL ALERT

DUE TO ITS COMPLEX PHARMACOTHERAPEUTIC PROPERTIES, PRESCRIBING OF THIS DRUG FOR ANALGESIA AT THE PETER MAC IS ONLY TO BE UNDERTAKEN BY THE DEPARTMENT OF PAIN AND PALLIATIVE CARE and/or the ACUTE PAIN SERVICE

PURPOSE

Pharmacists and medical consultants of Peter MacCallum Cancer Centre (Peter Mac) have developed these guidelines for internal use at Peter Mac and are not intended to be definitive.

This guideline describes the procedure for use of lignocaine infusions for refractory neuropathic pain.

INDICATIONS FOR USE

- severe cancer-related neuropathic pain syndromes inadequately responsive to standard therapies¹
- pruritis

CONTRAINDICATIONS

- **Relative contraindications**
 - Presence of significant cardiac disease including hemodynamic instability, unstable cardiac failure, conduction block, unexplained syncopal episodes, or supraventricular arrhythmias
 - Significant hepatic impairment, due to increased risk of drug accumulation and toxicity

¹ Challapalli V, Tremont-Lukats IW, McNicol ED, Lau J, Carr DB. Systemic administration of local anesthetic agents to relieve neuropathic pain. Cochrane Database of Systematic Reviews 2005, Issue 4. Art. No.: CD003345. DOI: 10.1002/14651858.CD003345.pub2.

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- Hypertension (BP >160mmHg systolic)
- Co-administration with other sodium channel blocking agents such as other local anaesthetics.
- Co-administration with anti-arrhythmic, amiodarone & beta-blockers.
- Absolute contraindications do not use lignocaine
 - Prior allergies to amide local anaesthetics.
 - Hypokalaemia and/or hypomagnesaemia
 - Prior history of epilepsy or unexplained seizures
 - Severe intraventricular heart block not managed by a pacemaker, Wolff Parkinson White syndrome, Stokes-Adams syndrome²

BASELINE ASSESSMENTS

- Baseline pain score
- Check renal and liver function, magnesium and potassium levels
- Perform baseline ECG to check for cardiac exclusion criteria
- Oxygen & suction operating by bedside
- Resuscitation equipment available on-site.
- Syringe driver for subcutaneous use or infusion pump.
- Subcutaneous cannula for lignocaine infusion

MONITORING

Monitoring is required with initial dose and after any subsequent dose changes. This should be recorded on the standard observation and pain chart.

- 1. Prior to initiation of infusion:
 - ECG, BP, HR, RR, pain score & sedation score.
- 2. Every 15 minutes for the first hour:
 - BP, HR, RR. •

² The role of systemic lidocaine in neuropathic pain management. [Review] [33 refs] Edwards AD.

Journal of Intravenous Nursing. 22(5):273-9, 1999 Sep-Oct. [Journal Article. Review]

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- 3. At 2, 4, 6, 8, 10 and 12 hours after commencement of infusion :
- BP, HR, RR, pain & sedation score.
- 4. 4-hourly observations thereafter:
 - BP, HR, RR, pain and sedation score
- ^{5.} ECG at 24 hours³

TOXICITY

Clinically monitor for toxicity and notify doctor promptly if these symptoms are present:

- Perioral numbness or tingling
- Metallic taste
- Tinnitus
- Paraesthesia
- Drowsiness
- Hypertension
- Light headedness⁴

Lignocaine toxicity may be increased in the following conditions:

- Congestive cardiac failure (due to a reduced volume of distribution);
- Liver disease (due to reduced metabolism);
- Acidosis (due to an increase in the amount of the drug in the ionised (active) form);
- The elderly.

Lignocaine toxicity commences at blood levels of approximately 5 μ g/mL and progress as plasma concentrations rise. Typical symptoms at this concentration include perioral numbness, tinnitus and light-headedness.

As plasma levels approach 10µg/mL, visual and auditory disturbances may become prominent. Other signs include muscular twitching, drowsiness and hypertension.

At levels above 10µg/mL, unconsciousness, coma and convulsions may occur, with respiratory arrest occurring at 20µg/mL and higher levels resulting in cardiovascular depression (heart block), hypotension, bradycardia, ventricular arrhythmias (eg torsade de pointe) and cardiac arrest.

There is developing evidence of the utility of intralipid in lignocaine toxicity. Seek expert advice. ⁵ Checking of blood levels is not recommended. We recommend monitoring of toxicity with clinical vigilance and active inquiry regarding potential early toxicity.

³ Salas et al.: Efficacy of lidocaine in patients receiving palliative care with opioid-refractory cancer pain with a neuropathic component: study protocol for a randomized controlled study. Trials 2014 15:318.

⁴ Hutson, P., Backonja, M. and Knurr, H. (2014), Intravenous Lidocaine for Neuropathic Pain: A Retrospective Analysis of Tolerability and Efficacy. Pain Medicine. doi: 10.1111/pme.12642

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Management of minor toxicity

If minor toxicity develops, cease the infusion then consider restarting at a lower dose.

Management of major toxicity (eq. seizures, hypertension, hypotension, arrythmias)

- Stop infusion
- If MET criteria are met, call the MET team

DOSAGE AND ADMINISTRATION

For subcutaneous infusion on the ward

Lignocaine (Xylocard[™]) 500mg lignocaine in 5mL (100mg/mL undiluted lignocaine) polyamp.

Preparation

Т

The calculated 24 hour dose is placed in a syringe. This can be diluted using sodium chloride 0.9% to the appropriate volume (mL/hr for NIKI T syringe drivers)

To reduce the risk of microbiological hazard, reconstitute immediately prior to infusion and change the syringe driver at least every 24 hours

Lignocaine by Continuous Subcutaneous Infusion (CSCI):

- To be prescribed on the MR/16B subcutaneous infusion device medication chart.
- Dose: commence @ 0.5mg/kg/hr (i.e. for an 80kg patient 40mg/hr)

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Infusion rate may be increased to 1.5mg/kg/hr CSCI.

The lowest effective infusion rate should be used.

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⁵ J Intensive Care Med. 2014 Mar-Apr;29(2):59-70. doi: 10.1177/0885066612445978. Epub 2012 Jun 24. Intravenous lipid emulsion for the treatment of drug toxicity. Ozcan MS¹, Weinberg G.

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RESPONSIBILITIES

Nursing staff	Carry out baseline and regular observations as per procedure. Actively monitor for toxicities.
Medical staff	Consider contraindications to lignocaine infusion. Actively monitor for toxicities.

KEY PERFORMANCE INDICATOR

No adverse events related to lignocaine infusion

LEGISLATION/REFERENCES/SUPPORTING DOCUMENTS

- Challapalli V, Tremont-Lukats IW, McNicol ED, Lau J, Carr DB. Systemic administration of local anesthetic agents to relieve neuropathic pain. Cochrane Database of Systematic Reviews 2005, Issue 4
- Edwards AD. The role of systemic lidocaine in neuropathic pain management. [Review] Journal of Intravenous Nursing. 22(5):273-9, 1999 Sep-Oct.[Journal Article. Review]
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- <u>Ozcan MS¹</u>, <u>Weinberg G</u>. <u>J Intensive Care Med.</u> 2014 Mar-Apr;29(2):59-70 Intravenous lipid emulsion for the treatment of drug toxicity.

FURTHER INFORMATION

Director, Pain and Palliative Care Department

AUTHORISED BY

Danny Rischin, Chair PTAC

AUTHOR/CONTRIBUTORS

Sonia Fullerton, Director Pain & Palliative Care

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