BC Cancer Protocol Summary for Extreme Pain Therapy Using Parenteral Lidocaine

Protocol Code	*SCPAINLI*
Tumour Group	*Supportive Care – Pain and Symptom Control*
Contact Physician	*VC – Dr. Pippa Hawley*

PREFACE

Lidocaine is an amide local anesthetic that is a non-selective sodium channel blocker given with the intent of relieving chronic pain. Injured nerves develop abnormal, spontaneous active sodium channels at the site of nerve injury and along the nerve pathway. In low doses, lidocaine can suppress this abnormal firing at concentrations that do not affect normal nerve or cardiac function. Lidocaine is rapidly metabolized in the liver and the metabolites are excreted by the kidneys. Dose adjustments may be required in the case of liver and/or renal insufficiency. Lidocaine can also have a negative inotropic effect and should be used with caution when there is a history of cardiac failure.

ELIGIBILITY

- Patients with diagnosis of severe pain syndrome unresponsive, completely or incompletely, to standard therapy including adjuvant therapies.
- Patients with particularly severe neuropathic pain requiring acute therapy to diminish pain with the understanding that other less invasive medications will be administered to provide ongoing pain relief.

EXCLUSIONS

- Patients must be adequately cognitively intact to report pain intensity and adverse effect
- Prior allergy to local anaesthetics
- Liver failure (Bilirubin greater than or equal to 25 micromol/L)
- Severe cardiac failure or second/third degree heart block
- Uncontrolled seizures
- Hypertension (BP greater than 160 mm Hg systolic)
- Hypokalemia

TESTS

- Before first infusion:
  - EKG within 14 days of procedure if male over 65 yrs, female over 55 yrs and/or known or suspected of having cardiac problems
  - Bloodwork: potassium, creatinine, ALT, bilirubin
- During each treatment:
  - During infusion: blood pressure, heart rate and pain level every 15 minutes
  - After infusion: blood pressure, heart rate and pain level every 15 minutes x 2
- If clinically indicated:
  - repeat EKG, serum potassium, ALT, bilirubin
- Rule out previous allergy to amide type local anesthetic by patient history.

PREMEDICATIONS

- None

TREATMENT for adults

Drug	Dose	BC Cancer Administration Guideline
lidocaine	Intermittent Dose First dose: 5 mg/kg Subsequent doses*: 5 to 10 mg/kg	IV in 250 mL** D5W over 60 to 120 min

* Subsequent doses will be determined by clinical effect and evidence of toxicity

** In 100 mL for lower doses to keep final concentration at 1 to 4 mg/mL

- Repeat as per patient's need. Discontinue if no response or toxicity occurs.

DOSE MODIFICATIONS

1. **Hematological**: None
2. **Renal dysfunction**: Titrate to effect and toxicity.
3. **Hepatic dysfunction**: Use with caution and titrate to effect and toxicity.

PRECAUTIONS

1. **CNS effects**: Adverse reactions usually involve CNS effects, and are related to lidocaine dose and serum concentration.
   - **Lower concentration** Early warning signs include ringing in ears, metallic taste, lightheadedness, perioral numbness or tingling, and headache.
   - **Higher concentration** (near 21 micromol/L) CNS disturbances: feelings of dissociation, paresthesias, mild drowsiness, or mild agitation, nausea/vomiting.
   - **Highest concentrations** (> 21 micromol/L) CNS disturbances: decreased hearing, tinnitus, disorientation, blurry vision, muscle twitching, convulsions, or respiratory arrest.

   When adverse reactions occur, stop the infusion and contact physician. Infusion may be restarted at lower rate after resolution of symptoms as per physician's orders.

   Unrest, tremor and facial twitching are warning signs of impending generalized convulsions.

   Perspiration, dyspnea, and short intervals of apnea are warning signs of impending respiratory arrest.

2. **Cardiovascular effects**: Reactions are rare with lidocaine given for analgesia and are usually related to high serum levels of lidocaine; they may be the first manifestations of toxicity.
   - **Myocardial depression or bradycardia (at high therapeutic serum levels)**: Physician to specify lowest heart rate (HR). Atropine for bradycardia may be ordered. Although lidocaine after myocardial infarction has been associated with a trend towards increased risk of arrhythmias, cardiac monitoring during studies of normal patients have noted no major cardiovascular toxicity at clinically appropriate levels.
   - **Gradual increase in blood pressure:** If blood pressure changes over 3 consecutive readings by plus or minus 10 mmHg or is greater than systolic 160 mmHg, stop the infusion and contact physician. Infusion may be restarted at lower rate after resolution of symptoms, as per physician's orders. At low serum levels, high blood pressure may be observed; as the serum levels increase, the blood pressure may decrease. Physician to specify lowest and highest systolic blood pressure (SBP). Captopril 12.5-25 mg q8-12h for hypertension may be ordered.

3. **Respiratory toxicity:** Perspiration, dyspnea and short intervals of apnea are warning signs of impending respiratory arrest. Stop infusion, contact physician and administer oxygen. Lidocaine may potentiate bronchospasm and cause airway narrowing in asthmatics.

4. **Drug Interactions**: Cimetidine or beta-blockers may increase lidocaine serum concentrations. Phenytoin may stimulate the hepatic metabolism of lidocaine.

Call Dr. Pippa Hawley at (604) 250-2845 (mobile) or switchboard at (604) 877-6000 or 1-800-663-3333 with any problems or questions regarding this treatment program. If Dr. Hawley is unavailable, the Doctor of the Day for Pain & Symptom Management / Palliative Care can be found via the Doctor of the Day schedule at H:\EVERYONE\MEDONC\DRofDay, select the RED tab.

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