POLICY STATEMENTS

A Physician’s order is required for the administration of nitroglycerin given by any route.

A Physician/ Resident or a Registered Nurse under direct supervision of a physician administers the direct intravenous bolus of nitroglycerin to attain uterine relaxation.

Applicability: Nitroglycerin is administered in the Maternity Ambulatory Program and the Birthing Program of the Maternal Newborn Program

PROCEDURE

1.0 Indications for administration of nitroglycerin
   - Uterine Relaxation for External Cephalic Version
   - Uterine Hypertonus

2.0 Contraindications:
   - Low blood volume (eg. hemorrhage, cool/clammy skin, rapid, shallow breathing, rapid heart rate)
   - Evidence of increased intracranial pressure (eg. headache, nausea, vomiting, increased BP)
   - Use with caution in women with current or history of hypotension

3.0 Methods of Administration:
   - Direct Intravenous Push
   - Continuous Intravenous Infusion
   - Sublingual Aerosol Spray

3.1 Gather Materials:
For all administration of nitroglycerin
   - Automatic blood pressure machine
   - Oxygen saturation monitor (SaO2)
   - Fetal Monitor

For direct IV administration
   - Intravenous (IV) catheter, # 18
   - Intravenous infusion set
   - Intravenous solution as ordered
   - Filter Needle
   - Nitroglycerin ampoule, 50 milligrams/10 millilitre (5 mg/mL)
   - Normal saline, 10 mL ampoule
   - Blunt needle
   - 10 mL syringe

For continuous infusion
   - 10 mL Syringe
   - Filter needle
   - Blunt needle
   - 500 mL bag of D5W
   - Intravenous infusion set
NOTE: Although nitroglycerin adsorbs to PVC IV bags/tubing, it is not necessary to use glass bottles nor special tubing. If possible, using IV sets with the shortest possible length and attaching the IV port closest to IV insertion site.

For Sublingual administration
Nitroglycerin sublingual spray (400 micrograms/dose) NOTE: The aerosol spray is SINGLE PATIENT USE

3.2 Direct Intravenous (IV) Push Nitroglycerin

Registered Nurse (RN):
- Establish an intravenous with a #18 IV catheter.
- Give a bolus of 10 mL/kg of normal saline (approximately 500 - 1000 mL) as per Physician’s Order.
- Dilute 1 mg (0.2 mL of a 5 mg/mL ampoule) intravenous nitroglycerin with 9.8 mL of normal saline to give 100 mcg/mL concentration in a 10 mL syringe

Caution:
- Must be given by Physician or RN with Direct Physician Supervision.
  - Prepare immediately prior to administration and administer diluted solutions within 30 minutes of preparation to minimize the loss of potency due to adsorption in the syringe. **NOTE:** Nitroglycerin is adsorbed into plastic.
- Give through IV port closest to the IV insertion site.
- Take care with mixing. Wear gloves to prevent contact with your hands.
- Do not inhale solution.

Uterine Relaxation (for External Cephalic Version):
- 50 mcg IV direct every 90 seconds; repeat as required up to a maximum of 500 mcg over 15 minutes; or

Uterine Hypertonus:
- 50 to 100 mcg IV direct, repeated every 2 minutes to a maximum dose of 400 mcg
  (may double dose with each subsequent administration)

3.3 Continuous Intravenous Nitroglycerin

Registered Nurse
- Add 1 mg (0.2 mL of a 5 mg/mL ampoule) intravenous nitroglycerin to 500 mL of D5W solution to give a 2 mcg/mL concentration.
- Using the Alaris a pump, administer the infusion at 70 mcg/minute (35 mL/min) via the closest port to the patient.
  - Administer 70 mcg/minute continuous IV infusion; titrate as required to a maximum total dose of 500 mcg
- Adjust the infusion to maintain uterine relaxation adequate for external cephalic version.
- The maximum dose is 500 mcg nitroglycerin or 250 mL of the IV solution.
3.4 Sublingual Nitroglycerin Aerosol Spray

Registered Nurse (RN):
- The RN may administer sublingual nitroglycerin under the direction of a Physician.
- Administer one puff of 400 mcg sublingual Nitroglycerin onto or under the tongue.
- May repeat twice at 5-10 minute intervals.
- **DO NOT SHAKE**

Caution:
- Instruct the woman to avoid inhaling the nitroglycerin aerosol.

4.0 Monitoring Vital Signs for Nitroglycerin administration

4.1 Prior to and during the administration of Nitroglycerin:
- **Blood Pressure**
  - Obtain automatic readings every one minute during the procedure while nitroglycerin is being administered.

4.2 Following the administration of Nitroglycerin:
- **Blood Pressure**
  - Monitor blood pressure every five minutes for 30 minutes or as per the Physician’s order
- **Pulse**
  - Monitor pulse rate every five minutes for 30 minutes
- **Oxygen Saturation (SaO₂)**
  - Administer oxygen via a face mask at 5 L/ minutes
  - Monitor the Sa O₂ continuously for 30 minutes
- **Uterine Tone**
  - Monitor uterine tone and activity by abdominal palpation
- **Fetal Monitoring**
  - Perform continuous external fetal monitoring
  - Monitor for at least **30** minutes after the nitroglycerin is discontinued.

5.0 Side Effects

Report the following common side effects to the PCP:
- Hypotension
- Nausea and vomiting
- Restlessness
- Headache
- Maternal tachycardia
- Retrosternal pain

**DOCUMENTATION**

- Fetal Monitor Label
- Intake and Output Record
- Interprofessional Progress Notes
- Labour Partogram
- Medication Calendar
- Special Clinical Record
REFERENCES


VERSION HISTORY

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