Purpose:
The purpose of this protocol is to ensure the safe administration of Intravenous FentaNYL during labour.

Indications:
FentaNYL is a potent short acting opioid that is an effective intravenous analgesic when used in active labour.

The MOREOB program (2012) recommends the use of narcotics during labour that have a shorter half-life e.g. morphine or fentaNYL and discourages the use of Meperidine because of the increased risk of negative neonatal effects related to its longer half-life. These include respiratory depression, lack of responsiveness and impaired sucking reflex.

<table>
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<th>Stage of Labour</th>
<th>Nulliparous</th>
<th>Multiparous</th>
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<td>Latent Stage</td>
<td>IM Morphine</td>
<td>IM Morphine</td>
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<td>Early Active Stage</td>
<td>IM or IV Morphine</td>
<td>IV FentaNYL</td>
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<tr>
<td>Late Active Stage</td>
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<td>Second Stage</td>
<td>IV FentaNYL</td>
<td>IV FentaNYL</td>
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Methods of Action of Intravenous FentaNYL
- Has a rapid onset of action occurring 3-5 minutes after administration with a peak action between 5 and 15 minutes.
- Has a short duration of action (30-60 minutes after a single IV dose of up to 100 micrograms) probably due to its rapid distribution from plasma into the tissues rather than metabolism and excretion.
- Has a maternal half-life of less than one hour.
- May be used within an hour of birth.
- Is metabolized by the liver.
- Is excreted mainly in the urine (metabolites and unchanged drug).
- Results in less maternal sedation, nausea & vomiting than morphine.
- Crosses the placenta in small amounts as is highly bound to protein.
- Has a neonatal half-life of 1-6 hours.
- Has not been associated with neonatal neurobehavioural depression.
- Has been detected in breast milk but is considered compatible with breastfeeding.
Use with Caution

- Patients at high risk for emergent cesarean section (evidence of fetal compromise).
- Preterm labour (higher risk of respiratory depression in the neonate).
- Obesity (fentaNYL is very lipid soluble).
- Patients who have received more than one dose of a longer acting narcotic. Lower FentaNYL doses may be required.
- Women with a history of difficult intubation.
- Hypertensive disorders of pregnancy (increases sensitivity to hemodynamic effects of fentaNYL).
- Delivery anticipated within 30 minutes.
- Renal impairment or hepatic disease (lower dosage may be required as fentaNYL clearance may be reduced).
- Pulmonary disease or myasthenia gravis.
- Uncorrected hypotension or hypovolemia.

Contraindications

- Hypersensitivity to fentaNYL, and possible cross sensitivity to alfentanil, anileridine, diphenoxylate, meperidine, remifentanil, and sufentanil.
- Use of MAO inhibitors within 14 days.
- Fetal acidosis/abnormal fetal heart tracing.
- Maternal respiratory rate of less than 8 breaths per minute or with an oxygen saturation of less than 94%.

Special Training and Equipment

- Special Training as per Edmonton Zone online parenteral monograph for FentaNYL.
- Ensure oxygen, Naloxone & Resuscitation equipment are readily available for the mother and the neonate.
- RN must have specialized clinical competency in direct IV medication administration.

Guidelines for Use

Assessment Prior to Administration

- Assess labour progress within 30 minutes prior to fentaNYL administration.
- Assess baseline maternal vital signs and pain score.
- Ensure fetal heart rate is normal as per SOGC (2007) and Edmonton Zone Women’s Health Program (2011) Fetal Health Surveillance Guideline.

Education to Patient

- Education to patient should cover potential maternal and neonatal side effects of the IV FentaNYL, its onset and peak times, effect on labour progress and potential effect on breast feeding initiation. Document this education, patient verbal consent in chart.
Dilution Instructions
- Dilute 100 microgram (2mL of 50 micrograms/mL) of fentaNYL with 8 mL or normal saline to obtain 10 mLs of solution with a concentration of 10 micrograms / mL.
- Label syringe with patient name, medication, concentration, date, time & RN signature.

Administration
- Ensure an IV has been established and is infusing.
- Initial Dose as ordered by the Physician.
  - 50 – 100 mcg IV push over 1-2 minutes. Wait 5-10 minutes for effect.
  - Repeat: 50 mcg IV Q 3-5 minutes until analgesia is effective to a maximum dose of 300 mcg given in ½ hour.
  - Notify physician when maximum dose is reached if patient remains in pain.

Monitoring
- Respiratory rate should be monitored prior to and 5 minutes following every dose.
- Continuous O2 saturation monitoring is required.
- Assess sedation scale and pain score 5 minutes after each dose is administered and then Q30 minutes.
- Subsequent doses should only be given if analgesia is inadequate.
- Onset of action for IV fentaNYL is 3-5 minutes; duration of action is 30-60 minutes.
- Patients should be closely monitored for signs of adverse reactions and possible respiratory difficulty.
- Naloxone should be readily available for Emergency administration.
- Oxygen saturation and respiratory rate should be monitored for 30-45 minutes after the last dose of fentaNYL. Respiratory depressant effect lasts longer than the analgesic effect.

Maternal Potential Adverse Effects

Major
- Respiratory depression, respiratory arrest, asystole, arrhythmias, and hypotension have recurred after the initial recovery following high or multiple doses of fentaNYL.

Frequent
- Respiratory depression (can occur 6-8 hours after administration).
- Bradycardia, orthostatic hypotension, sedation, nausea & vomiting.

Less Frequent
- Rigidity in respiration muscles in the chest and pharynx following rapid IV administration.

Rare
- Dizziness, euphoria, laryngospasm, allergic bronchospasm, and seizures.
Neonatal Potential Adverse Effects
- Respiratory depression.

Management of Adverse Reactions

In the event of an adverse reaction, the nurse should:
- Immediately stop the injection.
- Administer oxygen; assess oxygen saturation, initiate CPR and call a Code Blue if required.
- Call for help immediately if the respiratory rate of less than 10 per minute or oxygen saturation less than 92%. Charge Nurse to notify Anaesthetist/Physician stat.
- Prepare to administer Naloxone as ordered in the event of respiratory depression.
- Document the adverse reaction and steps take to reverse it.

Naloxone: As per on line drug monograph
- IV Naloxone is an opiate antagonist used to reverse opiate-induced respiratory depression and overdose.
- The dosage for opiate-induced respiratory depression is 0.4 to 2 mg IV initially; repeat at 2 to 3 minute intervals PRN. Maximum total dose of 10 mg.
- The dose must be titrated to avoid interference with pain control.
- If patient does not respond at this dose, the diagnosis of narcotic-induced or partial narcotic-induced toxicity is questionable.
- Monitor patients closely to detect re-emergence of opiate effects/toxicity.
- Administer repeat doses of Naloxone as necessary for adequate reversal.

Neonatal Respiratory Depression:
- Call the Resuscitation Team stat.
- Provide neonatal resuscitation as per the 2011 Neonatal Resuscitation Guidelines.
- Assist the RST in administering Naloxone if required.

Ongoing Maternal / Fetal Assessment:
- Further maternal monitoring may be required depending on patient response, fentaNYL dosage and need for repeated dose(s).
- Assess other maternal vital signs as required or ordered.
- Continue fetal health surveillance until patient is delivered.
References:


