

Appendix A: Pharmacologic approaches to pain management during MVA

Pain medication

Though the medications shown below are commonly used for pain management during uterine evacuation, many other options exist.

This table does not cover general anesthetic agents. Both anxiolytics and narcotics may cause respiratory depression, especially when they are used together. Accordingly, lower doses should be used when they are together than when they are separate. When medications are given intravenously immediately before a procedure they should be given slowly and intermittently by a specially trained provider. Problematic side effects can be avoided by repeated small intravenous doses that are titrated to a woman's level of pain and sedation. The peak analgesic effect should occur during the procedure to avoid excessive post-procedure sedation.

Even clinicians using lighter sedation analgesia must be able to manage respiratory arrest, in the unlikely event that an unintentional overdose should occur. Providers should be trained in airway management and cardiopulmonary resuscitation, and resuscitative equipment and appropriate antagonist drugs (naloxone and flumazenil) should be available.

Drug Type	Generic Drug Name	Dose and Timing	Half-life	Side Effects	Comments
Local anesthetic	Xylocaine	15-20ml of 0.5%-1% solution in a paracervical block not to exceed 4.5mg/kg	60-90 minutes	Buzzing in ears, dizziness, numbness in lips, mouth and tongue, metallic taste, seizures (rare)	<p>Pull back plunger before injecting to avoid intravascular injection. Wait three minutes for medication to take effect.</p> <p>Mild reaction (itching, rash, hives) can be treated with 25-50mg diphenhydramine IM or IV.</p> <p>For intense reaction or respiratory distress obtain IV access immediately. Give epinephrine 0.4mg subcutaneously and diazepam 5mg slow IV push. Support respiration. If wheezing is present, inhaler may be helpful.</p> <p>Allergic reaction is very rare. Reactions that do occur may be due to preservatives in multi-dose vials. Preservative-free lidocaine allergy is extremely rare.</p>

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Drug Type	Generic Drug Name	Dose and Timing	Half-life	Side Effects	Comments
NSAID	Ibuprofen	oral: 400 to 800mg one hour before the procedure	4-6 hours	Possible gastrointestinal upset	Do not use in women with active peptic ulcer disease or renal failure
	Naproxen	oral: 550mg one hour before the procedure	4-6 hours	Possible gastrointestinal upset	Do not use in women with active peptic ulcer disease or renal failure
	Ketorolac	oral: 20mg one hour before procedure IV: 30 mg over at least 15 seconds 30 to 60 minutes before procedure IM: 60 mg 30 to 60 minutes before procedure For women less than 50kg, all doses should be halved	4-6 hours		Single dose IM ketorolac prior to surgery may reduce opioid use and post-operative pain (de Oliveira 2012, Roche 2012) Do not use in women with active peptic ulcer disease, renal failure, breastfeeding or sensitivity to other NSAIDs. Breakthrough pain should be managed with narcotics rather than increasing ketorolac beyond the recommended doses.
Analgesic	Acetaminophen	oral: 500 to 1000mg 30 to 60 minutes before procedure	3-6 hours		Not a first-line pain medication for vacuum aspiration or medical abortion. May be used as an antipyretic. Liver toxicity from overdose (maximum dose = 4000mg/day) is a risk.
Narcotic/analgesic combination	Acetaminophen 300mg + codeine 30mg	oral: 1-2 tablets one hour before procedure	3-6 hours	Drowsiness, light-headedness, nausea and vomiting, CNS and respiratory depression	If respiration is compromised, assist with breathing (airway management, oxygen and ambu bag) and reverse with naloxone (see below). Be aware of combining with other acetaminophen containing products. Liver toxicity from overdose of acetaminophen (maximum dose = 4000mg/day)

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Narcotic/ analgesic combination	Acetaminophen 500mg + hydrocodone 5mg	oral: 1-2 tablets one hour before procedure	4-6 hours	Drowsiness, light- headedness, nausea and vomiting, CNS and respiratory depression	If respiration is compromised, assist with breathing (airway management, oxygen and ambu bag) and reverse with naloxone (see below). Be aware of combining with other acetaminophen containing products. Liver toxicity from overdose of acetaminophen (maximum dose = 4000mg/day)
Narcotic	Meperidine	oral: 100-150mg 30 to 60 minutes before procedure IV: 25-50mg 5-15 minutes prior to procedure IM/SC: 50-100mg 30 to 90 minutes prior to procedure	4-6 hours	Drowsiness, light- headedness, nausea and vomiting, CNS and respiratory depression, hypotension, seizures	If respiration is compromised, assist with breathing (airway management, oxygen and ambu bag) and reverse with naloxone (see below). More rapid onset and shorter duration of action than morphine. Meperidine 60-80mg = morphine 10mg
	Fentanyl	IV: 50-100mcg immediately before procedure (may repeat every 10-15 minutes, not to exceed 250mcg) IM: 50-100mcg 30 to 60 minutes before procedure	30-60 minutes	Drowsiness, light- headedness, weakness, bradycardia, CNS and respiratory depression, hypotension, seizures	If respiration is compromised, assist with breathing (airway management, oxygen and ambu bag) and reverse with naloxone (see below). More rapid onset and shorter duration of action than meperidine Fentanyl 100mcg = meperidine 75mg = morphine 10mg Onset of action is 2-7 minutes when given IV
	Tramadol	IV/IM: 50-100mg 15-30 minutes prior to procedure. Oral/suppository: 50-100mg 60-90 minutes prior to procedure.	4-6 hours	Drowsiness, light- headedness, weakness, sweating, fatigue, seizures	If respiration is compromised, assist with breathing (airway management, oxygen and ambu bag) and reverse with naloxone (see below). Less respiratory depression than morphine or meperidine Tramadol 100mg = morphine 10mg

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Drug Type	Generic Drug Name	Dose and Timing	Half-life	Side Effects	Comments
Anxiolytic (Benzodiazepine)	Diazepam	oral: 10mg one hour before procedure IV: 2-5mg IV 20 minutes before procedure	21-37 hours	Blurred vision, dizziness, disorientation, pain and redness on injection, CNS and respiratory depression	If respiration is compromised, assist with breathing (airway management, oxygen and ambu bag) and reverse with flumazenil (see below). Has a mild amnestic effect. Onset of action is 2-10 minutes when given IV.
	Midazolam	IV: 1-2mg immediately before the procedure then 0.5-1mg IV every five minutes as needed, not to exceed 5 mg IM: 0.07-0.08mg/kg or about 5mg up to one hour before procedure	1-4 hours	Blurred vision, dizziness, disorientation, CNS and respiratory depression	If respiration is compromised, assist with breathing (airway management, oxygen and ambu bag) and reverse with flumazenil (see below). Midazolam 2.5mg = diazepam 10mg Stronger amnestic effect than diazepam. Onset of action is 1-5 minutes when given IV and 15-30 minutes when given IM.
	Lorazepam	oral: 1-2mg 30-60 minutes before procedure IV: 2mg given over one minute before the procedure IM: 0.05mg/kg up to a maximum of 4mg within 2 hours before the procedure	14 hours	Blurred vision, dizziness, disorientation, CNS and respiratory depression	If respiration is compromised, assist with breathing (airway management, oxygen and ambu bag) and reverse with flumazenil (see below). Amnestic effect. Occasionally may increase patient anxiety.
Reversal agent for narcotic	Naloxone	IV: 0.4mg vial mixed in 10mL saline. Give 1mL (40mcg/mL) every two minutes until reversal is seen			Naloxone's duration of action is one hour and may wear off before the narcotic. Therefore, patients treated with naloxone must be monitored closely for several hours. Maintain airway and respirations while giving naloxone.

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Reversal agent for benzodiazepine	Flumazenil	IV: 0.2mg every minute until respirations return. Do not exceed 1mg			<p>Flumazenil's duration of action is one hour and may wear off before the benzodiazepine. Therefore, patients treated with flumazenil must be monitored closely for several hours. In the event of overdose with narcotic and benzodiazepine, reverse the narcotic first with naloxone and use flumazenil subsequently if needed.</p> <p>Maintain airway and respirations while giving Flumazenil.</p>

References:

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Roche, N. E., Li, D., James, D., Fechner, A., & Tilak, V. (2011). The effect of perioperative ketorolac on pain control in pregnancy termination. *Contraception*.