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doi.org/10.58931/cwht.2025.2123

Analgesia For Office Gynecology

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Introduction

Intrauterine device (IUD) insertion and endometrial biopsy are two common and essential procedures routinely performed in office-based gynecology. IUDs offer highly effective contraception and also serve as important treatments for dysmenorrhea, abnormal uterine bleeding, and endometrial hyperplasia or cancer. Endometrial biopsy remains a first-line diagnostic tool for evaluating abnormal uterine bleeding. Despite their utility, both procedures are often associated with moderate to severe pain,[1] which can discourage patients from pursuing them. As patient comfort becomes an increasing priority for both patients and providers, clinicians should become familiar with the effective analgesic strategies available in this setting.

Nonpharmacological Interventions

Clinicians are encouraged to provide a trauma-informed and individualized approach to care, through grounding their practice in the key principles of patient respect, autonomy, informed consent, and shared decision making.[1] Pre-procedure counselling is recommended to obtain a comprehensive patient history, review expectations, explore non-pharmacologic and pharmacologic comfort measures, and establish rapport.[2] Furthermore, screening patients for risk factors associated with an increasingly painful experience can help clinicians individualize counselling. For example, nulliparity, dysmenorrhea, history of trauma, prior loop electrosurgical excision procedure, anxiety or mood disorder, and younger age are associated with potentially more painful IUD insertions.[1,3] As such, these patients would be most likely to benefit from pain management interventions.

Dialogue

Deliberate and careful language selection is critical. Implementing "verbal analgesia" through a calming and comforting tone characterized by soft, slow, and low-pitched speech has been shown to provide analgesic effects comparable to oral tramadol during IUD placement in nulliparous patients.[1,2,4] Patients may benefit from distraction through casual conversation during procedures.[1,2] Moreover, frequent verbal check-ins with the patient to assess comfort, offering breaks (for example between IUD removal and insertion), and ensuring consent is maintained are essential.[1]

Environment

Patient comfort and safety can be enhanced by modifying the environment to individual preferences using evidence-based interventions such as dimming room lighting, playing music, regulating room temperature (for example cooling fan/cold towels on forehead or warm towels/heating pads on abdomen), acupressure, aromatherapy with lavender or peppermint, and incorporating breathing techniques.[1,2,5,6] Implementing these simple strategies can help create an ideal clinical environment.

Equipment

Procedural equipment should be selected in a patient-centred manner. For example, a Pederson speculum is preferred for nulliparous patients provided it allows sufficient visualization.[1] The use of a water-based lubricant is recommended during speculum use and does not interfere with cervical screening.[7] To further reduce discomfort, consider using the narrowest available uterine sound (e.g., plastic sound, endometrial pipelle) as well as a single-tooth tenaculum or Allis clamp with a one-notch closure.[1]

Oral Analgesics

There are mixed results regarding the efficacy of nonsteroidal anti-inflammatory drugs (NSAIDs) in reducing pain for patients undergoing in-office gynecologic procedures. A recent systematic review and meta-analysis found that NSAIDs alone, regardless of type

or dose, were not effective at reducing pain during IUD insertions.[8] Similar results were found for patients undergoing in-office endometrial biopsies.[9] However, a double-blind randomized controlled trial (RCT) concluded that oral ketorolac resulted in decreased pain during IUD deployment compared to placebo (4.2 vs. 5.7, *P* = 0.031), overall pain score (3.6 vs. 4.9, *P* = 0.047), and pain 10 minutes following the procedure (1.1 vs. 2.5, *P* = 0.007).[10] While NSAIDs alone may not effectively address pain during the procedure, they are appropriate for managing post procedure pain.[3] As such, premedication with an NSAID prior to IUD insertion or endometrial biopsy is recommended, particularly as part of a multimodal pain management strategy.[1] For some patients, opioid analgesics may also be considered. Among opioids, tramadol is the most commonly used for in-office gynecologic procedures and has demonstrated greater efficacy than naproxen.[2,11] However, if an opioid is being considered, providing adequate counselling regarding associated risks and safety precautions (for example, avoidance of benzodiazepines or alcohol, ensuring a safe ride home) is required.

Options include:

- Ketorolac 20 mg orally, taken 1-2 hours before the procedure.[1,8,10,*]
- Naproxen 500 mg orally, taken 1-2 hours before the procedure[1,2]
- Ibuprofen 800 mg orally, taken 1-2 hours before the procedure.[1]
- Tramadol 50 mg orally, taken 30-60 minutes before the procedure.[2]

* Ketorolac 20 mg orally may offer superior pain relief compared with other NSAIDs[8]

Oral Anxiolytics

Benzodiazepines may be a reasonable option for specific patients experiencing high anxiety related to gynecologic procedures. Careful and appropriate patient selection is critical due to special considerations associated with benzodiazepines (i.e., controlled drug and substance). As with opioids, patients should receive counselling regarding side effects and the importance of arranging a safe ride home.

Options include:

- Midazolam 10 mg orally, taken 30-60 minutes before the procedure.[1,*]
- Lorazepam 1-2 mg sublingual, taken 20-30 minutes before the procedure.[1]
- Diazepam 5-10 mg orally, taken 1-1.5 hours before the procedure.[1]

* Midazolam is preferred due to its favourable safety profile, rapid onset, and short half-life compared to alternative benzodiazepines[1]

Topical Analgesics

Topical analgesics, such as lidocaine-prilocaine cream (EMLA®) and 10% lidocaine spray applied to the cervix have been shown to reduce pain with IUD procedures, endometrial biopsies, and office hysteroscopies.[1-3,9,12] Moreover, these agents have also shown superior pain relief compared to NSAIDs such as naproxen or ibuprofen.[8] In a double-blind, placebo-controlled RCT, 10% lidocaine spray reduced pain during IUD procedures, specifically during tenaculum placement (mean pain score 0.75 vs. 2.0, *P* = <0.001), uterine sounding (2.30 vs. 4.10, *P* = <0.001), and IUD insertion (2.95 vs. 5.00, *P* = 0.002).[13] A systematic review and meta-analysis found that lidocaine-prilocaine cream was the most effective option for reducing IUD-insertion related pain.[8] Compared with placebo, lidocaine-prilocaine cream resulted in reduced pain during tenaculum application (mean difference [MD] -2.38; 95% confidence interval [CI]; 4.07 to 2.38) and IUD insertion (MD 2.76; 95% CI; 4.61 to 0.91).[8] While topical 2% lidocaine gel administered intravaginally or to the cervix is generally not effective, it may still offer a practical option for self-administration by patients with a history of trauma, vestibulodynia, or pelvic pain, particularly to reduce discomfort associated during speculum and/or tenaculum placement.[1,2]

Options include:

- EMLA® cream (e.g., 2.5% lidocaine/2.5% prilocaine): apply 4-5 g to the cervix and cervical canal 5-7 minutes before the procedure.[1,14]
- Lidocaine 10% spray: administer via four sprays (each delivering 10 mg, for a total of 40 mg/mL/spray) to the cervix and toward the cervical canal 3 minutes before the procedure.[1,13,15]

Paracervical And Intracervical Blocks

Paracervical and intracervical blocks with lidocaine may provide effective analgesia across various pain points associated with IUD insertion and endometrial biopsy.[1-3] Paracervical blocks are placed in the cervico-vaginal junction, whereas

intracervical blocks are injected directly into the cervical tissue. Some clinicians may prefer administration of an intracervical block due to perceived ease, safety, and reproducibility.[16] However, there is more evidence supporting paracervical block for pain reduction. Paracervical blocks are more effective at reducing pain during IUD insertion compared with NSAIDs and topical lidocaine application.[3,17] A recent double-blind RCT showed that a 1% lidocaine paracervical block significantly reduced pain across all pain points compared to control (tapping the cervix). The reduction was especially notable in nulliparous patients, with pain scores significantly lower during tenaculum placement (0 vs. 3, P <0.05), uterine sounding (5 vs. 6, P <0.05), IUD deployment (5.5 vs. 7, P <0.05), and overall pain (40 vs. 60, P <0.05).[18] Additionally, patient satisfaction was higher among those who received a paracervical block, with 85% reporting satisfaction compared to 65% in the control group. Importantly, patients rated the pain associated with a paracervical block as a mean of one out of 10 (range 0-1). As such, injection-related pain should not deter clinicians from offering paracervical blocks. For endometrial biopsies, most studies show some analgesic benefit of paracervical blocks; however, intrauterine anesthetics may be more effective.[9,19]

Options include:

- **Paracervical Block:** Administer 10-20 mL of 1% or 2% lidocaine with or without 2 mL of sodium bicarbonate as a buffer. Injections should be made bilaterally at 1/2/4 and 8/10/11 o'clock positions at the cervicovaginal junction, to a depth of more than 1 cm before placement of the tenaculum.[1,2,20]
- **Intracervical Block:** Inject 3.6 mL of 1% or 2% lidocaine, with or without 2 mL of sodium bicarbonate buffer, directly at the tenaculum site.[1,16] Alternatively, inject 4 mL of 2% lidocaine directly into the cervical stroma at 3, 6, 9, and 12 o'clock positions before tenaculum placement.[1]

Intrauterine Anesthesia

Intrauterine anesthetic agents instilled through the cervix and into the endometrial cavity provide effective analgesia during procedures such as IUD insertion, endometrial biopsy, and endometrial aspiration biopsy using low-pressure suction.[9,19,21] For example, a double-blind, multi-centre, RCT found that intrauterine instillation of 10 mL mepivicaine (20 mg/mL) significantly reduced pain in nulliparous women undergoing IUD insertion compared to placebo, reducing mean visual analogue scale (VAS) pain scores by 13.3 mm on a 100 mm scale (95% CI 5.75 to 20.87; P = <0.001).[21] For endometrial biopsies, a systematic review showed that intrauterine lidocaine reduced pain relative to control (MD 1.31; 95% CI 2.70 to 0.09; P = 0.07).[19] However, the use of intrauterine anesthesia may be limited by the availability of necessary equipment as well as the technical expertise required for administration.

Options include:

- **Mepivicaine 20 mg/ml:** Instill 10 mL through a hydrosonography catheter 2 minutes before the procedure.[1,21]
- **Lidocaine 2%:** Slowly instill 5 mL over 5 minutes through a feeding catheter placed 2-3 cm distal to the endocervix in the endometrial cavity.[20]

Inhaled Anesthesia

Methoxyflurane (Penthrox®) is a self-administered inhaled analgesic/anxiolytic with few side effects and contraindications, a very short half-life, and high patient satisfaction. In small studies, methoxyflurane has been shown to significantly reduce intraprocedural pain and enhance patient satisfaction during outpatient hysteroscopy and intrauterine procedures, such as endometrial biopsy or IUD insertion/removal.[22,23] In a double-blind RCT assessing the efficacy of methoxyflurane on diagnostic hysteroscopy, methoxyflurane was associated with a mean pain score reduction of 11.5 mm/100 mm in the VAS compared to placebo (95% CI 0.08 to 22.95; P = 0.05).[24] While research specific to gynecologic procedures is limited, methoxyflurane yields promising analgesic results across other disciplines.[22] For example, methoxyflurane has been associated with pain reduction among emergency department patients undergoing a variety of procedures.[25] As such, further exploration into its effectiveness for managing pain during in-office gynecologic procedures is warranted.

Nitrous oxide is another short-acting inhaled analgesic/anxiolytic that is frequently used in office-based dental procedures. Unlike methoxyflurane, administration of nitrous oxide requires additional equipment (gas tank, tubing, and a mask/nasal prongs). In a double-blind RCT comparing nitrous oxide to oxygen in nulliparous patients undergoing IUD insertion, no statistically

significant reduction in pain was observed.[26] Further studies are needed prior to recommending nitrous oxide as an effective option for office-based gynecology procedures.

Options include:

- **Methoxyflurane (Penthrox®):** Administer 20 inhalations (10 inhalations with diluter hole closed) prior to the procedure and intermittent inhalations throughout the procedure as needed.

Misoprostol

Misoprostol is not considered an effective analgesic for IUD procedures or endometrial biopsies.[8,9] Moreover, it may be associated with increased cramping and subsequent higher pain levels during IUD procedures.[2] However, misoprostol may be a reasonable option for patients at risk for failed or challenging insertions where cervical softening may be helpful (e.g., cervical stenosis).[1]

Options include:

- **Misoprostol:** Administering 400 mcg buccally or vaginally 3-4 hours before the procedure may be helpful.[1]

Conclusion

Care providers should be well-versed about the full range of pain management strategies available for office-based gynecologic procedures. Taking the time to discuss these options with patients can significantly enhance their overall experience and increase the acceptability and uptake of these important interventions.

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Financial Disclosures

A.G.: Bayer
A.K.: None declared.
M.S.: Bayer

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