Final Mini-CAT **Name: Jordan Villaruel**

CLINICAL QUESTION:

A 32-year-old G3P3 female presents to the OBGYN clinic 6 weeks postpartum for contraception counseling. She decides to go with the IUD because it is the most effective, long lasting, and reversible. Her only apprehension to the IUD insertion is that it may be painful so, she asks for local anesthetics. However, current standard of practice for IUD insertion does not require, nor recommend use of local anesthesia.

PICO QUESTION:

For women receiving an intrauterine device (IUD), do local anesthetics reduce IUD insertion pain?

PICO SEARCH TERMS:

P	**I**	**C**	**O**
Women receiving IUDs	Local anesthesia	Current standard practice	Reduced IUD insertion pain
Women having IUD insertion	Lidocaine	No local anesthesia	Reduced IUD procedural pain
	Paracervical block	No lidocaine	Reduce pain
	Pain control	NSAIDs	Reduced discomfort

SEARCH STRATEGY:

Database Results:

1. PubMed
    - Local anesthesia for IUD insertion → 44
        - Filters: 5 years, meta-analysis, systematic review, RCT → 5
        - Filters: 10 years, meta-analysis, systematic review, RCT → 10
    - Lidocaine for IUD insertion → 34
        - Filters: 5 years, meta-analysis, systematic review, RCT → 16
        - Filters: 10 years, meta-analysis, systematic review, RCT → 29
    - Local anesthesia for IUD procedure pain relief→ 58
        - Filters: 5 years, meta-analysis, systematic review, RCT → 2
2. Google Scholar
    - Local anesthesia for IUD insertion → 3,940
        - Filters: 5 years, sort by relevance, review article → 774
    - Lidocaine for IUD insertion pain→ 1,660
        - Filters: 5 years, sort by relevance, review article → 506
3. ScienceDirect
    - Local anesthesia for IUD insertion → 583
        - Filters: 5 years, sort by relevance, research article → 68
    - Lidocaine for IUD insertion pain → 211
        - Filters: 5 years, sort by relevance, research article → 52
4. Wiley Online Library

- Local anesthesia for IUD insertion → 568
    - Filters: 5 years, sort by relevance, journal article → 89

Selection Process:
I narrowed down the results by looking for studies that focused on local anesthesia providing pain relief during IUD insertion. I aimed to make sure the articles gave special attention on comparing pain rates in current standard IUD practice versus IUD with anesthetic use (topical or injection). To further narrow down my results, I made sure articles were recent within the last 5 years and were either meta-analysis, systematic review, or RCT. I began to narrow down the choices by choosing articles with relevant titles and briefly assessing the abstract. I wanted studies that were relevant to my scenario, therefore I looked for studies done in the U.S. My selection process includes the most relevant and highest level of evidence to answer if local analgesia will be beneficial in reducing pain during IUD procedure.

ARTICLES CHOSEN:

Article #1 Reducing Pain During Intrauterine Device Insertion: A Randomized Controlled Trial in Adolescents and Young Women

Citation: Akers, Aletha Y. MD, MPH; Steinway, Caren MSW, MPH; Sonalkar, Sarita MD; Perriera, Lisa K. MD, MPH; Schreiber, Courtney MD, MPH; Harding, Jennifer MPA; Garcia-Espana, J. Felipe PhD Reducing Pain During Intrauterine Device Insertion, Obstetrics & Gynecology: October 2017 - Volume 130 - Issue 4 - p 795-802 doi: 10.1097/AOG.0000000000002242
Type of Study: Randomized Controlled Trial
Abstract: ***Objective***: To estimate the effect of a 1% lidocaine paracervical nerve block on pain during intrauterine device (IUD) insertion compared with a sham block in adolescents and young women. ***Methods***: We conducted a multisite, single-blind, sham-controlled randomized trial in adolescents and young women having a 13.5-mg levonorgestrel IUD inserted. Enrollment occurred at three family planning clinics in Philadelphia, Pennsylvania. Eligible adolescents and young women were aged 14–22 years, nulliparous, not currently or recently pregnant, and English-speaking. Participants were randomized using computer- generated allocation in block sizes of four to receive a 10-mL 1% lidocaine paracervical block or a sham block (1 cm depression of the vaginal epithelium at paracervical block sites with a wooden cotton-tipped applicator). Only patients were blinded. The primary outcome was pain after IUD insertion measured with a 100-mm visual analog scale. Using a two-sided t test and assuming a 20-mm difference in visual analog scale scores, a SD of 28 mm, an a of 0.05, and 90% power, a sample of 43 participants per group was estimated. ***Results***: Between March 2015 and July 2016, 95 participants enrolled (47 lidocaine block group; 48 sham block group). All were included in the analysis. Forty- four percent were white, 36% black, 65% privately insured, and 79% previously used contraception. The median visual analog scale score after IUD insertion was 30.0 (95% CI 20.0–58.0) in the lidocaine block group and 71.5 (95% CI 66.0–82.0) in the sham block (P,.001). ***Conclusion***: A 10-mL 1% lidocaine paracervical nerve block reduces pain during IUD insertion in adolescents and young women compared with a sham block with pressure on the vaginal epithelium.
Link: https://pubmed.ncbi.nlm.nih.gov/28885425/

Article # 2 Paracervical Block for Intrauterine Device Placement Among Nulliparous Women: A Randomized Controlled Trial

Citation: Mody SK, Farala JP, Jimenez B, Nishikawa M, Ngo LL. Paracervical Block for Intrauterine Device Placement Among Nulliparous Women: A Randomized Controlled Trial. *Obstet Gynecol*. 2018;132(3):575-582. doi:10.1097/AOG.0000000000002790

Type of Study: Randomized Controlled Trial

Abstract:
Objective: To investigate if 20 cc buffered 1% lidocaine paracervical block decreases pain during intrauterine device (IUD) placement.
Methods: In a randomized, single-blind, placebo-controlled trial, women were assigned to receive either 20 cc buffered 1% lidocaine paracervical block or no block prior to IUD placement. The primary outcome was pain with IUD placement measured on a 100 mm visual analog score (VAS). Our sample size had 80% power (α=0.05) to detect a 20 mm difference in VAS scores with a standard deviation of 28 mm. Secondary outcomes included pain with speculum placement, paracervical-block administration, tenaculum placement, 5 minutes post-procedure, and overall pain perception.
Result: From October 7, 2014, through October 26, 2017, 64 women were enrolled and analyzed (33 in paracervical-block arm, 31 in no-block arm). There were no differences in baseline demographics between the groups. Women who received the paracervical block reported less pain with IUD placement compared to women who received no block (median VAS score of 33 mm compared with 54 mm, p=0.002). Pain was significantly less in the intervention group for uterine sounding (30 mm compared with 47 mm, p=0.005), 5 minutes after placement (12 mm compared with 27 mm, p=0.005) and overall pain perception (30 mm compared with 51 mm, p=0.015). Participants who received the paracervical block experienced more pain with block administration compared to placebo (30 mm compared with 8 mm, p=0.003). There was no perceived-pain difference for speculum insertion (10 mm compared with 6 mm, p=0.447) or tenaculum placement (15 mm compared with 10 mm, p=0.268).
Conclusion: 20 cc buffered 1% lidocaine paracervical block decreases pain with IUD placement (primary outcome), uterine sounding (secondary outcome), and 5 minutes after placement (secondary outcome). While paracervical block administration can be painful, perception of pain for overall IUD placement procedure is lower compared to no block. Paracervical block decreases pain with intrauterine device placement among nulliparous women.

Link: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6438819/

Article # 3: Intracervical Block For Levonorgestrel-Releasing Intrauterine System Placement Among Nulligravid Women: A Randomized Double-Blind Controlled Trial

Citation: De Nadai MN, Poli-Neto OB, Franceschini SA, et al. Intracervical block for levonorgestrel-releasing intrauterine system placement among nulligravid women: a randomized double-blind controlled trial. *Am J Obstet Gynecol*. 2020;222(3):245.e1-245.e10. doi:10.1016/j.ajog.2019.09.013

Type of Study: Randomized Controlled Trial

Abstract:

Background: Fear of pain during the insertion of intrauterine contraceptives is a barrier to using these methods, especially for nulli- gravidas. An intracervical block may be easier and more reproducible than a paracervical block; however, this intervention has not been evaluated in nulligravid women to reduce pain with intrauterine contraceptive insertion.
Objective: To evaluate whether a 3.6-mL 2% lidocaine intracervical block reduces pain at tenaculum placement and levonorgestrel-releasing intrauterine system insertion among nulligravidas; and, in addition, to assess whether the intracervical block has any effect on the ease of device insertion and on the overall experience with the procedure.
Methods: In this randomized double-blind controlled trial, nulligravidas were block-randomized to 1 of 3 arms prior to 52-mg levonorgestrel-releasing intrauterine system insertion: 3.6- mL 2%-lidocaine intracervical block, sham injection (intracervical dry- needling), or no intervention. The primary outcome was pain at levonorgestrel-releasing intrauterine system insertion. Secondary out- comes were pain at tenaculum placement, ease of insertion (assessed by healthcare providers), and the overall experience with the procedure (pain with levonorgestrel-releasing intrauterine system insertion compared with expectations, discomfort level, wish to undergo another device insertion in the future, and recommendation of the procedure to others). Participants' pain was measured with a 10-cm visual analogue scale and a 5-point Faces Pain Scale. Pain was summarized into categories (none, mild, moderate, severe) and also analyzed as a continuous variable (mean and 95% confidence interval). Our sample size had 80% power (a 1⁄4 0.05) to detect a 15% difference in pain score measured by visual analogue scale (mean [standard deviation] visual analogue scale score 1⁄4 5.9 [2.0] cm) and an absolute difference of 20% in the proportion of women reporting severe pain at levonorgestrel-releasing intrauterine system insertion among groups. We used a c2 test and a mixed-effects linear regression
model. We calculated the number needed to treat for the intracervical block to avert severe pain at tenaculum placement and levonorgestrel- releasing intrauterine system insertion.
Results: A total of 302 women were randomized (99 to the intra- cervical block, 101 to the intracervical sham, and 102 to no intervention), and 300 had a successful device insertion. The intracervical block group had fewer women reporting severe pain than the other groups, both at tenaculum placement (intracervical block: 2% vs sham: 30.2% vs no intervention: 15.2%, P < .0001) and at levonorgestrel-releasing intra- uterine system insertion (intracervical block: 26.5% vs sham: 59.4% vs no intervention: 50.5%, P < .0001). The mean (95% confidence interval) pain score reported at levonorgestrel-releasing intrauterine system insertion was lower in the intracervical block group than in the other groups (intracervical block: 4.3 [3.8e4.9] vs sham: 6.6 [6.2e7.0], P < .0001; intracervical block: 4.3 [3.8e4.9] vs no intervention: 5.8 [5.3e6.4], P < .0001). Women from the intracervical block group re- ported less pain than expected (P < .0001), rated the insertion as less uncomfortable (P < .0001), and were more willing to undergo another device insertion in the future (P < .01) than women in the other groups. The ease of insertion were similar among groups. The number needed to treat for the intracervical block to avert severe pain at tenaculum place- ment and levonorgestrel-releasing intrauterine system insertion was 2 and 4, respectively.
Conclusions: A 3.6-mL 2% lidocaine intracervical block decreased pain at tenaculum placement and levonorgestrel-releasing intrauterine system insertion among nulligravidas. It also provided a better overall experience during the procedure.

Link: https://pubmed.ncbi.nlm.nih.gov/31541635/

Article # 4 Alleviating Pain with IUD Placement: Recent Studies and Clinical Insight

Citation: Sandoval, S., Meurice, M.E., Pebley, N.B. *et al.* Alleviating Pain with IUD Placement: Recent Studies and Clinical Insight. *Curr Obstet Gynecol Rep* 11**,** 12–20 (2022). https://doi.org/10.1007/s13669-022-00324-9

Type of Study: Literature Review

Abstract:
Purpose of Review*:* The pain associated with intrauterine device placement (IUD) may decrease uptake of this highly effective form of contraception. The purpose of this review is to present recently studied methods and techniques employed by clinicians to reduce pain with IUD placement.
Recent Findings: Paracervical and intracervical lidocaine blocks are effective options for pain control during IUD placement. Lidocaine blocks are particularly effective in nulliparous patients during IUD placement. Topical or vaginal lidocaine are not effective in decreasing pain with IUD placement.
Summary*:* Based on the existing published literature and our clinical experience, we recommend clinicians use several modalities to decrease pain associated with IUD placement. For nulliparous women, we recommend an intracervical or paracervical lidocaine block prior to IUD placement. Misoprostol use should be limited to when a patient had a prior unsuccessful IUD placement attempt or known cervical stenosis. NSAIDs can help with post-procedure pain but do not help with pain during the placement.

Link: https://link.springer.com/article/10.1007/s13669-022-00324-9

Article # 5 Comparison of Interventions for Pain Control with Tenaculum Placement: A Randomized Clinical Trial

Citation: Goldthwaite, L. M., Baldwin, M. K. & Bednarek, P. H. (2014). Comparison of interventions for pain control with tenaculum placement: A randomized clinical trial. *Contraception*, *89*(3), 229–233. https://doi.org/10.1016/j.contraception.2013.11.018

Type of Study: Randomized Controlled Trial

Abstract:
Objective: Although previous studies have demonstrated that a variety of local anesthetics are effective to decrease pain associated with tenaculum placement, no studies directly compare an injection with a topical anesthetic. The objective of this study was therefore to compare mean pain scores with tenaculum placement after an intracervical lidocaine injection or topical lidocaine gel.

Study Design: A randomized, single-blinded trial of women presenting for office gynecologic procedures that required a tenaculum. Women aged 18 years or older were randomized to receive either a 1% lidocaine intracervical injection or topical application of 2% lidocaine gel to the cervix immediately prior to tenaculum placement. The primary outcome was pain at the time of tenaculum placement, measured on a 100 mm Visual Analog Scale. Secondary outcomes included pain with the intervention and satisfaction with tenaculum placement.

Results: Seventy-four women were enrolled and randomized; 35 subjects in each group met criteria for analysis. The two groups had similar socio-demographic characteristics. Women who received the injection had lower mean pain levels at tenaculum placement [12.3 mm (S.D. 17.4 mm) versus 36.6 mm (S.D. 23.0 mm), pb.001] but higher mean pain levels with study drug application [20.4 mm (S.D.

19.4 mm) versus 5.9 mm (S.D. 8.6 mm), pb.001]. Satisfaction with tenaculum placement was similar for the two groups.

Conclusion: Mean pain with tenaculum placement is lower after receiving a lidocaine injection than after receiving a topical lidocaine gel. Satisfaction with tenaculum placement is similar with both interventions.

Link: https://www.contraceptionjournal.org/article/S0010-7824(13)00741-5/fulltext

SUMMARY OF THE EVIDENCE:

Author (Date)	Level of Evidence	Sample/Setting (# of subjects/ studies, cohort definition etc.)	Outcome(s) studied	Key Findings	Limitations and Biases
Article 1: Akers A, Steinway C, Sonalkar S, et al. (2017)	Randomized Controlled Trial	Authors utilized a multisite, single-blind, sham-controlled randomized trial conducted at three clinics in Phila-delphia, Pennsylvania, from March 2015 to July 2016 that involved one study visit Selection criteria: Eligible participants were aged 14–22 years, nulliparous, not pregnant currently or in the prior 6 weeks, interested in the Skyla IUD (13.5-mg levonorgestrel IUD), and English-speaking. The cutoff of 22 years, rather than 24 years, was chosen to minimize the number of older, young adult women.	Reported pain during IUD insertion with lidocaine-block vs. placebo Overall patient satisfaction with analgesia interventions during IUD. Participants were asked to rate their pain using a 100-mm visual analog scale (VAS) immediately after seven procedural steps: 1) baseline after placement of the 2) speculum, 3) tenaculum, 4) block, 5) uterine sound, and 6) IUD, and	Compared with the sham block group, the lidocaine block group reported less pain with IUD insertion. The median pain reported during the entire procedure was also significantly less in the lidocaine block group compared with the sham block When pain reported at each step of the procedure was compared, VAS pain scores were lower in the lidocaine block group compared with the sham block group from tenaculum placement through all subsequent assessment point Because low rates of IUD use among young women are largely driven by concerns about pain during the procedure, this study fills an important gap in the literature.	The sample was largely white, highly educated, insured, young adults from an urban setting with low rates of IUD use who were using the smallest IUD currently available. Effectiveness of a cervical block among adolescents specifically and among higher risk populations (eg, uninsured, homeless, or seeking confidential contraceptive services), those using larger IUDs, or from settings with higher rates of IUD deserve

		95 participants, 47 lidocaine block group; 48 sham block group Only patients were blinded to group assignment.	7) 5 minutes after speculum removal. Participants rated their pain using an iPad by touching a line anchored from no pain (0 mm) to worst pain in my life (100 mm)	However, overall satisfaction with the IUD insertion procedure did not differ. This is an important finding given that when a lidocaine block is performed, IUD procedures take longer and may be associated with more side effects and higher cost.	further exploration. Research staff who facilitated collection of the primary outcome and post-procedure participant data were not blinded to group assignment.
Article 2: Mody SK, Farala JP, Jimenez B, Nishikawa M, Ngo L (2018)	Randomized Controlled Trial	Authors searched recruited 67 women from University of California, San Diego and Planned Parenthood of the Pacific Southwest. Selection criteria: Nulliparous women 18 to 45 years of age presenting for an IUD placement for contraception or treatment of abnormal uterine bleeding were approached to participate in this study. Exclusion criteria included pregnancy, any diagnosed chronic pain issues bias From October 2014, through October 2017, 64 women were enrolled and analyzed (33 in paracervical-block arm, 31 in no-block arm).	Reported pain during IUD insertion with lidocaine-block vs. placebo The outcome of interest was the participant's pain on a visual analog scale (VAS) from 0 mm (no pain) to 100 mm (worst pain imaginable) at various steps during the IUD placement	This article addresses the fact that there is no standard of care for pain management with IUD placement among adult nulliparous women. Lidocaine administered locally via a paracervical block decreases pain with placement of the most commonly used IUDs, LNG 52 mg (Mirena) and CuT380A (Paragard) - which are the most commonly utilized IUDs in the United States. Participants in the no paracervical block group more often reported IUD placement pain was worse than expected pain while participants in the paracervical group more often reported no pain or pain not as bad as expected Paracervical block typically does cause some pain but that the paracervical block reduces pain with IUD placement, pain 5 minutes after the procedure, and	Limitations of this study include the lack of diversity in age, race, and education level. The study had an under representation of African American participants compared to the national population, although representative of local demographics.

				perceived pain for the overall procedure.	
Article 3: De Nadai MN, Poli-Neto OB, Franceschini SA, et al. (2019)	Randomized Controlled Trial	Total of 302 women were randomized (99 to the intracervical block, 101 to the intracervical sham, and 102 to no intervention), and 300 had a successful device insertion. Selection criteria: Nulligravid women who desired to use the 52-mg LNG-IUS (20-mg/d initial release) (Mirena, Bayer Oy, Turku, Finland) as a contraceptive, who were 18-45 years of age and who had never used any IUC, were included in the study. Excluded women with medical conditions considered category 3 or 4 for LNG-IUS use according to the World Health Organization (WHO) medical eligibility criteria and women who had allergies or contraindications to lidocaine.	Primary outcome was pain at levonorgestrel-releasing intrauterine system insertion. Secondary out-comes were pain at tenaculum placement, ease of insertion, and the overall experience with the procedure Participants' pain measured with a 10-cm visual analogue scale (VAS) and a 5-point Faces Pain Scale. Pain was divided into categories (none, mild, moderate, severe).	A 3.6-mL 2% lidocaine intracervical block decreased pain at tenaculum placement and LNG-IUD insertion in nulligravid women, and improved overall experience with the procedure. It is the largest study to assess the use of local injectable lidocaine for IUC insertion among nulligravid women. However, almost half of the participants with no intervention did not report severe pain. Therefore, even among nulligravidas, who are at higher risk for experiencing severe pain, the intracervical block should not be routinely performed at IUC insertion. Instead, it should be offered as an option to reduce pain and discomfort associated with the procedure.	Limitations of this study included the lack of diversity in terms of participants' race, income, and schooling. Excluded those individuals less than 18 years or with any prior pregnancies, it automatically selected for women with higher education attainment and socioeconomic status, as well as for fewer black women. Also excluded some conditions that could interfere with pain perception, such as chronic pelvic pain and psychiatric disorders. These exclusions and the lack of diversity may compromise the generalizability of our results.
Article 4: Sandoval S, Meurice ME, Pebley NB	Literature Review	Authors searched Cochrane Central Register of Controlled Trials (CENTRAL), from 2010 to 2021	Reported pain during IUD insertion with different lidocaine techinques.	As pain with IUD placement may be a barrier to patient uptake, efforts to decrease pain with placement continue to be a priority.	None reported except for conflict of interest with primary author. He is a

(2022)		Selection criteria: RCTs that compared pain prior to placement during IUD placement, and post IUD after analgesic intervensions.. Trials were required to have at least 1 follow-up measurement of pain. 10 trials comprising 1100 participants all from the USA that were subject to 5 different analgesic interventions (topical lidocaine, paracervical and intracervical blocks, only NSAIDs, and placebo)	Most researchers evaluating pain with IUD insertion utilize the visual ana-logue scale (VAS) to measure pain perception.	NSAIDs does not decrease pain with IUD placement but do to help decrease post procedural pain and cramping. Although lidocaine gel has not been found to provide significant pain relief with IUD placement, lidocaine block with both paracervical and intracervical blocks does decrease pain. Current practice does not include peri-procedural pain management, but clinicians should look to make paracervical lidocaine a common IUD practice given recent studies of its effectiveness.	consultant for Bayer, is a Merck Nexplanon trainer and is an UpToDate Author. The other authors have no conflict of interest to report.
Article 5: Goldthwaite L, Baldwin MK, & Bednarek (2014)	Randomized Controlled Trial	Authors conducted a single-blinded clinical trial from August 2011 to May 2012 at the Center for Women's Health at Oregon Health & Science University. Selection criteria: Women aged 18 years and older who were scheduled to undergo IUD placement or endometrial biopsy. Exclusion criteria included (1) allergy to lidocaine or other local anesthetics; (2) pregnancy; (3) patients pre-	The primary outcome was pain at the time of tenaculum placement. Secondary outcomes included pain with the intervention and satisfaction with tenaculum placement. Subjects rated their pain just prior to and during the tenaculum	This study found that the use of a lidocaine injection prior to tenaculum placement is beneficial for pain control compared to lidocaine gel despite being more painful to apply. This study found that mean pain with tenaculum placement is approximately 3 times lower after receiving a lidocaine injection than after receiving a topical lidocaine gel. This finding was in the setting of a standard procedural flow with no wait time after the intervention.	Limitations include potential selection bias, difficulty with blinding the intervention, timing of the intervention for maximal effect, and the limitations inherent in measuring pain.

		medicated with misoprostol; and (4) patients with a chronic pain condition for which they were taking daily pain meds of any kind. 74 women were enrolled and randomized; 35 subjects in each group met criteria for analysis.	placement procedure using a 100 mm VAS	It is likely that the gel would be more effective in decreasing pain at the time of tenaculum placement with a longer wait time between application of the gel and placement of the tenaculum. Satisfaction with tenaculum placement was similar with both interventions.	

CONCLUSIONS:

Article 1:

1% lidocaine paracervical nerve block reduced pain among nulliparous women during insertion of a hormonal IUD compared with a sham block. The lidocaine block group reported less pain at each step of the with IUD procedure when compared with the placebo group.

Article 2:

This is one of the few studies to demonstrate an intervention that helps decrease pain with IUD placement and which should be offered to nulliparous women presenting for IUD placement.

Article 3:

Using a lower dose of lidocaine than reported with paracervical blocks, this study showed that a lidocaine intracervical block reduced pain at tenaculum placement and LNG-IUS insertion among nulligravidas.

Article 4:

NSAIDs does not decrease pain with IUD placement but do to help decrease post procedural pain and cramping . 600–800 mg of oral ibuprofen for post procedural pain is recommended. Although lidocaine gel has not been found to provide significant pain relief with IUD placement, lidocaine block with both paracervical and intracervical blocks does decrease pain

Article 5:

The single tooth tenaculum is a commonly used instrument in outpatient gynecologic procedures such as intrauterine device placement, endometrial biopsy, dilation and curettage, and hysteroscopy. Tenaculum application to the cervix can cause discomfort. This study found that the use of a lidocaine injection prior to tenaculum placement is beneficial for pain control com- pared to lidocaine gel despite being more painful to apply. Satisfaction with tenaculum placement was similar with both interventions.

Overarching:

Pain with gynecologic procedures is a potential barrier to women seeking care. Currently, there is no standard of care for pain management with IUD placement among adult nulliparous women. Overall, the articles overarchingly concluded that paracervical and intracervical lidocaine blocks are effective options for pain control during IUD placement. Lidocaine blocks are particularly effective in nulliparous patients during IUD placement. Topical or vaginal lidocaine are not as effective as injection in decreasing pain with IUD placement.

CLINICAL BOTTOM LINE:

The clinical bottom line derived from current studies is that local anesthesia reduces pain during IUD insertion and contributes to a more satisfying experience. Articles 1, 2, and 3 were all RCTs that provided viable evidence to support this conclusion. These studies demonstrate that local application of lidocaine to the cervix has shown significant decrease in pain during an IUD placement. Currently, there is no standard of care for pain management during an IUD insertion. Standard practice today includes prophylactic and post-procedural NSAIDs. This is unfortunate because fear of pain is the biggest barrier to IUD placement and proper family planning. Overall, the evidence presented here is applicable to my clinical scenario and all women seeking IUD contraception. The significance of this data can be used to clinically recommend that local anesthesia has a place in common IUD practice as it effectively reduces pain upon insertion.

Weight of Evidence:

Article 1:

This is a 2017 randomized controlled trial that studied the comparison of local cervical anesthesia versus local placebo during IUD insertion. As such, the evidence is certainly current. The article studied 95 nulliparous women receiving the levonorgestrel IUD. 47 women were in the lidocaine block group and the other 48 women sham block group (placebo with normal saline). All of which were randomized, had successful IUD insertions, and included in the analysis. 44% percent were white, 36% black, 65% privately insured, and 79% previously used contraception. The article acknowledged that the most effective method for pain control during IUD insertion in nulliparous women is unknown, so it made attempts to address this. Overall, this article shows weight because it primarily estimated the effectiveness of a 1% lidocaine paracervical nerve block on pain during IUD insertion compared with a sham block in nulliparous adolescents and young women.

Article 2:

This article was chosen because it is a 2018 RCT that studied the comparison of reported pain with lidocaine paracervical block versus a placebo during IUD placement. As such, the evidence is certainly current. 64 women were enrolled and analyzed (33 in paracervical-block arm, 31 in no-block arm). There were no differences in baseline demographics between the groups and randomization was employed. This article was particularly selected because it looked examined pain scores at different intervals - during IUD placement (primary outcome), uterine sounding (secondary outcome), and 5 minutes after placement (secondary outcome). Overall, this article carries weight because it is an RCT that studied how lidocaine would decrease pain upon IUD placement.

Article 3:

This 2020 RCT was chosen because it investigated the comparison of IUD pain relief with paracervical blocks versus intracervical block. As such, the evidence is certainly current. Most of the studies to date have examined the benefit of paracervical anesthesia versus placebo. Unlike the paracervical block, which is a peripheral nerve block, the intra- cervical block acts as an infiltrative anesthetic by distending the tissues, causing mechanical disruption of neural impulses. Theoretically, this requires a less precise injection than a nerve block and may be easier and more reproducible. Overall, this article carries weight because a total of 302 women were randomized among no intervention vs intracervical lidocaine vs paracervical lidocaine groups and it assessed overall satisfaction of experience, which no other study has examined.

Article 4:

This 2022 carries weight because there is no other high quality (recent and American published) systematic review or meta-analysis that addresses the effect of local anesthetics in an IUD procedure. As such, the evidence is certainly current. I wanted to include the next best article I could find, which was a literature review on current recommendations to standard IUD practices and how lidocaine should be incorporated in common practice. As a whole, it addresses pain perspectives and how it can vary by

demographics and the use of other pain relief interventions beyond paracervical lidocaine treatment. The purpose of this article is to review recent literature on these techniques and outline best practices for the placement of IUDs and to describe our experience and expertise from an academic family planning practice.

Article 5:

This is 2014 American randomized controlled trial and it is one of the only studies that compared the effect of mean pain scores with tenaculum placement after an intracervical lidocaine injection or topical lidocaine gel. As such, the evidence is certainly current. Women aged 18 years or older were randomized to receive either a 1% lidocaine intracervical injection or topical application of 2% lidocaine gel to the cervix immediately prior to tenaculum placement. Overall, this RCT carries weight because it is relevant to the target population and it determined the most effective technique for analgesia before cervical tenaculum placement.

Magnitude of Any Effects:

Article 1:

The median VAS score immediately after IUD insertion was lower in the lidocaine block group compared with the sham block (30.0 mm [95% CI 20.0–58.0] compared with 71.5 mm [95% CI 66.0– 82.0], P,.001). Analysis of the secondary outcomes found that the VAS scores across all six VAS assessments were lower in the lidocaine block group compared with the sham block group in the unadjusted (27.7 [95% CI 16.0–40.2] compared with 53.9 [95% CI 44.0–57.8], P,.001)

Article 2:

For the primary outcome of VAS score for IUD placement, the median pain score was less for the paracervical block group compared to the no paracervical block group (33 mm versus 54 mm, p = 0.002). Median pain scores were also less for the secondary outcomes of uterine sounding (30 mm versus 47 mm, p = 0.005), 5 minutes after IUD placement (12 mm versus 27 mm, p = 0.005), and overall pain perception for the procedure (30 mm versus 51 mm, p < 0.05). Pain with paracervical block administration was higher for the intervention group compared to the no paracervical block group (30 mm versus 8 mm, p = 0.003)

Article 3:

Severe pain at tenaculum placement was less frequent in the intracervical group compared to the other groups (intracervical block: 2% vs sham: 30.2% vs no intervention: 15.2%, P < .0001). The mean (95% CI) pain score at tenaculum placement was lower in the intracervical block group than in other groups (intracervical block: 2.2 [1.8e2.7] vs sham: 4.8 [4.4e5.3], P < .0001; intracervical block: 2.2 [1.8e2.7] vs no intervention: 4.2 [3.7e4.6], P < .0001]. 62.8%, 25%, and 36.7% of the participants in the intracervical block, sham, and no- intervention groups, respectively, rated their pain as lower than expected (P < .0001)

Article 4:

Pain with placement in the treatment was significantly lower than with placebo (median VAS pain score 33 mm versus 54 mm, p = 0.002). The paracervical block group reported more pain at time of the block (p = 0.003), but less pain at the time of uterine sounding (p = 0.005), 5 min after the procedure (p = 0.005), and overall pain with the procedure (p < 0.05)

Article 5:

Women who received the lidocaine injection reported significantly greater mean pain compared to women who received the lidocaine gel at the time of the study drug application to the cervix [20.4 mm (S.D. 19.4 mm) versus 5.9 mm (S.D. 8.6 mm), pb.001]. However, women who received the injection had significantly less pain at the time of tenaculum placement [12.3 mm (S.D. 17.4 mm) versus 36.6 mm (S.D. 23.0 mm), p<.001]. Median satisfaction with tenaculum placement was high in both groups [injection: 79.9 mm (S.D. 22.7 mm), gel: 74.6 mm (S.D. 27.6 mm), p=.38].

Clinical Significance:

Unintended pregnancy accounts for approximately 50% of pregnancies in the United States with 40% of those ending in induced abortion. Long-acting reversible contraception (LARC), such as IUDs are associated with higher contraceptive effectiveness and lower rates of discontinuation when compared to other reversible methods. One of the main concerns with IUDs utilization is that the insertion procedure can cause exquisite. During IUD insertion, pain may be felt during various stages of the procedure, including the vaginal examination, placement of the speculum, tenaculum use, traction of the uterus, and insertion of the IUD. As stated previously, there is no current standard of care for pain management with IUD placement. Minimizing discomfort (beyond prophylactic NSAIDs) at insertion will reduce barriers and thus expand access to this highly effective method of contraception. Current evidence has concluded successful pain reduction with paracervical and intracervical lidocaine injections. The evidence gathered here should warrant a reconciliation of the current standard of care to include application of lidocaine in IUD insertions as well as other painful in-office gynecological procedures.

Other Considerations:

Future research should continue to explore other techniques and materials of strong anesthetics in IUD insertions. Only a handful of recent studies are aimed at gel, spray, and injection with lidocaine. Current literature should also employ more higher quality articles to include systematic reviews and meta-analysis. It would be useful to study the effects of patient education because that also poses a barrier to this form of contraception. Although current evidence has shown clinical significance, more larger scale trials should be performed to gain more traction and higher consideration in among OBGYN practitioners.