Effective analgesic options for intrauterine device placement pain

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Clinical Inquiries question

What analgesic options are most effective for pain related to intrauterine device (IUD) placement?

Evidence-based answer

Lidocaine-prilocaine cream (LPC; 2.5% lidocaine and 2.5% prilocaine) reduces the pain of tenaculum placement by 24% and IUD insertion by 28% (strength of recommendation [SOR] A: consistent meta-analyses of randomized controlled trials [RCTs]). Giving 600 µg of vaginal misoprostol 6 hours before insertion and applying 4% viscous lidocaine solution to the cervix within 5 minutes of IUD placement might reduce pain, but by less than 20% (SOR B: RCTs). Pretreatment with 2% topical lidocaine gels, 400 µg of misoprostol, or ibuprofen is not effective in reducing pain (SOR A: meta-analyses of RCTs). Buffered lidocaine paracervical blocks might also be helpful to reduce overall pain (SOR C: conflicting meta-analyses and an RCT).

Evidence summary

Effective—LPC. A 2019 systematic review and network meta-analysis included 38 RCTs of pain management interventions for women undergoing IUD placement (N = 6314).[1] Interventions included LPC, mucosal lidocaine, misoprostol, naproxen, and paracervical block. Lidocaine-prilocaine cream was more effective for pain relief than all other interventions; compared with placebo, LPC reduced pain of tenaculum placement by 24% and pain from IUD insertion by 28% (**Table 1**).[1-5] Lidocaine-prilocaine cream had no effect on postprocedural pain. The meta-analysis concluded that no other intervention was effective; however, the analysis combined all data for doses and routes of lidocaine and misoprostol, possibly masking other effective protocols using these agents. This conclusion for the effectiveness of LPC matched the findings of a standard 2018 meta-analysis of 2 RCTs with 216 participants.[2] Both meta-analyses incorporated the same 2 LPC trials.

Possibly effective—600 µg of misoprostol, 4% lidocaine gel. Two relatively large RCTs (each with more than 100 participants and both were included in the 2019 network meta-analysis[1]) identified analgesic options that might be helpful. The first RCT (N = 120) compared 600 µg of misoprostol to placebo, both given vaginally 6 hours before IUD insertion.[3] All participants in this study had previous cesarean sections. Misoprostol reduced pain from insertion by about 8% (**Table 1**).[1-5] The second RCT (N = 218) compared a 4% topical viscous lidocaine solution (ie, 4% lidocaine gel) to placebo in nulliparous women.[4] The lidocaine solution was placed on the cervix within 5 minutes of IUD insertion. The lidocaine solution decreased postprocedural pain at 10 minutes by about 16% (**Table 1**).[1-5]

Not effective—400 µg of misoprostol, 2% topical lidocaine gel, ibuprofen. A 2015 systematic review and meta-analysis evaluated interventions for pain with IUD placement with more granularity than the other meta-analyses described above.[5] It identified 4 RCTs (N = 400) where participants were pretreated with 400 µg of misoprostol or placebo that used various routes and timing. The 400-µg misoprostol dose produced a small but statistically significant increase in pain with IUD insertion (**Table 1**).[1-5] Additionally, meta-analysis of 2% topical lidocaine gel found no effect on pain due to tenaculum placement (2 RCTs; N = 345) or IUD insertion (3 RCTs; N = 409). This review also identified 4 RCTs (N = 2018) that compared oral ibuprofen in doses ranging from 400 mg to 800 mg with placebo; the interventions were administered within a range of 30 minutes to 4 hours before the procedure. Individually, none of the studies showed a benefit for ibuprofen therapy; however, a meta-analysis was not performed.

Paracervical blocks. In the 2019 and 2018 systematic reviews, paracervical blocks using 1% or 2% lidocaine did not result in statistically significant reductions in pain during any stage of IUD insertion.[1,2] However, a recent RCT (N = 64) investigated use of a 1% lidocaine paracervical block buffered with sodium bicarbonate.[6] Participants reported 22% more pain with block administration compared with placebo ($P = .003$), and there was no significant difference in pain between the 2 arms with the placement of the tenaculum ($P = .268$). Moreover, participants in the intervention group (n = 33) reported 17% less pain with uterine sounding ($P = .005$), 21% less pain with IUD placement ($P = .002$), 15% less pain 5 minutes after the procedure ($P = .005$), and 21% less overall pain ($P = .015$).

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Competing interests
None declared

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Table 1. Analgesic options for pain reduction from IUD insertion in recent meta-analyses or individual RCTs with more than 100 participants

TECHNIQUE	STUDY DESIGN	NO. OF PARTICIPANTS	PAIN CHANGE WITH TENACULUM	PAIN CHANGE AT IUD INSERTION	PAIN CHANGE POST PROCEDURE
Effective options*					
• LPC[1]	Network MA of 38 RCTs	6314	-2.38 (-4.07 to -0.68)	-2.76 (-4.61 to -0.91)	-2.0 (-4.52 to 0.52)
• LPC[2]	MA of 2 RCTs	216	-2.32 (-3.07 to -1.57)	-2.77 (-4.28 to -1.26)	NA
Possibly effective options†					
• Misoprostol, 600 µg[3]	1 RCT	120	NA	-0.8 (-1.2 to -0.4)	NA
• 4% lidocaine gel[4]	1 RCT	218	NA	NA	-1.6 ($P < .001$)
Not effective options‡					
• Misoprostol, 400 µg[5]	MA of 4 RCTs	400	NA	0.27 (0.07 to 0.46)	NA
• 2% topical lidocaine gel[5]	Network MA of 38 RCTs	6314	-0.78 (-1.84 to 0.27)	-0.95 (-2.12 to 0.22)	-0.7 (-1.97 to 0.56)
• Ibuprofen, 400 mg to 800 mg[5]	Network MA of 38 RCTs	6314	0.05 (-2.57 to 2.67)	-0.65 (-2.11 to 0.81)	-0.50 (-2.24 to 1.24)

IUD—intrauterine device, LPC—lidocaine-prilocaine cream, MA—meta-analysis, NA—not available, RCT—randomized controlled trial, VAS—visual analog scale.
*Changes presented are mean differences in 10-point VAS score (95% CI).
†Changes presented are mean differences in 10-point VAS score (95% CI or *P* value).
‡Changes presented are standardized mean differences (95% CI).

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