

## **FSRH Statement: Pain associated with insertion of intrauterine contraception 30 June 2021**

Recent media reports have highlighted cases of individuals who have experienced distressing intrauterine contraception (IUC) fitting. Some individuals do find IUC insertion anxiety-provoking and painful. However, studies suggest the majority of individuals report that pain during IUC fitting is mild (visual analogue score 1-3/10) or moderate (score 4-6/10) rather than severe (7-10/10)<sup>1</sup>, even without use of analgesia<sup>2,3</sup>. By five minutes after insertion, reported mean pain scores are low.<sup>4,5</sup> In studies reporting both pain scores and a description of the experience, moderate pain scores correlate with descriptions of discomfort rather than pain.<sup>1,6</sup>

### **Can we identify individuals who might experience greater pain at IUC insertion?**

Reported mean pain scores are generally higher amongst nulliparous individuals and those that have only had caesarean deliveries.<sup>1,2,7,8</sup> History of dysmenorrhoea is associated with higher pain scores.<sup>8-11</sup> Importantly, greater anxiety, greater anticipated pain and negative perceptions of intrauterine contraception prior to the procedure appear to correlate with higher experienced pain scores.<sup>7,8,12</sup> Previous experience of painful gynaecological/obstetric procedures may contribute to higher anticipated pain scores.<sup>7</sup> For any individual it is, however, impossible to predict with certainty whether they will experience pain or discomfort during IUC fitting.

### **Interventions to manage pain associated with IUC insertion**

Discomfort and pain may be experienced with any of the stages of IUC fitting: speculum insertion, tenaculum placement, and in particular, uterine sounding and device placement itself.<sup>5,7</sup> Technically difficult insertions may be associated with higher

reported pain scores.<sup>2,3</sup> It is noted that removal of IUC is a much more minor and usually well-tolerated procedure.

Numerous studies and systematic and narrative reviews have sought effective strategies are effective to reduce pain associated with IUC insertion.<sup>3,13-18</sup>

### ***Oral analgesics (pre and post procedure)***

Studies of prophylactic ibuprofen have not demonstrated reduced pain scores relative to placebo during IUC insertion. In a 2018 randomised controlled trial (RCT) Abbas<sup>19</sup> reported benefit relative to placebo with oral ketoprofen 150mg taken an hour prior to the procedure. In other RCTs, Karabayirli (2012)<sup>20</sup> reported lower mean overall pain scores compared to placebo amongst individuals using naproxen 550mg or tramadol 50mg one hour prior to the procedure (the effect was significantly greater with tramadol than with naproxen) and Ngo<sup>21</sup> demonstrated significantly reduced pain scores at five minutes after insertion with naproxen 550mg taken an hour pre-insertion compared with placebo. NSAIDs are effective to reactively treat post-insertion pain.<sup>22</sup>

***Cervical priming***

Misoprostol, a prostaglandin analogue, has been trialled in various regimens for cervical priming prior to IUC insertion. While some studies report significantly reduced insertion pain scores versus placebo, others do not, and prostaglandin side effects including cramping pain are an important consideration.<sup>2-23</sup>

***Local anaesthetic***

**10% lidocaine spray** 4 puffs (10mg per puff) applied to the surface of the cervix including the external os three minutes prior to the procedure has been demonstrated by three RCTs<sup>5,24,25</sup> to significantly reduce IUC insertion-related pain scores compared to placebo; one of these RCTs found lidocaine spray to be more effective than lidocaine injection and lidocaine cream.<sup>25</sup> Most participants in these studies were parous. Vaginal irritation was common<sup>5</sup>, which could reflect the excipients, including flavourings, in the Xylocaine spray.<sup>26</sup> The FSRH CEU suggests that although the spray nozzles are disposable, the bottle delivers multiple doses and infection control must be carefully observed.

**Paracervical block** using 1% lidocaine was reported by two RCTs to significantly reduce pain scores compared with placebo in nulliparous individuals, although there was pain associated with the local anaesthetic injection itself.<sup>4,27</sup> A third RCT using 10ml 2% lidocaine for paracervical block demonstrated benefit compared to placebo.<sup>25</sup>

In a recent RCT<sup>28</sup>, **intracervical block** using 3.6ml of 2% lidocaine administered with a 27 gauge needle in divided doses at 3, 6, 9 and 12 o'clock prior to tenaculum placement significantly reduced both mean pain scores and occurrence of severe pain at tenaculum placement and device insertion compared with placebo and no intervention in nulliparous individuals. However, an earlier RCT<sup>29</sup> demonstrated no benefit with 1% lidocaine intracervical block compared to placebo.

**2% lidocaine gel** administered into the cervical canal and at the tenaculum site or self-administered to the vagina does not, in studies, significantly reduce insertion pain. However novel gel formulations could be more effective and may warrant further study.<sup>3</sup>

Parous individuals randomised to cervical application of **EMLA 5% lidocaine/prilocaine cream** (2ml to the anterior cervical lip with a cotton bud and 2ml into the cervical canal to the level of the internal os seven minutes prior to IUD insertion) reported significantly lower median pain scores than those randomised to placebo.<sup>30</sup> A 2019 systematic review and network meta-analysis by the same team suggested that application of EMLA cream could be the most effective option for pain reduction at tenaculum placement and device insertion.<sup>16</sup>

## Summary

There is no clear “best” analgesic option. However,

paracervical block, intracervical local anaesthetic injection (see e-SRH Intrauterine Techniques module), 10% lidocaine spray applied to the surface of the cervix and external os three minutes prior to the procedure, or EMLA cream applied to the tenaculum site and into the cervical canal could all reduce insertion-related pain. Ketoprofen or naproxen taken an hour before the procedure could be beneficial for insertion and post-insertion pain. There is not evidence for routine prophylactic use of ibuprofen, although non-steroidal anti-inflammatory drugs are beneficial for treating established pain after insertion.

## ***Non-pharmacological interventions***

A 2019 systematic review highlighted the lack of evidence around non-pharmacological options for minimising anxiety and pain around IUC insertion.<sup>14</sup> The importance of creating an environment that affords privacy, reassuring professionalism and is sensitive to feelings of embarrassment is described.<sup>31</sup> It is noted that clinicians may underestimate the anxiety and pain experienced.<sup>1</sup> Healthcare practitioners regularly undertaking IUC insertion procedures know well the significant benefit of “vocal local” – an assistant present to provide support and distraction to the patient. No specific insertion equipment or inserter type is clearly associated with less pain at insertion, although narrower insertion devices could be associated with less difficult insertion and lower pain scores.

## **What does the FSRH recommend?**

Insertion-related pain, both anticipated and experienced, and anxiety about the insertion procedure can be barriers to use of intrauterine contraception.

Work in partnership with users to establish the best strategies for reducing anxiety and the most effective interventions for minimising pain at IUC insertion needs to continue. FSRH considers it crucial that it is the patient’s informed decision to use intrauterine contraception. The insertion procedure should be carried out by trained healthcare professionals who are mindful of the patient experience and understand that a minority of individuals do report severe pain associated with the



procedure. Healthcare professionals should create a reassuring, supportive environment, offer appropriate analgesia (and referral on to another provider if they cannot offer this) and ensure that the patient is aware that they can request that the procedure stops at any time.

Copper and hormonal intrauterine devices provide highly effective, convenient, reversible contraception. Hormonal devices offer the additional non-contraceptive benefit of management of heavy or painful menstrual bleeding, and copper IUDs afford an effective hormone-free contraceptive option. FSRH welcomes future studies, working with users to optimise the patient experience for individuals choosing intrauterine contraception.

## References

1. Akintomide H, Brima N, Sewell RD, Stephenson JM. Patients' experiences and providers' observations on pain during intrauterine device insertion. *The European Journal of Contraception & Reproductive Health Care* 2015;20(4):319-26.
2. Chaves IA, Baêta T, Dolabella GB, et al. Pain scores at the insertion of the 52 MG levonorgestrel- releasing intrauterine system among nulligravidas and parous women. *The European Journal of Contraception & Reproductive Health Care* 2021;30:1-5.
3. Gemzell-Danielsson K, Jensen JT, Monteiro I, et al. Interventions

for the prevention of pain associated with the placement of intrauterine contraceptives: An updated review. *Acta obstetrica et gynecologica Scandinavica* 2019;98(12):1500-13.

4. Mody SK, Farala JP, Jimenez B, Nishikawa M, Ngo LL. Paracervical block for intrauterine device placement among nulliparous women: a randomized controlled trial. *Obstetrics and gynecology* 2018;132(3):575.



5. Panichyawat N, Mongkornthong T, Wongwananuruk T, Sirimai K. 10% lidocaine spray for pain control during intrauterine device insertion: a randomised, double-blind, placebo-controlled trial. *BMJ Sexual & Reproductive Health* 2020 Jun 25.
6. Castro TV, Franceschini SA, Poli-Neto O, et al. Effect of intracervical anesthesia on pain associated with the insertion of the levonorgestrel-releasing intrauterine system in women without previous vaginal delivery: a RCT. *Human Reproduction* 2014;29(11):2439-45.
7. Akdemir Y, Karadeniz M. The relationship between pain at IUD insertion and negative perceptions, anxiety and previous mode of delivery. *The European Journal of Contraception & Reproductive Health Care* 2019;24(3):240-5.
8. Dina B, Peipert LJ, Zhao Q, Peipert JF. Anticipated pain as a predictor of discomfort with intrauterine device placement. *American journal of obstetrics and gynecology* 2018;218(2):236-e1.
9. Allen R. Predicting Painful IUD Insertion. *Ob/gyn Clinical Alert* 2014;31(6):43-4.
10. Schneyer R, Lerma K, Conti J, Shaw K. Dysmenorrhoea as a risk factor for pain with intrauterine device insertion. *BMJ Sexual & Reproductive Health* 2021 Mar 30.
11. Ferreira LS, de Nadai MN, Poli-Neto OB, et al. Predictors of severe pain during insertion of the levonorgestrel 52 mg intrauterine system among nulligravid women. *Contraception* 2020;102(4):267-9.

12. Hunter TA, Sonalkar S, Schreiber CA, Perriera LK, Sammel MD, Akers AY. Anticipated pain during intrauterine device insertion. *Journal of pediatric and adolescent gynecology* 2020;33(1):27-32.
13. Lopez LM, Bernholc A, Zeng Y, et al. Interventions for pain with intrauterine device insertion. Cochrane Database of Systematic Reviews. 2015(7).
14. Nguyen L, Lamarche L, Lennox R, et al. Strategies to mitigate anxiety and pain in intrauterine device insertion: A systematic review. *Journal of Obstetrics and Gynaecology Canada* 2020;42(9):1138-46.
15. Anthoulakis C, Iordanidou E, Vatopoulou A. Pain perception during levonorgestrel-releasing intrauterine device insertion in nulliparous women: a systematic review. *Journal of pediatric and adolescent gynecology* 2018;31(6):549-56.
16. Samy A, Abbas AM, Mahmoud M, et al. Evaluating different pain lowering medications during intrauterine device insertion: a systematic review and network meta-analysis. *Fertility and sterility* 2019;111(3):553-61.
17. Perez-Lopez FR, Martinez-Dominguez SJ, Perez-Roncero GR, Hernandez AV. Uterine or paracervical lidocaine application for pain control during intrauterine contraceptive device insertion: a meta-analysis of randomised controlled trials. *The European Journal of Contraception & Reproductive Health Care* 2018;23(3):207-17.
18. Zapata LB, Jatlaoui TC, Marchbanks PA, Curtis KM. Medications to ease intrauterine device insertion: a

systematic review. *Contraception* 2016;94(6):739-59.

19. Abbas AM, Ali SS, Salem MN, Sabry M. Effect of oral ketoprofen on pain perception during copper IUD insertion among parous women: A randomized double-blind controlled trial. *Middle East Fertility Society Journal* 2018;23(4):491-5.
20. Karabayirli S, Ayrim AA, Muslu B. Comparison of the analgesic effects of oral tramadol and naproxen sodium on pain relief during IUD insertion. *Journal of minimally invasive gynecology* 2012;19(5):581-4.
21. Ngo L, Braaten K, Eichen E, Fortin J, Maurer R, Goldberg A. Naproxen sodium for pain control with intrauterine device insertion: a randomized controlled trial. *Contraception* 2016;94(4):404.

22. Grimes DA, Hubacher D, Lopez LM, Schulz KF, Pan S, et al. Witham Intrauterine device use. *Cochrane Database of Systematic Reviews*. 2006(4).
23. Gemzell-Danielsson K, Mansour D, Fiala C, Kaunitz AM, Bahamondes L. Management of pain associated with the insertion of intrauterine contraceptives. *Human reproduction update* 2013;19(4):419-27.
24. Aksoy H, Aksoy Ü, Ozyurt S, Açmaz G, Babayigit M. Lidocaine 10% spray to the cervix reduces pain during intrauterine device insertion: a double-blind randomised controlled trial. *Journal of Family Planning and Reproductive Health Care* 2016;42(2):83-7.
25. Karasu Y, Cömert DK, Karadağ B, Ergün Y. Lidocaine for pain control during intrauterine device insertion. *Journal of Obstetrics and Gynaecology Research* 2017;43(6):1061-6.
26. emc .Aspen. Xylocaine 10mg Spray. Last updated on emc: 06 November 2018
27. Akers AY, Steinway C, Sonalkar S, Perriera LK, Schreiber C, Harding J, Garcia-Espana JF. Reducing pain during intrauterine device insertion: a randomized controlled trial in adolescents and young women. *Obstetrics & Gynecology* 2017;130(4):795-802.
28. 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. *American journal of obstetrics and gynecology* 2020;222(3):245-e1.
29. Elkhoully NI, Maher MA. Different analgesics prior to intrauterine device insertion: is there any evidence of

efficacy?. *The European Journal of Contraception & Reproductive Health Care* 2017;22(3):222-6.

30. Abbas AM, Abdellah MS, Khalaf M, et al. Effect of cervical lidocaine–prilocaine cream on pain perception during copper T380A intrauterine device insertion among parous women: a randomized double-blind controlled trial. *Contraception* 2017;95(3):251-6.
31. McCarthy C. Intrauterine contraception insertion pain: nursing interventions to improve patient experience. *Journal of clinical nursing* 2018;27(1-2):9-21.

*The Clinical Effectiveness Unit (CEU) was formed to support the Clinical Effectiveness Committee of the Faculty of Sexual & Reproductive Healthcare (FSRH), the largest UK professional membership organisation working at the heart of sexual and reproductive healthcare. The FSRH CEU promotes evidence based clinical practice and it is fully funded by the FSRH through membership fees. It is based in Edinburgh and it provides a members' enquiry service, evidence-based guidance, new SRH product reviews and clinical audit/research. [Find out more here.](#)*