

## Prevention of Induced Abortion - Effect on Pain. Systematic Review of a Database



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**ABSTRACT:** Review of the current literature on pain prevention in induced abortion. An in - depth analysis of the guidelines of leading international and national organizations for prophylaxis of induced abortion-surgical and medicated abortion during the I-st and II-nd trimester in terms of pain response has been carried out. Shared with the author's many years of practical experience in order to assess the risks and benefits of the application of modern means of prophylaxis in artificial abortion and thus to improve the individual obstetric-gynecological practice.

*Methods:* review of available literature from the last 10 years.

*Results and discussion:* Paracetamol, oral lorazepam and nitric oxide do not improve pain control. Currently, the use of sedation is not recommended for Surgical abortion. Inhalation anaesthesia should not be used for sedation. Intravenous sedation with fentanyl and midazolam is recommended and safe - below 1.0% complications.

In Medical abortion, 75.0% of women experience pain severe enough to require analgesia. The pain begins 2.5 to 4 hours after the use of perplex and lasts about an hour. During the extravehicular trimester, taking a higher number of doses intravenously is associated with more severe and frequent pain. In medicated abortion < 14 gw. non-steroidal anti-inflammatory drugs are recommended 30-45 minutes before the procedure. Non-steroidal medicines do not reduce the efficacy of urgencies. Routine administration of paracervical block before 13 gw. when using modern means for medicated abortion is unnecessary. Narcotic analgesics (Tramadol) do not affect pain in early Medical abortion and their routine use is not recommended.

**Conclusion:** In Surgical abortion, analgesia is always offered. Most commonly, analgesics, such as non-steroidal anti-inflammatory drugs local anesthesia (paracervical block with Lidocaine 20.1%; or 10.2%), and/ or sedation, supplemented with verbal sedation, are sufficient to relieve pain before mechanical cervical dilation and during uterine evacuation. The technique of deep paracervical injection of Lidocaine at two points is recommended.

**KEYWORDS-** induced abortion, prophylactic, pregnancy

### I. INTRODUCTION

Many studies have proven that women experience varying degrees of pain with abortion [3]. The need to manage pain increases with gestational age. The degree of pain varies depending on the woman's age, history of previous vaginal delivery or dysmenorrhea, and level of anxiety. A history of previous vaginal delivery was associated with experiencing less ha pain [3], and a history of frequent analgesic use contributed to feeling more pain. All women should be offered pain relief without delay [2]. Ignoring this important element unnecessarily increases anxiety in women and seriously compromises the quality of the abortion procedure. Numerous studies have found that pain control is underestimated in abortion procedures [3].

### II. RESULTS AND DISCUSSION

#### ***Pain control in surgical abortion (SA):***

Analgesia should always be offered without delay in SA [2]. It is more painful for women than it is for women because it requires greater cervical dilation, and intrauterine manipulations last longer. In SA, three groups of medications are used to control pain: analgesics that relieve the feeling of pain, sedatives that reduce anxiety, and anesthetics that exclude physical sensation. In most cases, analgesics such as non-steroidal anti-inflammatory drugs, local anesthesia (paracervical block) and/ or sedation, supplemented with verbal sedation, are sufficient for pain control [3]. With minimal, moderate and deep sedation or general

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anaesthesia, patients need to be informed about the risks and benefits. General anesthesia is not recommended for routine use in SA, pain control as it is associated with a higher rate of complications and a longer hospital stay than local anesthesia [3].

Local anaesthesia with lidocaine (20 ml 1%; or 10 ml 2%), administered as a paracervical block (injected to a depth of 3 cm), can be used to relieve pain before mechanical cervical dilation and during uterine evacuation [3]. It is injected laterally into the cervical opening on each side (positions of 3 hours and 9 hours) with half the local anaesthetic for each site. Appropriate dose (total 7 ml at < 8 gw. and 14 ml at more 8 gw.) 2% Lidocaine with Adrenaline 1:200,000. The maximum safe dose of 5-7 aposematic/2% lidocaine should not be exceeded! Adrenaline should be skipped when pregnancy is less than 6 weeks due to the risk of prolonged vasospasm of the uterine artery [3].

Deep lidocaine injection at a depth of 3 cm in a 2 or 4 - point paracervical injection technique (at 2 and 10 hours and/or 4 and 8 hours) provides more effective pain relief than superficial (1.5 cm) [3]. A randomized controlled trial found that the addition of sodium bicarbonate (1 ml 8.4% sodium bicarbonate for every 10 intravascular anaesthetic solution) to a paracervical block with 1% lidocaine did not reduce the results for cervical dilation pain compared to lidocaine alone [6]. It is not clear whether the four-point injection technique is better than the two-point injection technique, and no differences in pain response were found.

Premedication with non-steroidal anti-inflammatory drugs (ibuprofen or naproxen) relieves pain during and after the paracervical block procedure. [7]. Both oral and intramuscular non-steroidal anti-inflammatory drugs are effective [3]. Non-steroidal anti-inflammatory drugs (Ibuprofen) do not reduce the efficacy of Misoprostol for cervical preparation [1] and can also be used to relieve abdominal cramps caused by Misoprostola. Paracetamol, oral lorazepam and nitric oxide do not improve pain control compared to placebo and should not be used for premedication [1, 3]. The waiting period between injection and cervical enlargement does not improve pain control. It is not clear whether the volume of anesthetic administered affects pain relief. Involuntary intravascular injection of lidocaine should be avoided due to toxic effects (perioral numbness, tinnitus, metallic taste, vertigo or arrhythmia/ bradycardia) and the two-point technique is recommended for this purpose [3].

Non-pharmacological methods that have a neutral or positive effect in SA are empathetic non-judgmental staff behavior, verbal support and controlled deep breathing [3]. Alternative forms of support that have not gained popularity but have the same effect are auricular acupuncture, listening to appropriate music or support from the presence of a third person, a woman's confidant [3]. New methods of pain management such as hypnosis, aromatherapy, etc. are also being experimented with pomegranate. transcutaneous electrical nerve stimulation (TENS) [3]. At this stage, studies do not demonstrate the clinical benefit of modulating pain with 80 Hz TENS applied to the skin of the abdomen and back, and routine administration of the method is not recommended [3]. The results of hypnosis and aromatherapy are contradictory! Although women highly evaluate and recommend the use of nonpharmacological methods for pain management, one should not ignore the fact that a strictly scientific review of None of them showed an objectively statistically significant reduction in pain or anxiety and only had a placebo effect!

In SA < 14gw. (VA) paracervical block without/ with non-steroidal anti-inflammatory drugs is sufficient to affect pain, together with non-pharmacological methods [3]. The benefit of being sedated SA has been clarified [3], but the need for sedation in extravasation remains a matter of debate. Retrospective cohort study of 2017, which included more than 20,000 normal and overweight women and obese women who received intravenous sedation for vacuum aspiration, found that side complications associated with sedation were very rare (0.2%) [3]. However, providing intravenous sedation increases the cost, complexity and potential risks of the abortion procedure and requires very well-trained personnel with specialized patient monitoring equipment. Currently, the use of sedation is not recommended for VA. A 2020 Study on pain response before and after VA assessed the effect of antiepileptic agents such as gabapentin (Neurontin), but found no clinically relevant benefit [3].

For 14 gw. Paracervical block with mild and moderate sedation [7] or deep sedation only is combined. Only intravenous and not oral sedation is used in SA. The combination of an intravenous opioid (fentanyl) and an intravenous sedative (midazolam or propofol) is effective in reducing pain [1,3,4]. Studies that evaluated the safety of intravenous sedation with fentanyl and midazolam in combination with paracervical block during SA reported that the incidence of major complications related to the procedure was less than 1.0% [3]. Intravenous deep sedation with propofol and without intubation is also safe and has few complications in outpatient settings, without the risk of pulmonary aspiration [3].

When sedation of consciousness is available, it should be offered with a cervical block. There is no proven benefit from the addition of non-steroidal anti-inflammatory drugs when moderate and deep sedation is used [3]. There is also no conclusive evidence of the benefit of paracervical block when co-administered with deep sedation or general anaesthesia [3]. Anxiolytics such as lorazepam or midazolam reduce anxiety associated with the procedure and cause amnesia in some women, but do not affect pain outcomes during uterine evacuation[3]. If a general anaesthetic is used in SA, use intravenous Propofol (Diprivan) and a short-acting opioid (e.g. fentanyl), not inhalation anaesthesia. Oral and rectal non-steroidal anti-inflammatory drugs or opioids (Tramadol) may be used to treat pain after uterine evacuation. Rectal tramadol is recommended as more effective [3]

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### *Pain control in Medical abortion (MA):*

Pain is the most commonly reported side effect in MA [3]. In one study of 6,755 women using MA up to 63 days of pregnancy, 78.4% reported moderate or severe pain and cramps [4]. Similarly, a systematic review from 2006. on five large British and American series of cases of analgesia use during the MA concluded that 75.0% of women experienced pain severe enough to require narcotic analgesia [3]. A study of Ma pain in Nepal, South Africa and Vietnam found that women described pain as stronger than during menstruation and manifested in four different degrees: minimal or no pain; brief intense, usually before expulsion; intermittent, contractions-like; and persistent for one or several hours [3]. The pain rarely begins after taking the Misoprostol, It usually reaches a peak of 2.5 to 4 hours after the use Misoprostol of perplex and lasts about one hour [6,8]. Patients associated with more severe and frequent pain included greater gestational age, younger calendar age, non-delivery or lack of previous vaginal births, and a history of dysmenorrhea [2], [3]. During the extravehicular trimester, taking a higher number of doses Misoprostol was also associated with more severe and frequent pain [2], [3].

In MA < 14 gw. non-steroidal anti-inflammatory drugs such as ibuprofen are recommended 400 40-45 min before the procedure [3,8]. Non-steroidal anti-inflammatory drugs do not reduce the efficacy of Apostille [1]. In case of allergy to ibuprofen or contraindications to non-steroidal anti-inflammatory drugs -an alternative is acetaminophen (paracetamol), but it is not recommended as a first-choice remedy for pain relief during MA [3, 5, 9]. A placebo-controlled, randomised study assessing the efficacy of ibuprofen versus acetaminophen (paracetamol) with codeine in early MA with methotrexate and did not find a clinically relevant effect on paracetamol Pain [1]. The addition of pregabalin (an analogue of gamma-aminobutyric acid) improves the response to pain by reducing the doses required for pain relief with non-steroidal anti-inflammatory drugs [3]. On the one hand, there are no studies evaluating the use of a paracervical block for pain management during MA before 13gw. on the other hand, the routine application of this procedure when using modern means of MA is unnecessary.

Narcotic analgesics (Tramadol) do not affect pain in early MA and their routine use is not recommended [3, 7]. In an early MA study of 3,000 women - of whom only 5% needed a parenteral opiate (Morphine 10 mg), 37% did not need analgesia, 58% received only oral analgesia (Paracetamol 500 mg plus Dihydrocodeine 10 mg) [1]. In a study of 2,747 U.S. women with early MA at home, the use of oral analgesics was found to be 27% higher than in 2,121 women undergoing controlled MA in hospital settings [1].

Over 14 gw. additional analgesics include antiepileptics preferred to anxiolytics (e.g. diazepam 5-10, or midazolam). The combined regimen including prophylactic non-steroidal anti-inflammatory drugs plus oral and/ or parenteral narcotic analgesics [2, 3] is recommended. Administration starts with non-steroidal anti-inflammatory drugs during the first dose, and then is repeated every 6-8 hours if necessary. The effectiveness of non-steroidal anti-inflammatory drugs was demonstrated in the largest cohort study available, in 1,002 women at or after 13 gw. subject to abortion with the Mifepristone and Misoprostol, who were offered a combination of oral and parenteral narcotic analgesics and non-steroidal anti-inflammatory drugs for pain management [3]. The authors of the study report that the proportion of women with pain is only about 5.0%.

In a MA study between 13 and 22 gw of pregnancy, no clinically relevant benefit was found from the use of analgesics such as acetaminophen combined with codeine and alvarin (antispasmodic) [1, 3]. Use of paracervical block during MA at or after 13 gw did not affect pain [3]. There are no comparative studies evaluating the benefit of non-pharmacological pain management strategies in MA at or after 13 gw. Preliminary training about expected pain and bleeding and the placement of a heating pad or hot water bottle to the lower abdomen has a positive effect. Persistent pain, with no response to these analgesics for several hours, requires reassessment for other reasons, such as ectopic pregnancy, infection, or incomplete abortion, and intense pain may be indicative of uterine rupture [6].

### III. CONCLUSIONS

Analgesia should always be offered in SA. In most cases, analgesics, such as non-steroidal anti-inflammatory drugs, local anesthesia (Paracervical block with Lidocaine 20.1%; or 10.2%), and/ or sedation, supplemented with verbal sedation, are sufficient to relieve pain before mechanical dilation of the cervix and during the evacuation of the uterus the technique of deep paracervical injection of Lidocaine in two points is recommended. Paracetamol, oral Lorazepam and nitric oxide do not improve pain control. The benefit of being sedated in surgery has been clarified, but the need for a sedation in ambiguities remains debatable. Currently, the use of sedation is not recommended for vacuum aspiration. Intravenous sedation with fentanyl and midazolam is safe - below 1.0% complications. Inhalation anaesthesia should not be used for sedation.

In Medical abortion, 75.0% of women experience pain severe enough to require analgesia. The pain begins 2.5 to 4 hours after the use of perplex and lasts about an hour. During the extravehicular trimester, taking a higher number of doses intravenously is associated with more severe and frequent pain. In Medical abortion < 14 gw. non-steroidal anti-inflammatory drugs are recommended 30-45 minutes before the procedure non-steroidal anti-inflammatory drugs do not reduce the efficacy of

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urgencies. Routine administration of paracervical block before 13 gw. when using modern means for Medical abortion is unnecessary. Narcotic analgesics (tramadol) do not affect pain in early Medical abortion and their routine use is not recommended.

Over 14 gw. in addition to non-steroidal anti-inflammatory drugs, benzodiazepines (Diazepam or Midazolam) are also included. Start with non-steroidal anti-inflammatory drugs at the time of the first dose, and then repeat every 6-8 hours if necessary. The use of analgesics such as acetaminophen combined with codeine and alvarin (antispasmodic) as well as a paracervical block after 13 gw did not affect the pain. The use of non-pharmacological methods did not show an objectively statistically significant reduction in pain or anxiety and had only a placebo effect.

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