Anesthetic Blocks for Loop Electrosurgical Excision Procedure

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Background. Various types of anesthetic blocks have been used to prevent pain during ambulatory gynecologic surgery. The purpose of this study was to compare the pain and cramping perceived by patients during the loop electrosurgical excision procedure when intramucosal or distal paracervical blocks were used.

Methods. Seventy-seven women consented to participate in the prospective clinical trial. All women were premedicated with a nonsteroidal anti-inflammatory drug. Immediately after the procedure, a trained interviewer, blinded to the type of anesthetic block, recorded the patient's perceptions of pain and cramping caused by the procedure. Age, parity, marital status, lesion severity, loop size used, number of specimens, amount of bleeding, method of hemostasis, and thermal artifact were included in the analysis.

Results. On a Likert scale in which 0=no pain/cramping and 10=worst pain/cramping, the median pain score was 3 for the distal paracervical block and 4 for the intramucosal block. The median cramping scores were 3 and 2, respectively. Pain and cramping scores did not differ significantly between the two block cohorts. The demographic and procedural variables did not predict the perception of pain or cramping. Most (89.6%) of the study population experienced pain, whereas fewer (64.9%) experienced cramping. Subjects reported significantly less cramping than pain, irrespective of the anesthetic block used ($\chi^2=13.35$, $P=.0003$).

Conclusions. There is no difference in the perceptions of pain and cramping resulting from the loop electrosurgical excision procedure between patients receiving an intramucosal block and those receiving a distal paracervical block. There is minimal pain and cramping associated with the procedure.

Key words. Electrosurgery; pain; dysmenorrhea; cervix dysplasia; anesthesia. (*J Fam Pract 1994; 39:249-256*)

Iliohypogastric, ilioinguinal, uterosacral, paracervical, intracervical, and intramucosal blocks have been advocated for local pain control during cervical procedures, including hysteroscopy, dilation and curettage, abortion, labor, and ablative therapy of the cervical transformation zone, such as cryosurgery, laser vaporization, and the loop electrosurgical excision procedure.[1-13] Nonsteroidal anti-inflammatory drugs (NSAIDs), aspirin, and benzodiazepines have been advocated, alone and in conjunction with blocks,[14-17] for additional pain control.

Pain control for the loop electrosurgical excision procedure was originally defined by Prendiville et al[18] as a "generous volume of . . . 3% prilocaine hydrochloride with 0.03% octapressin . . . infiltrated into the cervical stroma surrounding and underneath the transformation zone [intramucosally]." Others have described a less extensive intramucosal block or even a paracervical block[12,13] to provide adequate anesthesia. Many vasoconstrictive drugs, including vasopressin, have been used in both intramucosal and paracervical blocks.[12,17,19]

Pain during the loop electrosurgical excision procedure is thought to result from heat generated during the excision. The generator combines high-frequency, low-voltage electric current that arcs between the loop (electrode) and the tissue it contacts. When current heats the cellular water content to boiling, cellular disruption and vaporization occur, forming the plane of excision. The faradic effects of a current of less than 100 kHz cause cell membrane depolarization,

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which results in neuromuscular stimulation and painful muscle contractions. The electrosurgical procedure avoids this effect by using alternating currents in the 500 to 700 kHz range. Pain caused by heat generation has been reported to occur in a similar manner during laser excision and vaporization of the cervix.[20-22]

Methods of pain control during outpatient laser therapy have ranged from no anesthesia[23-26] to general anesthesia.[27] Topical 10% cocaine spray applied to the cervix has been reported to decrease the pain perceived during laser ablation.[28] NSAIDs used without any other type of block during laser vaporization offered no significant decrease in pain perception, but a marked decrease in uterine cramping.[16] The only injectable method that has demonstrated effectiveness is an intramucosal block that offered significant pain relief as compared with no block at all.[4,29] An intramucosal block alone was better than a transcutaneous electrical nerve stimulation unit.[30] A paracervical block with lidocaine offered no more pain relief from laser ablation than did a paracervical block with saline,[31] presumably because the pain of injection was greater than the pain of the procedure.

To date, there have been no published randomized controlled trials evaluating the type of anesthetic block that effectively diminishes the perception of pain and cramping resulting from the loop electrosurgical excision procedure. Based on our knowledge about pain and cramping from laser vaporization, the purpose of this study is threefold: (1) to evaluate whether there is a difference in the intensity and duration of pain experienced by patients using an intramucosal as compared with a distal paracervical block during the electrosurgical loop excision of the cervical transformation zone; (2) to evaluate whether there is a difference in the intensity of cramping experienced by patients using the intramucosal block as compared with a distal paracervical block during the electrosurgical loop excision procedure; and (3) to evaluate whether pain or cramping is perceived more frequently during the electrosurgical loop excision procedure.

Methods

A prospective randomized double-blinded clinical trial was conducted from September 1992 through December 1993 in the teaching clinics at Truman Medical Center–East, a county hospital affiliated with the University of Missouri–Kansas City.

Patients who met the following inclusion criteria were eligible for the study: (1) competence and willingness to participate in the interview, (2) presence of a cervical squamous intraepithelial lesion, (3) a cervical transformation zone that could be completely visualized, (4) a lesion that could be entirely visualized, (5) having been seen at our institution for some previous health care concern at least 2 weeks before the appointment for the electrosurgical loop excision procedure, and (6) fluency in the English language.

Exclusion criteria were as follows: (1) presence of glandular neoplasia in the endocervical canal, (2) history of conization, electrosurgical loop excision, laser therapy, cryotherapy, or hysterectomy, (3) any other lower genital tract neoplasia, (4) pregnancy, (5) inadequate colposcopy, (6) implanted pacemaker or cardiac arrhythmia, (7) any kind of central or peripheral neurologic deficit, (8) previous treatment at a pain clinic, and (9) known drug abuse.

Ninety-seven women met the criteria for entry into the study. At the time of presentation for the electrosurgical loop excision procedure, each woman was asked to participate in this study. Of the 97 women, 77 consented to the study interviews.

All women in the study were white. Socioeconomic status was described as 41% Medicaid or Medicare, 9% private insurance, and 50% self-pay.

Randomization to the anesthesia type occurred by medical record number assignment. If the final digit was even, the woman received the intramucosal block; if it was odd, she received the distal paracervical block. The reason for previous visits to our institution, which would reflect the time of medical record number assignment, was 70% for previous ongoing health care (eg, past prenatal care and regular health maintenance, including yearly screening examinations) and 30% for emergency department visits for reasons ranging from pneumonia to digit lacerations. Medical record numbers are assigned sequentially by an interviewer on a first-come, first-served basis. There are at least 50 new numbers assigned daily.

Each woman was given either ketoprofen 75 mg or naproxen sodium 550 mg 30 to 60 minutes before the procedure. Thirty women were randomized to the distal paracervical block method, and 47 were randomized to the intramucosal block method. Age, marital status, parity, and lesion severity diagnosed on pathology of the surgical specimen were noted for each participant.

The entire procedure was explained in advance to the participants according to a standard format. Each patient was told she would be receiving a "numbing medicine" in her cervix and to expect feelings of lightheadedness for a brief time.

Technique

Each patient underwent a full colposcopic examination before being anesthetized for the procedure. The distal

paracervical block was administered with 5 mL of 1% lidocaine with 1:100,000 epinephrine at the 3 to 4 o'clock and 8 to 9 o'clock positions on the lateral edge of the cervix. The intramucosal block was administered with 5 to 7 mL of 1% lidocaine with 1:100,000 epinephrine in four quadrants: 3, 6, 9, and 12 o'clock positions 2 to 3 mm beneath the cervical surface epithelium beyond the cervical transformation zone. One-percent lidocaine with epinephrine was chosen because of the combined anesthetic and vasoconstrictive effect. The patient was blinded to the type of anesthetic block administered during her procedure. The attending physician did not mention, reaffirm, or inquire about pain or cramping during the encounter. The physician acted as a technician within the patient-interviewer relationship.

A Cryomedics generator set at 30 to 40 W blended current (a combination of high-frequency, low-voltage and modulated higher voltage current), and a choice of five different sizes of 0.2-mm loops were used to remove the cervical transformation zone. The excision process was attempted in one pass, but in several instances, more than one pass was needed to completely excise the transformation zone. When the squamocolumnar junction was still visible within the remaining endocervical canal, a deeper "cowboy hat" excision was performed. All excisions were performed by the authors (a family physician and two gynecologists), who are experienced in this procedure.

The amount of bleeding after the electrosurgical loop excision and the method used to obtain hemostasis were recorded. The hemostatic options were rollerball fulguration, Monsel's solution (ferric subsulfate), silver nitrate, or fulguration combined with either Monsel's solution or silver nitrate. The authors agreed that the fulguration technique, using the pure higher voltage current for coagulation, should consist of coagulation of the entire crater to a crispy tan consistency. If bleeding persisted, an additional hemostatic method was used.

Interview

Immediately after the procedure, each woman was questioned by a trained interviewer who was blinded to the type of anesthesia used. The patient's perception of pain and cramping caused by the procedure was assessed with a Likert scale on which 0=no pain/cramping and 10=worst pain/cramping.

Each patient was asked about the intensity of pain and intensity of cramping. Questions regarding pain were interspersed with those concerning the ease with which follow-up appointments could be made. The same wording was used in every patient interview. No reaffirmation or suggestion of pain or cramping was made by the interviewer beyond an acknowledgment that pain and cramping may have existed.

Statistical Analysis

The study was designed in a double-blinded manner as described by Selvin.[32] The descriptive data from each cohort were tested for differences using the t test for equal variances for age and parity variables. The chi-square test was used to compare differences among cohorts for marital status, lesion severity, type of pretreatment NSAID, loop size used, number of specimens taken (including whether a "cowboy hat" excision was performed), amount of bleeding after treatment, method of hemostasis, and number of specimens with thermal artifact. Chi-square was also used to compare the intensity of pain and cramping perceived during the procedure.

The Mann-Whitney U test with the correction for ties was used to evaluate differences in pain and cramping intensity for the block types. The Kruskal-Wallis one-way ANOVA by ranks was used to determine if the NSAID used, age, parity, lesion severity, loop size, amount of postprocedure bleeding, presence of thermal artifact, use of rollerball fulguration, or number of specimens taken interacted with the pain and cramping perceived by patients in each block type. All statistics were computed with CSS:Statistical software.

An α of .05 was considered significant. All nonparametric test statistics were one-tailed. The power of this study is 80% for detecting a difference of 2 on the Likert scale between the distal paracervical block cohort and the intramucosal block cohort in the patient's perception of pain and cramping at an α level of .05 for a two-tailed test. The Levene test for homogeneity detected equal variances between anesthetic block cohorts for pain and cramping.

Results

Thirty women were randomized to the distal paracervical block anesthesia cohort and 47 women were randomized to the intramucosal block. Even though randomization produced anesthesia cohorts of unequal size, there was no significant difference in age, parity, marital status, lesion severity, or pretreatment NSAID between the two cohorts (Table 1).

Because the patients were unevenly distributed between the two block groups, the randomization process was closely scrutinized. All systematic biases were checked: number assignment to the patient, other procedures the patient was undergoing, order in which the patient presented for number assignment, referral physi-

Table 1. Characteristics of Patients in the Distal Paracervical Block Cohort and the Intramucosal Block Cohort

Patient Characteristics	Distal Paracervical Block (n = 30)	Intramucosal Block (n = 47)
Age, y, mean (SD)	25.40 (6.48)	29.72 (11.40)
Parity, mean (SD)	1.43 (1.27)	1.81 (1.61)
Marital status, no. (%)		
Never married	17 (56.7)	14 (29.8)
Married	7 (23.3)	20 (42.6)
Divorced	5 (16.7)	9 (19.1)
Separated	1 (3.3)	4 (8.5)
Lesion severity, no. (%)		
LGSIL	20 (66.7)	28 (59.6)
HGSIL	10 (33.3)	19 (40.4)
Pretreatment NSAID, no. (%)		
Ketoprofen 75 mg	10 (33.3)	15 (31.9)
Naproxen sodium 550 mg	20 (66.7)	32 (68.1)

LGSIL denotes low-grade squamous intraepithelial lesion; HGSIL, high-grade squamous intraepithelial lesion; NSAID, nonsteroidal anti-inflammatory drug.

cian, length of time the patient had been cared for at the study facility, attending physician, and day of the week that the procedure was performed. No systematic biases were identified that could explain the discrepancy in cohort size.

Table 2 lists the occurrence of the five procedural variations for each block type. The five variables considered were loop size used, number of specimens taken (including a "cowboy hat" excision), amount of bleeding after the electrosurgical loop excision procedure, use of fulguration, and number of specimens with thermal artifact. There were no significant differences between the two cohorts for these variables.

Before the procedure, all women reported perceiving no pain or cramping. After the electrosurgical loop excision procedure, 10% of women in both the distal paracervical block cohort and the intramucosal block still remained pain-free. Thirty percent of women with a distal paracervical block and 38% of women with an intramucosal block reported no cramping after the electrosurgical loop excision procedure. A chi-square analysis showed that there was no difference in the number of women who experienced pain or cramping after the procedure between the two anesthetic blocks. The number of women who perceived pain was significantly greater than the number of women who perceived cramping.

Pain and cramping perceived by women in both block cohorts is summarized in Table 3. Patient perceptions of pain and cramping were evaluated for different NSAID use, age, parity, lesion severity, loop size used, amount of bleeding, presence of thermal artifact, use of rollerball fulguration, and number of specimens taken

Table 2. Procedural Variations in the Distal Paracervical and Intramucosal Block Cohorts

Variables	Distal Paracervical Block (n = 30) No. (%)	Intramucosal Block (n = 47) No. (%)
Loop size (mm)*		
20 × 20	5 (14.7)	12 (23.5)
20 × 8	14 (41.2)	18 (35.3)
15 × 10	1 (2.9)	4 (7.9)
15 × 8	7 (20.6)	10 (19.6)
10 × 10	7 (20.6)	7 (13.7)
Number of specimens needed to completely excise the transformation zone		
1	18 (60.0)	26 (55.3)
≥2	12 (40.0)	21 (44.7)
"Cowboy hat" excision	1 (3.3)	6 (12.8)
Amount of bleeding after electrosurgical loop excision		
Mild (<3 mL)	21 (70.0)	33 (70.2)
Moderate (≥3 mL, <7 mL)	5 (16.7)	10 (21.3)
Severe (≥7 mL)	4 (13.3)	4 (8.5)
Method of hemostasis†		
Fulguration	8 (50.0)	12 (57.1)
Monsel's solution	4 (25.0)	4 (19.1)
Silver nitrate	1 (6.25)	1 (4.8)
Fulguration and Monsel's solution	1 (6.25)	2 (9.5)
Fulguration and silver nitrate	2 (12.5)	2 (9.5)
Specimens with thermal artifact	2 (6.7)	2 (4.3)

**Loops of more than one size were used in some of the excision procedures; the percentage was calculated on the total number of loops used.*
† Not all subjects were evaluated for method of hemostasis; the percentage was calculated on the total number evaluated.

(including a "cowboy hat" excision). No statistically significant differences in the perception of pain and cramping were found between the distal paracervical and intramucosal block cohorts.

Discussion

This study showed that there is no difference between the intramucosal block and the distal paracervical block in terms of women's perceptions of pain and cramping during the loop electrosurgical excision procedure. The median pain score was 3 for the distal paracervical block and 4 for the intramucosal block. Ninety percent of women had pain during the loop electrosurgical excision procedure, but it was minimal: the upper quartile never exceeded 5 on a scale of 0 to 10. For cramping, the scores were 3 and 2, respectively, with 75 percentile values of 4 and 5, respectively. Even though the Likert scale is not a ratio scale, a pain or cramping score in the lower half of the scale indicates that the pain and cramping perceived is present but tolerable with local anesthetics. Similarity in

Table 3. Pain and Cramping Scores Based on Perceptions of Patients in the Distal Paracervical and Intramucosal Block Cohorts

Variables	Pain Scores*		Cramping Scores*	
	Distal Paracervical Block (n = 30) Median (25–75%ile)	Intramucosal Block (n = 47) Median (25–75%ile)	Distal Paracervical Block (n = 30) Median (25–75%ile)	Intramucosal Block (n = 47) Median (25–75%ile)
Intensity†	3 (2–5)	4 (2–5)	3 (0–4)	2 (0–5)
NSAID used‡				
Ketoprofen 75 mg	3.5 (2–4)	4 (2–8)	1.5 (0–4)	4 (0–10)
Naproxen sodium 550 mg	3 (2–5.5)	3 (2–5)	3 (0.5–4)	1.5 (0–3.5)
Age (y)†				
≤20	2.5 (0–3.5)	4 (2–4.5)	1 (0–2.5)	3 (0.5–4.5)
21–25	5.5 (5–7.5)	7 (1–7.5)	4 (3–6)	4 (0–5.5)
26–30	3.5 (1–4)	5 (3–9)	1.5 (0–3)	2 (0–9)
31–40	2 (2–2.5)	3 (2–4)	3 (0–3.5)	1.5 (0–3)
41–65	0	3 (0–3)	4	0 (0–1)
Parity‡				
Nulliparous	4 (2–5.5)	4 (2.5–5)	4 (0–4)	3 (0–5)
Multiparous	3 (2–4.5)	4 (2–5)	2 (0–3.5)	1 (0–5)
Lesion severity‡				
LGSIL	3.5 (2–5)	3 (2–5)	3 (0.5–4)	2.5 (0–5)
HGSIL	3 (2–6)	4 (2–5)	2.5 (0–4)	1 (0–3.5)
Loop size (mm)‡				
20×20	6 (4–7)	4 (3–8)	6 (6–7)	9 (6–10)
20×8	4 (3–5)	4 (3–4.5)	4 (4–6)	4 (3–5)
15×10	2 (0–4)	4 (3–5)	3 (2–3.5)	4 (3–7)
15×8	—	7 (7–7)	—	5 (5–5)
10×10	8 (2–8)	5 (1–5)	10 (3–10)	4 (4–5)
Amount of bleeding‡				
Mild (<3 mL)	3 (2–4.5)	3 (1–5)	3 (0–4)	2 (0–5)
Moderate (≥3 mL, <7 mL)	3 (1–4)	3.5 (2–4.5)	1 (0–2.5)	2.5 (0–6.5)
Severe (≥7 mL)	4 (2.5–6.5)	6.5 (4–9.5)	3 (1.5–6.5)	0.5 (0–2)
Thermal artifact in specimen‡				
Present	3.5 (2–4)	4 (2–8)	1.5 (0–4)	4 (0–10)
Absent	3 (2–5.5)	3 (2–5)	3 (0.5–4)	1.5 (0–3.5)
Fulguration use‡				
Fulguration	3 (2–6)	3 (2–4)	3 (2–4)	2.5 (0–3.5)
No fulguration	3 (0–3)	5 (0–6)	0 (0–2)	1 (0–1.5)
Specimens taken‡				
1	3 (2–5)	3.5 (2–5)	2 (0–5)	3 (0–5)
≥2	4 (2–5)	5 (2–7)	3 (2–4)	1 (0–4)
"Cowboy hat" excision	3	3 (1–3.5)	0	2 (0–3.5)

**Based on a Likert scale in which 0= no pain/cramping and 10= worst pain/cramping.*
†Mann-Whitney U test, not significant.
‡Kruskal-Wallis ANOVA by ranks test, not significant.
NSAID denotes nonsteroidal anti-inflammatory drug; LGSIL, low-grade squamous intraepithelial lesion; HGSIL, high-grade squamous intraepithelial lesion.

the perception of pain and cramping in both anesthetic cohorts is supported by the interchangeable clinical use of these blocks.[12]

Age, parity, NSAID use, lesion severity, loop size, amount of bleeding, thermal artifact, fulguration, and the number and depth of specimens taken did not contribute to an increased perception of pain or cramping.

Age and Parity

The nonsignificance of age in pain perception has also been described for laser ablation.[33] Parity could be significant if the volume of anesthesic agent administered to the multiparous woman, whose cervix is larger than that of a nulliparous woman, was inadequate. In this study, equal

volumes were given to all patients regardless of parity or block type. Any additional pain perceived by multiparous women might have been offset by an increased pain threshold following previous vaginal delivery. There was no difference in the pain perceived by women who received four injections of the intramucosal block as compared with those who received two injections of the distal paracervical block.

Anesthetic Used

Variation in the volume of lidocaine administered could affect the mechanoreceptive (Aβ fibers) and the mechanothermoreceptive (Aδ fibers) afferents found in the human cervix. These parasympathetic fibers can trigger pain.[21] No studies have documented the volume of liquid injected into a cervix that is necessary to cause these stretch receptors to mediate pain. It is also unknown whether the pain is dependent linearly on volume or occurs at a threshold volume. Our study did not show any appreciable differences in pain perception related to the small variation (between 5 and 7 mL) of lidocaine that was used.

There have been many reports of both 1% and 2% lidocaine used in both block types,[8,12,31,34–37] with and without a vasoconstrictive agent. There are no studies to show whether the 1% lidocaine solution can block the same number of cervical receptors as a stronger dilution, especially when used intramucosally. In this study, a 1% solution was used in order to maximize the potential for differences in pain and cramping occurring in the two block types. Both block types were allotted adequate time after injection to be effective.

The vasoconstrictive agent in our study was epinephrine at 1:100,000 dilution. In both block cohorts, transient tachycardia, lightheadedness, and diaphoresis lasted less than 60 seconds following injection. The side effects of cervical epinephrine injection, including ventricular arrhythmias, hypertension, glycogenolysis, lactic acidosis, and hypokalemia,[38] can be life-threatening. In our study, the patients were told before the procedure to expect an increased heart rate and a feeling of lightheadedness. They were distracted by the nurse during this time, and the procedure was not started until these sensations had passed. Since all but three participants experienced this feeling, it did not affect the perception of pain or cramping between the block cohorts.

Amount of Bleeding

The amount of bleeding during the excision procedure was not different between the two block cohorts, nor was the perceived pain or cramping different according to amount of bleeding. This implies that even though the cervix was injected two more times in the intramucosal block than in the distal paracervical block, the amount of bleeding from the relatively avascular anterior and posterior (12 o'clock and 6 o'clock) positions did not contribute significantly to the overall bleeding resulting from the procedure. The amount of intraoperative bleeding and lesion severity were not significant predictors of pain during laser therapy.[33] Our study supports these conclusions for the loop electrosurgical excision procedure.

NSAID Use

It is not necessary to have peak plasma levels of an NSAID in order to effect a decrease in uterine contractility.[39,40] Complete pain relief has been reported even when uterine contractility was only partially blocked.[41] It is thought that the act of taking a premedication, even if it is a placebo, offers subjective pain relief for up to 105 minutes after ingestion.[40] In our study, the ketoprofen and the naproxen sodium were given between 30 and 60 minutes before the procedure and reached peak plasma levels in 0.5 to 2 hours and 1 to 2 hours, respectively. Since peak plasma levels are not necessary to block pain and cramping, and significant placebo effect can occur just by taking medication, there was ample time allowed in our study for the premedication to be effective.

Loop Size and Number of Specimens Taken

The pain pathways of the cervix are adrenergic excitory nerve fibers derived from Frankenhäuser's parasympathetic plexus, S2–4.[8,42] They appear to terminate at the level of the internal os[4] and can be stimulated by mechanical, chemical, thermal, or electrical stimuli.[1,21] The pain receptors are naked nerve endings consisting of myelinated Aδ and unmyelinated C fibers.[21,28] The Aδ fibers are mechanothermoreceptors that are triggered by either mechanical trauma or heat to transmit pain.[21] The C fibers are cutaneous nociceptive or thermoreceptive afferents that transmit pain in proportion to the number of impulses they receive.[22] In our study, even though the "cowboy hat" method excised more endocervical tissue with more terminal nerve endings, there was no increase in pain or cramping perceived between block cohorts or between those with and those without "cowboy hat" excisions. This could be because it is not necessary that a critical mass of tissue be excised before an increased number of impulses are transmitted along the C fibers.

Thermal Artifact and Fulguration

When the cervix is stimulated by a CO_2 laser, pain is transmitted by heat energy through both the Aδ- and C-afferent fibers.[16,21,22] Prolonged stimulation with the laser produces greater pain.[16] Because the electrosurgical generator effects excision in the same manner as a laser, the higher power of the loop electrosurgical generator would be expected to produce more heat and to vaporize more tissue, thereby increasing the thermoreceptive stimulus of the C fibers, resulting in more pain. In our study, there were only four patients whose specimens had thermal artifact. These women did not experience any more pain or cramping than did women without thermal artifact on their specimens, possibly because of a mild degree of thermal artifact that was insufficient to trigger a massive pain response. Fulguration, likewise, would be expected to generate an increased perception of pain if the power was sufficiently high and the stimulus constant. In our study, if fulguration at 40 W with pure alternating current did not produce hemostasis, an adjunctive topical method was used rather than an increase in wattage, which would overstimulate the thermoreceptive C fibers and trigger more pain.

Perceived Cramping Less Than Perceived Pain

Our study showed that overall, the loop electrosurgical excision procedure produced less cramping than pain. All our women were premedicated with an NSAID, which presumably caused decreased cramping. Cramping has been found to be independent of the amount of pain perceived[16] and appears to be mediated by an increased local concentration of prostaglandins.[43] Prostaglandins are released with cervical stromal damage leading to nerve ending sensitization, increased uterine contractility, and uterine ischemia. When the prostaglandins are inhibited by an NSAID, the afferent nerve endings will not be subject to that stimulation, decreasing the amount of total pain perceived from cramping.[43]

Limitations of This Study

First, there are known cultural and ethnic variations in the perception of pain.[44,45] Because the women in our study population were white, we advise caution in generalizing these results to other ethnic populations. Second, the perceptions of pain are not immutable and will change over time under different conditions.[46–50]

Summary

There are wide variations in pain perceptions with either anesthetic block type, but, in general, the pain experienced is mild. This study shows that there is no difference in the perceptions of pain and cramping caused by the loop electrosurgical excision procedure between patients using an intramucosal block and those using a distal paracervical block. Since it makes no difference to the patient, the block type should be the one the physician is most skilled in performing.

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