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# Aspirasyon Kürtajla Endometrial Örnekleme Yapılan Hastalarda Ağrı Kontrolu İçin Paraservikal Lidokain, İntrauterin Lidokain ve Rektal İndometazinin Karşılaştırılması

## Comparison of Paracervical Lidocaine, İntrauterine Lidocaine And Rectal İndomethacine for Pain Control During Endometrial Sampling with Suction Curretage

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***ÖZ***

***GİRİŞ ve AMAÇ:*** *Poliklinik şartlarında daha rahat ve az ağrılı endometrial örnekleme işlemleri yapılabilmesi için farklı analjezi/lokal anestezi rejimleri kullanılmaktadır. Bu çalışmada aspirasyon küretaj ile endometrial örnekleme yapılan hastalarda ağrı kontrolunde lidokain ile paraservikal anestezinin, lidokain ile intrauterin anestezinin ve rektal indometazinin etkinliğini değerlendirmeyi amaçladık.*

***YÖNTEM ve GEREÇLER:*** *Çalışmaya toplam 166 kadın dahil edildi. İntrauterin lidolain(IUL) grubu 43 kadından, paraservikal lidokain(PCL) grubu 40 kadından, rektal indometazin(RI) grubu 41 kadından ve kontrol grubu 42 kadından oluşmaktadır. Aspirasyon küretaj işlemi yapıldıktan sonra hastaların işlem sırasında hissettikleri ağrı, görsel ağrı skalasıyla (VAS), işlemden hemen sonra (VAS 0) ve işlemden 30 dakika sonra (VAS 30) olarak değerlendirildi.*

***BULGULAR:*** *Hastaların VAS skorları karşılaştırıldığında, gruplar arasında VAS 0 skorları bakımından anlamlı fark varken VAS 30 skorları bakımından anlamlı fark yoktu. Aspirasyon kürtaj işlemi sırasında hissedilen ağrı gruplar arasında farklı bulundu. Gruplar arasındaki farklılıklar değerlendirildiğinde, IUL&PCL&RI grupları arasında VAS 0 skorlarına göre anlamlı fark bulunmazken, IUL&PCL&RI grupları ile kontrol grubu arasında anlamlı fark bulundu. Kontrol grubunun VAS 0 skrları,IUL&PCL&RI gruplarından daha yüksek bulundu. Gruplar arasında anlamlı farklılık bulunan diğer parametre müdahale süresi olarak belirlendi. Gruplar müdahale süresine göre karşılaştırıldığında RI&IUL, RI&PCL, C&PCL, C&IUL grupları arasında anlamlı fark bulundu. Rektal indometazin ve kontrol grubundaki hastalar, intrauterin lidokain ve paraservikal lidokain gruplarına göre daha kısa müdahale sürelerine sahipti.*

***TARTIŞMA ve SONUÇ:*** *Aspirasyon kürtajla yapılan endometrial örnekleme işleminde ağrı kontrolu için uygulanan lidokain ile paraservikal blok, intrauterin lidokain uygulaması ve rektal indometazin uygulaması eşit derecede etkili bulundu. Analjezi/anestezi tipinin seçimi cerrahların tercih ve deneyimlerine, hastaların ve hastanelerin koşullarına bağlıdır..*

**Anahtar Kelimeler:** *Ağrı kontrolu, endometrium, biopsi*

***ABSTRACT***

***INTRODUCTION:*** *Different analgesia/local anesthesia regimens are used during endometrial sampling procedures in the outpatient settings. The aim of this study was to evaluate the effectiveness of paracervical/ intrauterine anesthesia with lidocaine and rectal indomethacine for pain control in patients having endometrial sampling with suction curretage.*

***METHODS:*** *166 women were included to the study. Intrauterine lidocaine(IUL) group consisted of 43 women, paracervical lidocaine(PCL) group consisted of 40 women, rectal indomethacine(RI) group consisted of 41 women and control(C) group consisted of 42 women. After completing the suction curretage procedure, all of the patients were evaluated for their pain scores during the intervention with VAS (visual analog scale) immediately(VAS 0) and 30 minutes later(VAS 30).*

***RESULTS:*** *Pain felt during the suction curretage (VAS 0) was different but it was not different for VAS 30 between the groups. When intergroup differences were evaluated, there was not any significant difference betweeen IUL&PCL&RI groups according to VAS 0 scores while there was significant difference between IUL&PCL&RI groups and control group. The control group had higher VAS 0 scores than the IUL&PCL&RI groups. When the groups were compared according to the intervention time, there was significant difference between RI&IUL, RI&PCL, C&PCL, C&IUL groups as well. The patients in the rectal indomethacine and control group had shorter intervention times than the intrauterine lidocaine and paracervical lidocaine groups.*

***DISCUSSION and CONCLUSION:*** *Paracervical block with lidocaine, intrauterine lidocaine installation and rectal indomethacine administration were equally effective in pain control during endometrial biopsy with suction curretage.*

**Keywords:** *Pain management, endometrium, biopsy.*

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## INTRODUCTION

Endometrial sampling is a simple procedure that is widely used worldwide for evaluating endometrial pathology. It is indicated for the evalaution of abnormal uterine bleeding, abnormal cervical cytology, abnormal ultrasonographic finding related with endometrial pathology and patients with endometrial cancer managed expectantly or with medical therapy. Many premenopausal and postmenopausal women require endometrial sampling due to the wide range of indications. It is mostly performed with local anesthesia in the outpatient settings.

Pain transmission of the uterus is complex. The pain fibres from the cervix and lower part of the uterus are carried to the inferior hypogastric plexus via the utero-vaginal plexus. The pain fibres from uterine corpus are carried to the superior hypogastric plexus and ovarian plexus (1). Pain generated during the suction curretage can be the result of different mechanisms. One of the mechanism is grasping with single-tooth teneculum and streching the cervix. The other mechanism is stimulation and distruption of the endometrium and afterwards increasing prostaglandin release that is causing uterine contraction and pain felt during the procedure (2).

Different analgesia/local anesthesia regimens are used for more comfortable and less painfull endometrial sampling procedures in the outpatient settings. These analgesia/anesthesia regimens include paracervical block with local anesthetics, intrauterine injection of local anesthetics, NSAIDs (nonsteroidal antiinflammatory drugs) administered orally, IV (intravenous) morphine (3,4).

In the present study we aimed to evaluate the effectiveness of paracervical anesthesia with lidocaine, intrauterine anesthesia with lidocaine and rectal indomethacine for pain control in patients having endometrial sampling with suction curretage.

## MATERIALS and METHODS

This study was conducted at Obstetrics and Gynecology Clinics, between January and December 2018 with retrospective design. The efficacy of paracervical lidocaine, intrauterine lidocaine and rectal indomethacine for pain control was compared among patients undergoing endometrial sampling with suction curretage. Patients' records were obtained from hospital database. Ethical approval was obtained from H.S.U Kocaeli Derince Training and Research Ethical Board.

The study included women needed further evaluation for abnormal uterine bleeding with suction curretage at Obstetrics and Gynecology Clinics. Patients with pregnancy, suspicion of pelvic infection, cervical stenosis, known cardiac, pulmonary or liver diseases, known allergy to the analgesics or local anesthetics, hystory of gastrointestinal bleeding or peptic ulcus, known coagulopathy, inability to understand and evaluate Visual Analog Scale were not enrolled to the study.

A total of 166 women were included to the study. Intrauterine lidocaine (IUL) group consisted of 43 women, paracervical lidocaine (PCL) group consisted of 40 women, rectal indomethacine (RI) group consisted of 41 women and control(C) group consisted of 42 women. All of the suction curretage procedures were done by the same gynecologist (BSA). Firstly sterile speculum was administered to all patients. Afterall vagina and cervix was cleaned with antiseptic solution. Cervix was grasped with single-tooth teneculum. Four mililiters 80 mg lidocaine was administered at the 4 and 8 o'clock positions of the cervix and after two minutes waiting for anesthetic effect to occur, suction curretage was performed in paracervical lidocaine (PCL) group. Four mililiters 80 mg lidocaine was administered through endocervical canal into the uterine cavity via 18-gauge angiocatheter in intrauterine lidocaine (IUL) group patients. The angiocatheter was left in place for 2 minutes for minimizing backflow and to allow anesthetic effect to perform. After that suction curretage was performed. In rectal indomethacine (RI) group, all of the patients were administered rectal 100 mg indomethacine 1 hour before the suction curretage procedure. All of the procedures were performed with Karman canullas. None of the patients had oral analgesics before the procedure. After completing the suction curretage procedure and removing the speculum, all of the patients were asked to evaluate their pain during the intervention with VAS (visual analog scale) score immediately (VAS 0). Afterwards all of the patients rested in the ward and 30 minutes later VAS score was asked to

all of them (VAS 30). Any complication during the procedure or side effect related to drugs and the data related to patients' age, obstetric hystory, menopausal status, educational level were recorded into the patients' files.

**Statistical analysis**

Statistical parameters were computed using the SPSS 22.0 software. In addition to descriptive statistics (mean, standard deviation, median, frequency, ratio, minimum, maximum), Kruskal Wallis H test was used for non-normal distrubuting data and One-way Anova test was used for normal distrubuting data. Post-hoc analysis was done with Bonferroni correction for two group pair wise comparasions. The statistical significance was defined as $p<0.05$.

**RESULTS**

Of the 166 women included to the study, 43 women were applied intrauterine lidocaine, 40 women were applied paracervical lidocaine, 41 women were applied rectal indomethacine for pain relief during suction curretage while 42 women in control group were not administered any analgesic or local anesthetics. The mean age of the groups was 45.84, 49.43, 45.98, 48.6 respectively. Obstetric histories of the patients were similar that there was not any significant difference in the number of vaginal delivery and cesarean section (Table 1). Educational status of patients was shown in Table 2, the majority of patients in all groups were primary school graduates. Of the 166 women included in the study, 30(18.1%) women were in menopause. Abnormal uterine bleeding was the most common indication for suction curretage and it was seen in 126(75.9%) patients. The other indications and frequencies were seen as; Postmenopausal bleeding 24(14.5%), endometrial thickening 6(3.6%), abnormal uterine bleeding+myoma uteri 4(2.4%), postmenopausal endometrial thicknening 6(3.6%).

When the VAS scores of the patients were compared, there was significant difference according to the VAS 0 but not for VAS 30 scores. Pain felt during the suction curretage was different according to the groups. When intergroup differences were evaluated, there was not any significant difference betweeen IUL&PCL&RI groups according to VAS 0 scores while there was significant difference between IUL&PCL&RI groups and control group. The control grup had higher VAS 0 scores than the IUL&PCL&RI groups. The other significant difference found between the groups was intervention time. When paired comparisons were made in terms of intervention time, there was significant difference between RI&IUL, RI&PCL, C&PCL, C&IUL groups as well (Table 3). The patients in the rectal indomethacine and control group had shorter intervention times than the intrauterine lidocaine and paracervical lidocaine groups.

One patient in the PCL group had tachycardia, two patients in the control group had hypotension during the procedure, after resting in the ward their vital signs returned to normal.

**DISCUSSION**

In the present study, we found that paracervical lidocaine, intrauterine lidocaine and rectal indomethacine were equally effective for the pain control in the suction curretage procedures for endometrial sampling. Lidocaine is used widely for pain reduction during minor surgical interventions such as endometrial sampling with a pipelle (5), hysteroscopy, saline infusion sonohysterography (6), first-trimester pregnancy termination with suction curretage (7). In several studies different lidocaine concentrations and volumes ranging between 1-2% to 4% and 2-10 ml were administered for pain control. The time period after drug administration was generally 3-5 minutes. Increasing drug volumes used for intrauterine anesthesia can lead to tubal extravasation resulting with peritoneal irritation and abdominal pain (7).

**Table 1. Demographic characteristics of patient**

| | Intrauterine lidocaine (n:43) | Paracervical lidocaine (n:40) | Rectal indomethacine (n:41) | Control (n:42) | p |
|---|---|---|---|---|---|
| Age (years) | 45.84±7.25 | 49.43±9.01 | 45.98±7.03 | 48.6±6.34 | 0.128 |
| Gravidity(n) | 3(2-20) | 3(0-11) | 3(0-12) | 4(2-9) | 0.07 |
| Parity(n) | 3(2-16) | 3(0-8) | 3(0-12) | 3(1-5) | 0.474 |
| Vaginal delivery(n) | 3(0-16) | 3(0-6) | 2(0-12) | 3(0-5) | 0.253 |
| Cesarean section(n) | 0(0-4) | 0(0-2) | 0(0-3) | 0(0-2) | 0.403 |
| BMI(kg/m2) | 28.33±5.33 | 30.52±5.41 | 28.9±5.22 | 30.27±2.46 | 0.10 |

** Kruskal Wallis H test*
*** One-way ANOVA test Data was given as mean±SD or Median(min-max)*

**Table 2. Distribution of educational level, menopausal status and endications of patients in the groups**

| | | Intrauterine lidocaine (IUL) n (43) | Paracervical lidocaine (PCL) n (40) | Rectal indomethacine (RI) n (41) | Control(C) n (42) |
|---|---|---|---|---|---|
| Education (n%) | None<br>Primary school<br>Middle school<br>High school<br>University | 7 (16.3%)<br>28 (65.1%)<br>2 (4.7%)<br>5 (11.6%)<br>1 (2.3%) | 6 (15%)<br>27 (67.5)<br>2 (5%)<br>3 (7.5%)<br>2 (5%) | 5 (12.2%)<br>25 (61%)<br>6 (14.6)<br>4 (9.8)<br>1 (2.4) | 4 (9.5%)<br>31 (73.8%)<br>4 (9.5%)<br>2 (4.8%)<br>1 (2.4%) |
| Menopausal status (n%) | No<br>Yes | 36 (83.7%)<br>7 (16.3%) | 29 (72.5%)<br>11 (27.5) | 36 (87.8)<br>5 (12.2) | 34 (81%)<br>8 (19%) |
| Endication (n%) | Abnormal uterine bleeding | 33 (76.7%) | 28 (70%) | 34 (82.9) | 31 (73.8%) |
| | Postmenopausal bleeding | 4 (9.3%) | 25 (25%) | 4 (9.8) | 6 (14.3%) |
| | Endometrial thickening | 3 (7 %) | 1 (2.5%) | 2 (4.9%) | - |
| | Abnormal uterine bleeding+ myoma uteri | 1 (2.3%) | - | - | 3 (7.1%) |
| | Postmenopausal endometrial thicknening | 2 (4.7%) | 1 (2.5%) | 1 (2.4%) | 2 (4.8%) |

**Table 3. Comparisons of VAS scores and Intervention times between the groups**

| | Intrauterine lidocaine(IUL) (n:43) | Paracervical lidocaine(PCL) (n:40) | Rectal indomethacine(RI) (n:41) | Control (C)(n:) (n:42) | p |
|---|---|---|---|---|---|
| VAS (0) | 4.70±2.32 | 4.95±2.38 | 4.61±1.96 | 6.52±1.25 | 0.000 |
| Intergroup analysis of VAS (0) | IUL&RI<br>IUL&PCL<br>PCL&RI<br>IUL&C<br>PCL&C<br>RI&C | | | | 1.000<br>1.000<br>1.000<br>0.000<br>0.002<br>0.000 |
| VAS (30) | 1.19±0.66 | 1.25±0.58 | 1.15±0.42 | 1.1±0.29 | 0.452 |
| Intervention time(minutes) | 5.70±0.99 | 5.5±0.96 | 3.76±1.01 | 3.76±0.53 | 0.000 |
| Intergroup analysis of Intervention time | PCL&IU<br>IUL&C<br>PCL&C<br>IUL&RI<br>PCL&RI<br>RI&C | | | | 1.000<br>0.000<br>0.000<br>0.000<br>0.000<br>1.000 |

** Kruskal Wallis H test ** Adjusted p was calculated with Bonferroni correction*

In our study we administered 4 ml lidocaine and waited 2 minute after drug inject for the pain relief effect to occur during intrauterine block.

Paracervical block is widely used for pain relief in endometrial sampling procedures (5)(8). Paracervical block helps reducing pain generated from cervix, lower uterine segment but not uterine corpus. Different drug injection sites are present during paracervical block such as injecting the drug at the 3 and 9 o'clock, 4 and 8 o'clock and 5 and 7 o'clock localizations. Nonetheless neurovascular bundle including cervical artery presents at the 3 and 9 o'clock position, injecting the drug at this site posseses the risk of intravasation of the drug to the artery. For this reason we have done all of the paracervical blocks at 4 and 8 o'clock position.

Adverse effects related to paracervical block may range from mild to severe such as dizziness, hypotension, bradycardia, convulsion and respiratory arrest resulting with death (9). As the paracervical block is effective in pain control originating from cervix, lower uterine segment, it is not effective in pain control from upper parts of the uterus. It is proposed that intrauterine topical anesthesia is effective pain control from body and upper parts of the uterus by blocking nerve endings located in the endometrial mucosa (10)(11). Besides intrauterine application of local anesthetic has some advantages over paracervical installation such as minimal risk of intravasation, less bleeding and more easy to perform.

Sargın et. al. compared the effectiveness of intrauterine lidocaine infusion, paracervical lidocaine installation, intravenous tenoxicam and intravenous saline used for pain relief during endometrial biopsy with pipelle. They found that all of the anesthesia/analgesia patients had lower pain scores than the control group while intravenous tenoxicam group had higher pain scores than intrauterine and paracervical block groups (3). Cengiz et al evaluated the pain scores of women having endometrial biopsy with paracervical block or intrauterine lidocaine installation. They reported that pain scores of the women immediately after the biopsy were not different but pain scores 30 minutes after the biopsy were lower in the intrauterine lidocaine group (5).

NSAIDs having analgesic and anti-inflammatory effects are used widely in postprocedural pain management in obstetric and gynecological

procedures. Cyclooxygenase enzyme inhibition related with decreased prostaglandin synthesis is the main mechanism for the anti-inflammatory and analgesic effect. Oral or IV NSAIDs such as naproxen sodium, etodolac, diclofenac sodium, dexketoprofentrometamol are used for pain control inendometrial sampling procedures (12)(13)(4)(14)(15)). Indomethacine is also a NSAID that is used orally for pain control in gynecological procedures (16). Also it has rectal administration in preterm labour management. Karaman et. al. evaluated the pain relief effect of rectal indomethacine during hysterosalpingography among the study and control groups. They concluded that patients in the study group having rectal indomethacine before the procedure had lower pain scores than the patients in the control group (16). Api et. al evaluated the pain relief effect of oral nonsteroidal analgesic and intrauterine local anesthetic among patients undergoing uterine fractional curettage. They reported that oral nonsteroidal analgesic and intrauterine local anesthetic were equally effective in pain management in fractional curettage procedures (4). In the current study pain scores of the patients having rectal indomethacine were not different from the patients having paracervical or intrauterine lidocaine block whereas all of the patients having drug installation had lower pain scores than the ones in the control group.

The major limitation of the study is relatively small number of postmenopausal women in the cohort that was not sufficient for evaluating the effect of menopause on the percieved pain. The major strenght of the study is that all of the endometrial sampling procedures were done by the same doctor that is minimazing interpersonal variability.

Paracervical block with lidocaine, intrauterine lidocaine installation and rectal indomethacine administration were equally effective in pain control during endometrial biopsy with suction curretage. The choice of the analgesia/anesthesia type depend on the surgeons' preference and experience, and the patients' and hospitals' conditions.

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