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ORIGINAL RESEARCH

A comparison of several ways of performing the paracervical block during the first trimester of pregnancy termination

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ABSTRACT

Background: Abortion is the termination of a pregnancy prior to the possibility of the baby being born alive; it may happen naturally or it can be induced. Just 10% of clinics in Turkey make use of general anaesthesia (GA), whereas 58% of clinics make use of local anaesthesia (LA) with or without oral premedication, and 32% of clinics make use of intravenous sedation in conjunction with LA

Aims and Objectives: This study compares the several ways of performing the paracervical block during the first trimester of pregnancy termination and examines whether variations in placement of local anesthetic in paracervical blocks influence effectiveness using local anesthetic is superior to saline.

Material and methods: This is a prospective comparison research on 200 pregnant women who arrived to either an outpatient clinic for prenatal care with a first-trimester abortion or an emergency department prepared for a D&C procedure. Two hundred women with ASA I-II who were diagnosed to undergo an abortion by ultrasonography and who presented for termination of pregnancy by suction and curettage. Group A: One hundred women were randomly assigned to have a PCB injection of five millilitres of lidocaine solution containing two percent (100 milligrammes) in each side of the cervix at the three and nine o'clock positions. Group B: One hundred ladies were given GA. During the GA, an intravenous bolus of propofol ranging from 2.5–4 mg/kg was administered as an intravenous anaesthetic in combination with an intravenous dose of 1 g/kg of fentanyl administered through intravenous route.

Results: The results of this study showed that pain assessment during D&C in group A: PCB was most commonly moderate during dilatation and mild pain during aspiration and curettage (50, 80, and 55%, respectively), whereas immediately after the procedure, 95% of the patients felt mild pain according to the VRS. The VAS was used to analyse the patient's level of pain, and the results showed that the dilatation caused a pain score of 3.74±2.41, the aspiration caused a pain score of 3.44±0.83, the curettage caused a pain score of 4.22±1.24, and the pain score immediately after the treatment was 2.72±0.59. The results of this investigation demonstrated that after one hour, pain ratings were

lower in the sample that was treated with LA (2.18±0.63) than GA (3.02±1.04), and the difference between the two groups was statistically and clinically significant (P=0.001)
Conclusion: With the stipulation that we wait a few minutes before initiating the treatment, we have determined that the PCB is preferable to general anaesthesia. Our decision was reached after much deliberation. This is due to the fact that the PCB assures the patient's comfort while avoiding the harmful effects of general anaesthesia.
Keywords: Paracervical block, First trimester, Pregnancy termination

INTRODUCTION

Abortion is the termination of a pregnancy prior to the possibility of the baby being born alive; it may happen naturally or it can be induced [1]. Just 10% of clinics in Turkey make use of general anaesthesia (GA), whereas 58% of clinics make use of local anaesthesia (LA) with or without oral premedication, and 32% of clinics make use of intravenous sedation in conjunction with LA [2]. In the United States, the vast majority of abortions are carried out with the use of a paracervical block (PCB). PCB is performed by injecting a local anaesthetic (LA) around the cervix in order to numb the nerves in the surrounding area [3]. It has been demonstrated that an abortion conducted using LA entails a reduced risk of complications and costs less, thus its use should be promoted [4]. Moreover, the majority of women are able to endure the treatment when it is performed by a skilled professional.

AIMS AND OBJECTIVES

This study compares the several ways of performing the paracervical block during the first trimester of pregnancy termination and examines whether variations in placement of local anesthetic in paracervical blocks influence effectiveness using local anesthetic is superior to saline.

MATERIAL AND METHODS

This is a prospective comparison research on 200 pregnant women who arrived to either an outpatient clinic for prenatal care with a first-trimester abortion or an emergency department prepared for a D&C procedure. They completed all of the selection criteria (inclusion–exclusion criteria), and they signed the study's informed permission. Two hundred women with ASA I-II who were diagnosed to undergo an abortion by ultrasonography and who presented for termination of pregnancy by suction and curettage. These female patients were chosen from the outpatient clinic as well as the emergency department. The women were separated into two groups of equal size by a random process.

GROUP A

One hundred women were randomly assigned to have a PCB injection of five millilitres of lidocaine solution containing two percent (100 milligrammes) in each side of the cervix at the three and nine o'clock positions.

GROUP B

One hundred ladies were given GA. During the GA, an intravenous bolus of propofol ranging from 2.5–4 mg/kg was administered as an intravenous anaesthetic in combination with an intravenous dose of 1 g/kg of fentanyl administered through intravenous. We may also keep the patient under anaesthesia by employing one minimal alveolar concentration of isoflurane in oxygen as inhalational anaesthesia. This can be done by wearing a face mask.

INCLUSION CRITERIA

Age greater than 20 years, ASA I (no history of medical diseases such as cardiac, renal, hypertension, or diabetes mellitus), gestational age less than 11 weeks by a certain date of the last menstrual period or by ultrasound. Age greater than 20 years, ASA I (no history of medical diseases such as cardiac, renal, hypertension, or diabetes mellitus) (with missed abortion, blighted ovum, or inevitable abortion).

EXCLUSION CRITERIA

Women who did not meet the inclusion criteria, had a gestational age that was more than 11 weeks, and women who had a history of a medical issue or an allergy to drugs were not allowed to participate in the study.

METHODOLOGY

In order to carry out the PCB technique, an injection of 5 ml of 2% lidocaine (100 mg solution) was administered into each side of the cervix using a spinal needle in the cervicovaginal junction at the 3 and 9 o'clock positions at a depth of 1 cm. Intermittent aspiration was performed both before and during the injection in order to protect the paracervical blood vessels from being punctured. This was done in order to ensure that the blood When the local anaesthetic was injected, a delay of four minutes was given before commencing the process of uterine evacuation. This procedure included the use of vacuum aspiration and curettage to remove the uterine contents. Before inserting a tenaculum vertically on the anterior lip of the cervix, a bimanual pelvic examination was carried out. After that, dilators were used to conduct dilatation, vacuum aspiration, and curettage. Finally, the cervix was cauterised. It was necessary to utilise dilators, with a maximum of no. 9 Hegar dilators, in order to dilate the cervix enough in order to allow for the insertion of the flexible vacuum cannula and aspiration. It was determined with the use of a pointed curette that the uterus had been emptied.

The patient was observed for a total of six hours after surgery, and during that time, a visual analogue pain scale (VAS) and a verbal rating scale (VRS) were used to evaluate the patient's level of discomfort one hour after surgery. After that, the patient was allowed to go home. The patient had the ability to request general anaesthesia at any point throughout the process, and the facilities necessary to provide GA were always at her disposal. The pain visual analogue scale (VAS) is a one-dimensional measurement of the intensity of pain. A VAS ranging from 0 to 10 was used to evaluate the degree of pain. The women were asked about the position of the pain intensity during the abortion and again 1 h later or using the VRS, the women were asked to assign one of the following six adjectives (absent, mild, moderate, severe, distressing, and exhausting) to describe the pain suffered during the procedure and after 1 h. the women were also asked to assign one of the following six adjectives to describe the pain suffered during the abortion and after 1 h. The patient was asked to evaluate their level of discomfort twice over the course of the operation, once during the procedure itself and once one hour after it had concluded. The patient was subjected to repeated postoperative local and general examinations, which made it possible to identify any adverse effects, including a rash, rigours, chills, fever, asthma, nausea, vomiting, disorientation, and sleepiness. Patients who were unable to tolerate PCB and required GA were those who had uterine evacuation of abortion by vacuum aspiration. Determining the analgesic impact of PCB in this procedure may be done with the use of an adequate statistical analysis. Every piece of data was logged and then subjected to statistical examination.

RESULTS

The studied groups were comparable with regard to their demographic characteristics (P>0.05), which showed that the mean age group was 30.58±4.85 and 29.11±4.27 in group A and group B, respectively; the mean gestational age in weeks was 8.5 weeks (8.51±0.87) in both groups; the mean gravidity was 4.11±1.74 and 3.71±1.44 in both groups, respectively; and the BMI was 28.01±1.98 and 28.11±1.88 in both groups (Table 1).

Table 1: Comparison between groups according to the demographic characteristics

Basic parameter	Group A	Group B	*P* value
Age (years)	30.58±4.85	29.11±4.27	0.22
Gravidity	4.11±1.74	3.71±1.44	0.32
Parity	2	2	0.47
BMI (kg/m^2)	28.01±1.98	28.11±1.88	0.41
GA (weeks)	8.51±0.87	8.52±0.79	0.36
Mode of delivery CS	43	57	0.21
NVD	57	43	
Previous history of abortion and D&C			
No	65	71	0.47
Yes	35	29	
Type of current abortion			
Blighted ovum	15	11	0.52
Inevi C table	6	5	
Missed	74	84	

The results of this study showed that pain assessment during D&C in group A: PCB was most commonly moderate during dilatation and mild pain during aspiration and curettage (50, 80, and 55%, respectively), whereas immediately after the procedure, 95% of the patients felt mild pain according to the VRS (Table 2).

Table 2: Pain assessment during D&C using (verbal rating scale) among group A: paracervical block

Pain estimation during D&C (VRS)	No pain	Mild pain	Moderate pain	Severe pain
Dilatation	20	20	50	10
Aspiration	0	80	20	0
Curettage	0	55	35	10
Immediately after the procedure	0	95	5	0

The VAS was used to analyse the patient's level of pain, and the results showed that the dilatation caused a pain score of 3.74±2.41, the aspiration caused a pain score of 3.44±0.83, the curettage caused a pain score of 4.22±1.24, and the pain score immediately after the treatment was 2.72±0.59. (Table 3).

Table 3: Visual analog scale assessment during D&C in group A: paracervical block

VAS during D&C	Range (mean±SD)
Dilatation pain score	3.74±2.41
Aspiration pain score	3.44±0.83
Curettage pain score	4.22±1.24

Immediately postprocedure pain	2.72±0.59

The results of this investigation demonstrated that after one hour, pain ratings were lower in the sample that was treated with LA (2.18±0.63) than GA (3.02±1.04), and the difference between the two groups was statistically and clinically significant (P=0.001) (Table 4)

Table 4: Comparison between groups according to visual analog scale 1 h after D&C

	Group A	Group B	P value
VAS 1 h after D&C	2.18±0.63	3.02±1.04	<0.001

In this study, the most common complications were nausea (7% in group A and 13% in group B), vomiting (3% in group A and 15% in group B), dizziness (7% in group A and 9% in group B), drowsiness (7% in group A and 11% in group B), and failure of anaesthesia (3% in group A and 0% in group B). The incidence of nausea and vomiting was statistically significantly higher in the GA group than in the LA group, with a P value of 0.02 There were no instances of laryngeal spasm that were recorded in any of the groups (Table 5)

Table 5: Comparison between the groups studied according to the side effects of anesthesia

Side effects of anesthesia	Group A	Group B	P
Nausea			
No	93	87	0.32
Yes	7	13	
Vomiting			
No	97	85	0.02
Yes	3	15	
Drowsiness			
No	93	89	0.38
Yes	7	11	
Dizziness			
No	93	91	0.52
Yes	7	9	
Failure rate of anesthesia			
No	97	100	0.47
Yes	3	0	

DISCUSSION

PCB is a kind of laparoscopic assisted birthing that is commonly used all over the globe for non-invasive gynaecological operations. It entails injecting lidocaine into the paracervical area using a risk-free approach in order to block the sensory nerves of the uterine cervix. This procedure is used to alleviate labour pain. Because of PCB's anaesthetic action, cervical manipulation may take place with a significant decrease in associated discomfort [5]. Analgesia from PCB is most often administered to patients undergoing gynaecological procedures that include the manipulation or dilatation of the cervical canal. The termination of pregnancies, hysteroscopy, and the ablation or excision of the cervical cervix are examples of typical uses [6]. The experience of pain is a complicated phenomena that involves both physical and psychological interactions, and it varies quite a little from one woman to the next [7]. The pain that a patient feels after an abortion surgery is the result of a complicated

interaction between a variety of medical, psychological, social, and social psychological elements [8].

In the present investigation, the pain evaluation during D&C by VRS in group A: PCB was most typically moderate during dilatation and mild pain during aspiration and curettage; nevertheless, immediately after the surgery, 95% of the patients reported minor pain. This conclusion is consistent with the findings of Donati et al. [4], who conducted a research with the intention of estimating the amount of pain associated with a first-trimester abortion while the subject was given either PCB or GA. PCB was carried out by injecting 15 millilitres of mepivacaine at a concentration of 2% into the cervix at a depth of one centimetre at three and nine o'clock positions respectively. According to the VRS, more than fifty percent of the women said that the pain during the surgery was either minor or moderate, and it subsided within sixty minutes. In addition, Murray et al. [7] found that the local paracervical anaesthetic resulted in much reduced discomfort both during and after the process of dilatation and aspiration. The findings of this investigation are consistent with the findings of the present study. These findings do not corroborate the conclusions drawn by Gómez et al.[9] They observed that the pain reduction generated by PCB was insignificant; severe discomfort that was not acceptable happened in nearly half of the patients. They used 5 ml of lidocaine 1% and injected it at 0.5 cm depth. Nevertheless, none of the patients needed GA in order for the treatment to be successfully completed. The intraoperative pain level corresponded to a range of 0–7 on the VAS in the current study. There was an increased incidence of mild pain on the visual scale in group A during curettage, aspiration, and immediately after the procedure, whereas there was an increase in moderate pain during dilatation.

In a randomised controlled study conducted by Chanrachakul et al. [10], the researchers injected 10 millilitres of lidocaine solution containing one percent at a depth of one centimetre at the three and nine o'clock locations of the cervicovaginal reflection. They came to the conclusion that lidocaine is more effective for PCB during fractional curettage, and they stated that the mean pain level in the trial was four on the visual analogue scale (VAS). These findings are in conformity with the findings of the present investigation (range, 2–6). This finding is in agreement with the findings of Mankowski et al. [11], who used 20 ml of buffered lidocaine and injected it equally at 3, 5, 7, and 9 o'clock at the cervicovaginal junction. They found that the mean pain score in dilation under PCB was 2.6 and 3.9 with curettage; this is in contrast to the results of the current study. This research, on the other hand, contradicts the findings of Buppasiri and colleagues [12], who injected 5 millilitres of 2% lignocaine into the lateral fornix at the 3 and 9 o'clock locations at a depth of 3 and 5 millilitres. They discovered that the mean pain score in the PCB group as measured by the VAS was 2.5 during the dilatation phase and 6.5 during the suction phase of fractional curettage. Furthermore, they discovered that approximately forty percent of the patients in the PCB group required intraoperative sedation because they were unable to tolerate the pain of the procedure. The use of a sharp curette in conjunction with more vigorous manipulation was mostly to blame for the increased pain ratings that were seen in Buppasiri's research. Moreover, Renner et al. [3] administered 2 millilitres of 1% buffered lidocaine into the tenaculum site, followed by a slow and deep injection of 18 millilitres into four different sites at the 2, 4, 8, and 10 o'clock positions. Their findings did not coincide with the findings of our research, and they reported a substantially higher level of discomfort both during dilatation (where their mean pain score was 4.2) and aspiration (the mean pain score was 6.3). In the present research, the pain ratings fell in the sample under LA (2.18±0.63) than GA (3.02±1.04) after 1 hour, with a highly statistically significant difference between both groups. The pain scores were lower in the sample under LA than GA.

The findings of Acmaz et al. [2] were in agreement with those of the current study; they reported that significant pain reduction was achieved for both the intraoperative and postoperative periods by using PCB with ultracaine injected at the 5 and 7 o'clock positions at the cervicovaginal junction. This was achieved by injecting the medication at the 5 and 7 o'clock positions at the cervicovaginal junction. Donati et al. [4] found that the pain ratings were significantly greater in the sample that was given GA as opposed to the group that was given LA 1 hour after D&C. In this study, the most common complications were nausea, vomiting, dizziness, drowsiness, and failure of anaesthesia. Nausea, vomiting, dizziness, and drowsiness were more common in the GA group than in the LA group, with a statistically significant difference according to vomiting, P value of 0.02. Failure of anaesthesia was more common in the GA group than in the LA group. Yet, there has not been a single instance of laryngeal spasm that has been documented. According to the findings of Buppasiri et al. [12], which were in line with the findings of our investigation, seven percent of the patients who were given PCB reported feeling dizzy. This was the case for three of the 44 patients.The technique was well tolerated by the patients, which is evident from the few cases that reported that the most common side effects of PCB were headache and vomiting. Vadhera et al. [13] reported that PCB with 10 ml of lignocaine 2% injected at the 3 and 9 o'clock positions on both sides of the cervix is an effective and safe method for surgical evacuation of early pregnancy. [13]

Also, Wong et al. [14], who conducted a study to evaluate the role of conscious sedation in pain relief during the termination of a first-trimester abortion by suction evacuation under local anaesthesia with 10 ml of 1% lidocaine, found that the use of conscious sedation significantly increased dizziness ($P = 0.015$) and drowsiness ($P = 0.001$) in the participants. This research disagrees with the findings of Gómez et al. [9], who said that there were no postoperative problems, such as nausea and vomiting. From the beginning, the SBP, DBP, and HR of both groups were comparable. Throughout the operation, all of the hemodynamic measures, including blood pressure (both systolic and diastolic), and heart rate (HR), were considerably lower in group B (GA) than they were in group A (PCB), with a P value of 0.001.

This finding is consistent with the findings of Bümen et al. [15], who discovered that all of the hemodynamic measures (SBP, DBP, and HR) were considerably lower in the (GA) group in comparison to the PCB group. PCB was carried out using one hundred milligrammes of prilocaine 2%.

CONCLUSION

With the stipulation that we wait a few minutes before initiating the treatment, we have determined that the PCB is preferable to general anaesthesia. Our decision was reached after much deliberation. This is due to the fact that the PCB assures the patient's comfort while avoiding the harmful effects of general anaesthesia. Some of these unpleasant symptoms include nausea, vomiting, dizziness, sleepiness, and higher alterations in hemodynamics. In addition to this, the cost of the PCB is much lower than that of general anaesthesia.

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