Comparison of Level of Pain between Using Manual Vacuum Aspiration and Sharp Curettage in Management of Abnormal Uterine Bleeding

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Objective: *To compare the level of pain between using manual vacuum aspiration and sharp curettage in the patients who had abnormal uterine bleeding that underwent uterine curettage under paracervical block with analgesics.*
Design: *Randomized controlled trial study.*
Material and Method: *Between September 2009 to June 2010, 48 women with abnormal uterine bleeding who need to undergone uterine curettage were asked to join the present study and informed consents were signed. Twenty four women were randomly assigned into manual vacuum aspiration (MVA) group and other 24 women into sharp curettage group. The main outcome was the difference of the level of pain before, during and after procedure measured by using the visual analog scale and categorical pain scores. Fisher exact, Student t test and Mann-Whitney U test were used for statistical analysis.*
Results: *The median visual analog score during MVA-procedure was significantly lower than the median visual analog score during in sharp curettage (median visual analog pain scores (interquartile range) 80 (30-100) vs. 45 (0-80); $p < 0.01$)). And the median score immediately after procedure in the MVA group was also significantly lower than in the sharp curettage group (median visual analog pain scores (interquartile range) 45 (0-80 vs. 25 (0-70); $p = 0.02$). The categorical pain score in the MVA group during procedure and immediately after procedure were also significantly lower than in the sharp curettage group. (No pain to mild pain vs. moderated to severe pain; $p = 0.03$, immediately after procedure: no pain to mild pain vs. moderated to severe pain; $p = 0.01$).*
Conclusion: *The level of pain in the patients who underwent uterine curettage by using MVA was lower than using sharp curettage. The using MVA may reduce pain compared to sharp curettage. However, more sample size research should be conducted to determine this significant.*

Keywords: *Manual vacuum aspiration, Sharp curettage, Visual analog scale*

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Abnormal uterine bleeding is the common gynecologic problem in reproductive, perimenopausal and postmenopausal women[1,2]. Abnormal uterine bleeding can be caused by uterine cancer, endometrial hyperplasia, endometrial polyps or uterine fibroids or may represent dysfunctional uterine bleeding. Endometrial sampling allows for a histological diagnosis to guide treatment. In Thailand, sharp curettage is a standard procedure using for this endometrial sampling and usually requires mechanical dilation of the cervix with pain controlled by general anesthesia or heavy sedation.

Manual vacuum aspiration (MVA) equipment has been used internationally for more than 30 years[3]. Numerous studies have shown vacuum aspiration to be an effective and safer alternative to dilatation and curettage for induced abortion, incomplete abortion treatment and endometrial biopsy[4,5]. The World Health Organization (WHO) has been recognized manual vacuum aspiration as the preferred method for uterine evacuation[6] and considers it an essential element at the first referral level of health care systems[7]. MVA may be used to sample the endometrium in patients with abnormal uterine bleeding. It is always performed in a procedure room with the use of local anesthesia with or without analgesics. Clinical evidence has shown MVA to be at least as safe and effective as sharp curettage and more portable and therefore,

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accessible[8,9]. However, there was no study compared level of pain between using manual vacuum aspiration and sharp curettage in management of abnormal uterine bleeding.

The aim of the present study was to compare level of pain between using manual vacuum aspiration and sharp curettage in the patients who had abnormal uterine bleeding that undergoing uterine curettage under paracervical block with analgesics.

Material and Method

From September 2009 to June 2010, the women who attended the gynecology department of the Thammasat University Hospital, Thailand and had abnormal uterine bleeding were interviewed. Fifty two women who need to undergo the uterine curettage were invited to join the present study. After the introduction and discussion about the present study, they were asked to sign the informed consent. They agreed to return for a follow-up and complete a diary chart of side effect and the amount of acetaminophen used. Exclusion criteria included known allergy, sensitivity, or contraindication to NSAIDs and misoprostal. The patients were not currently prescribed on neither analgesic nor anxiolytic drug such as morphine, pethidine, diazepam and midazolam etc.

After the exclusion, 48 women remained in the present study. They were randomized with a block of four techniques and separated into 2 groups. The randomization distribution was kept in sealed, sequential opaque envelopes, which were opened after the patients entering the operative room. The patients and staff that collected data were blinded to type of instrument (sharp curettage or MVA). The patients in the MVA group had uterine curettage done by using manual vacuum aspiration and the patients in the sharp curettage group had uterine curettage done by using sharp curettage. All patients had to take, orally, 2 tablet of 200 μg misoprostal and one tablet of 25 mg-diclofenac for 3 hours and 30 minutes before the procedures, respectively. The operations were performed by the same surgeon under paracervical block with 1% lidocaine. The lidocaine was injected, 5 ml each, at 3 and 9 o' clock position of cervicovaginal reflection at an estimated depth of 1 cm with a 22-gauge spinal needle and the procedures were performed after the injection for 5 minutes to ensure the onset of action.

All patients received psychological support before, during and after the procedure. They were informed about the role of each individual inside the operating room and the procedure was clearly explained during the entire process in order to identify and respond to the women's needs. Ethical approval for the present study was obtained from Human Research Ethical Committee, the Faculty of Medicine, Thammasat University.

Data collections included patient's age; marital status; history of menstruation, vaginal delivery, miscarriage, uterine curettage; size of uterus; indication for uterine curettage; estimated blood loss; operative time and complications. Levels of pain were evaluated before, during and after the operation. To indicate the intensity of pain, patients were asked to use a visual analog scale, by marking an "X" on a 100-mm line (0 mm = no pain, 100 mm = intolerable pain). And to indicate the severity of pain, patients were asked to select a categorical pain scale as 0, 1, 2 and 3 which representing no pain, mild, moderate and severe pain, respectively[10]. All patients had to estimate the intensity and severity of pain by using the visual analog scale and categorical pain scale before and during procedure as well as immediately and 30 minute after procedure. Patient satisfaction was assessed at the end of the procedure by asking the question "Do you feel satisfy with this procedure?". At 1 week-follow-up, the patients were interviewed for the adverse effects, total amount of acetaminophen used and satisfaction. The diary chart was also carefully reviewed in detail.

Sample size calculation was performed by using the result from the previous studies[11,12]. Assuming pain score in sharp curettage group and MVA group was 0.5 and 0.4, respectively. With an alpha of 0.05, a power of 80%, a 2-side analysis result in 21 patients was required per group.

Results

A total of 52 patients were enrolled in the present study. 4 patients were excluded from study (1 patient denied the present study, 2 patients currently use anxiolytic drug, 1 patient allergy to NSAID). Of the 48 recruited patients, 24 were randomized to sharp curettage group and 24 patients to MVA group. No statistically significant differences were found between two groups in age, parity, number of vaginal delivery, history of curettage and depth of uterine cavity (Table 1). There was also no difference in difficulty levels of the procedure but the mean operative time in sharp curettage group were longer than in MVA group with statistical significance (Table 1).

The visual analog score for MVA group was significant lower than sharp curettage group during operative procedure (median visual analog pain scores

Table 1. Characteristics of women undergoing uterine curettage, operative time and difficulty level of procedure

	Sharp curettage group	MVA group	p-value
Age (years)	46.83 ± 4.47	47.38 ± 7.04	0.75 [a]
Parity			
Nulliparous	2	2	
Multiparous	22	22	1.00 [b]
No. Of vaginal delivery			
0	5	5	
≥ 1	19	19	1.00 [b]
Previous curettage			
0	17	17	
≥ 1	7	7	1.00 [b]
Uterine sound			
< 8 cms	6	3	
≥ 8 cms	18	21	0.46 [b]
Operative time (min)	17.71 ± 5.89	14.25 ± 4.40	0.02 [a]
Difficulty level of procedure			
Easy	15	18	
Not easy	9	6	0.35 [b]

[a] t-test was used
[b] Fisher exact test was used

(interquartile range) 80 (30-100) vs. 45 (0-80); $p < 0.01$) and immediate postoperative procedure (median visual analog pain scores (interquartile range) 45 (0-80) vs. 25 (0-70); $p = 0.02$). There was also a significant difference in categorical pain score between MVA group and sharp curettage group during operative procedure (no pain to mild pain vs. moderated to severe pain; $p = 0.03$) and immediate postoperative procedure (no pain to mild pain vs. moderated to severe pain; $p = 0.01$) (Table 2). The amount of postoperative acetaminophen used was not different between two groups. Patients' satisfaction in MVA group was significantly higher than in sharp curettage group (Table 3). There was no serious complication (such as uterine perforate, massive bleeding etc) in each procedure and endometrial samplings in both groups were adequate for histological diagnosis.

Discussion

This is the randomized control study to compare level of pain between using manual vacuum aspiration and sharp curettage in management of abnormal uterine bleeding. The previous studies have been compared MVA and sharp curettage using in case of abnormal uterine bleeding by comparing hospital stay and cost. They found the length of hospital stay and cost were significantly reduced with introduction of MVA as compared to sharp curettage[13], but no study was compared the level of pain. In the present study, the level of pain was significantly lower in MVA group than sharp curettage group and the operative time was significantly shorter in MVA group. The less intensity and severity of pain in MVA group may be from the shorter operative time and easier procedure than using sharp curettage. Some providers have expressed the opinion that treatment of incomplete abortion, particularly with MVA, is a quick and easy procedure, and if done properly, with adequate verbal reassurance and pre-procedure counseling, sometime there is no need for any other form of pain management[14].

As the present study, the authors counseled and reassured all patients before procedure. The strength of the present study included utilizing a validated method of pain measurement and only one gynecologist performed procedure which could decrease interpersonal variation. The weakness of the present study is although the authors use randomized controlled trial method but the authors cannot blind the operator from instrument. However, the patients and staff that collected data were blinded to type of instrument and the authors use the same well-trained operator that performed gently procedure in all cases. In conclusion, the level of pain in the patients who underwent uterine curettage by using MVA was lower than using sharp curettage. The using MVA may reduce pain compared to sharp curettage. However, more

Table 2. Visual analog score and categorical pain score

		Sharp curettage group (n = 24)	MVA group (n = 24)	p-value
Visual analog score	Before operation	5* (0-50)**	10* (0-50)**	0.58 [a]
	During operation	80* (30-100)**	45* (0-80)**	< 0.01
	Immediate postoperative procedure	45* (0-80)**	25* (0-70)**	0.02 [a]
	30 min postoperative procedure	20* (0-70)**	10* (0-30)**	0.10 [a]
Categorical pain score	Before			
	No pain to mild	19	23	
	Moderate to severe	5	1	0.18 [b]
	During			
	No pain to mild	2	8	
	Moderate to severe	22	16	0.03 [b]
	Immediate postoperative procedure			
	No pain to mild	10	19	
	Moderate to severe	14	5	0.01 [b]
	30 min postoperative procedure			
	No pain to mild	20	23	
	Moderate to severe	4	1	0.34 [b]

* Median
** Interquartile range
[a] Mann-Whitney U test was used
[b] Fisher exact test was used

Table 3. Patient satisfaction and amount of post operative acetaminophen used

	Sharp curettage group	MVA group	p-value
Satisfaction			
yes	18	24	0.02 [a]
Amount of postoperative acetaminophen used	1.46 $\pm$ 1.35	1.38 $\pm$ 1.86	0.50 [b]

[a] Fisher exact test was used
[b] Mann-Whitney U test was used

sample size research should be conducted to determine this significant.

Potential conflicts of interest

None.

References

1. Baird DT. Amenorrhea, anovulation, and dysfunctional uterine bleeding. In: DeGroot LJ, Jameson JL, editors. Endocrinology. 4th ed. Philadelphia: W.B. Saunders; 2001: 2086-104.
2. Livingstone M, Fraser IS. Mechanisms of abnormal uterine bleeding. Hum Reprod Update 2002; 8: 60-7.
3. Greenslade FC, Leonard AH, Benson J, Winkler J, Henderson VL. Manual vacuum aspiration: a summary of clinical and programmatic experience worldwide. Chapel Hill, NC: IPAS; 1993.
4. Grimes DA. Diagnostic dilation and curettage: a reappraisal. Am J Obstet Gynecol 1982; 142: 1-6.
5. Baird TL, Gringle RE, Greenslade FC. MVA in the treatment of incomplete abortion: Clinic and programmatic experience. Carrboro, NC: IPAS; 1995.
6. World Health Organization. Managing complication in pregnancy and childbirth: a guide for midwives and doctors. Geneva: WHO; 2000.
7. World Health Organization. Complication of abortion: technical and managerial guidelines for prevention and treatment. Geneva: WHO; 1995.
8. Greenslade FC, Ortiz Mariscal JD, Abernathy M. Endometrial sampling technologies for the office or clinic. Resource for Women's Health. Chapel

Hill, NC: Resource for Women's Health; 1997.
9. Hale RW, Reich LA, Joiner JM, Pion RJ, Kobara T. Histopathologic evaluation of uteri curetted by flexible suction cannula. Am J Obstet Gynecol 1976; 125: 805-8.
10. Chapman CR, Syrjara KL. Measurement of pain. In: Loeser JD, Bonica JJ editors. Bonica's management of pain. Philadelphia: Lippincott Williams & Wilkins; 2001: 310-28.
11. Manyou B, Phupong V. Prospective randomized, double-blinded, placebo-controlled trial of preoperative etoricoxib for pain relief in uterine fractional curettage under paracervical block. Eur J Obstet Gynecol Reprod Biol 2008; 140: 90-4.
12. Lopez JC, Vigil-De Gracia P, Vega-Malek JC, Ruiz E, Vergara V. A randomized comparison of different methods of analgesia in abortion using manual vacuum aspiration. Int J Gynaecol Obstet 2007; 99: 91-4.
13. Foster-Rosales A, Koontz SL, Molina de P, Leon K. Cost savings of manual vacuum aspiration for endometrial sampling in El Salvador. Contraception 2003; 68: 353-7.
14. Solo J. Easing the pain: pain management in the treatment of incomplete abortion. Reprod Health Matters 2000; 8: 45-51.

การเปรียบเทียบระดับความเจ็บปวดระหว่างการใช้เครื่องดูดสุญญากาศชนิดใช้มือ (manual vacuum aspiration) กับการขูดมดลูกในการนำเยื่อบุโพรงมดลูกมาตรวจในผู้ป่วยที่มีเลือดออกผิดปกติจากโพรงมดลูก

อาทิตย์ บุญยรางกูร, อรวรรณ เล็กสกุลไชย

วัตถุประสงค์: *เพื่อศึกษาเปรียบเทียบความเจ็บปวดระหว่างการทำการใช้เครื่องดูดสุญญากาศชนิดใช้มือ (MVA) เพื่อนำชิ้นเนื้อเยื่อบุโพรงมดลูกมาตรวจกับการขูดมดลูก (sharp curettage) ในผู้ป่วยที่มีเลือดออกผิดปกติจากโพรงมดลูก*

รูปแบบการศึกษา: *การวิจัยเชิงทดลอง*

วัสดุและวิธีการ: *ทำการศึกษาระหว่างเดือนกันยายน พ.ศ. 2552 ถึง เดือนมิถุนายน พ.ศ. 2553 กลุ่มตัวอย่างทั้งหมด 48 ราย ที่มีเลือดออกผิดปกติจากโพรงมดลูกที่จำเป็นต้องได้รับการขูดมดลูก โดยแบ่งกลุ่ม ตัวอย่างเป็น 2 กลุ่ม โดยการสุ่ม กลุ่มแรก 24 ราย ใช้เครื่องดูดสุญญากาศชนิดใช้มือ (MVA) และกลุ่มที่ 2 จำนวน 24 ราย ใช้การขูดมดลูก ประเมินระดับความเจ็บปวดโดยการใช้ visual analog scale (VAS) และ categorical pain score ทั้งก่อน ระหว่าง และหลังการทำหัตถการ*

ผลการศึกษา: *ระดับความเจ็บปวดระหว่างและหลังการทำหัตถการทันทีในกลุ่มที่ใช้ MVA น้อยกว่าในกลุ่มที่ใช้การขูดมดลูกอย่างมีนัยสำคัญ ค่ามัธยฐานของ VAS ระหว่างทำหัตถการในกลุ่มที่ใช้ MVA เป็น 45 (0-80) เทียบกับค่ามัธยฐานของ VAS ระหว่างทำหัตถการในกลุ่มที่ใช้การขูดมดลูกเป็น 80 (30-100) และค่ามัธยฐานของ VAS หลังการทำหัตถการทันทีในกลุ่มที่ใช้ MVA เป็น 45 (0-80) เทียบกับค่ามัธยฐานของ VAS หลังการทำหัตถการทันทีในกลุ่มที่ใช้การขูดมดลูกเป็น 25 (0-70) ส่วน categorical pain score ระหว่างและหลังการทำหัตถการทันที ในกลุ่มที่ใช้ MVA น้อยกว่าในกลุ่มที่ใช้การขูดมดลูกอย่างมีนัยสำคัญ*

สรุป: *ระดับความเจ็บปวดในผู้ป่วยที่มีเลือดออกผิดปกติจากโพรงมดลูกซึ่งใช้ MVA เพื่อนำชิ้นเนื้อจากโพรงมดลูกมาตรวจน้อยกว่าการใช้การขูดมดลูก ดังนั้นการนำเครื่องดูดสุญญากาศชนิดใช้มือเพื่อนำมารักษาผู้ป่วยที่มีเลือดออกผิดปกติจากโพรงมดลูกนั้นอาจจะลดความเจ็บปวดจากการขูดมดลูกลงได้ อย่างไรก็ตามอาจต้องทำการศึกษาเพิ่มเติมเพื่อให้ได้ข้อมูลชัดเจนยิ่งขึ้น*