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Comparison of therapeutic abortion efficacy by suction curettage and misoprostol vaginally in the first trimester of pregnancy

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Abstract

Background: This study compared the health outcomes of abortion by vaginal misoprostol tablets and suction curettage in the first trimester of pregnancy.

Materials and Methods: In this study, 220 pregnant women (under 14 week's gestational age) who candidate for termination of pregnancy (due to fetal or maternal reasons) were divided into the treatment and surgery groups. In the medical abortion group, 600 µg vaginal misoprostol was given, then 36 hours later if needed this dose was repeated. However, if the remains of the pregnancy were observed by ultrasound 1 week after the initial dose, the curettage was done. Suction curettage was used in the surgical abortion group.

Results: In general, 79% of treatment group had a complete abortion without the need for surgical abortion. In all subjects of surgical groups, all products of pregnancy with surgical curettage were fully discharged. The mean satisfaction from amount of bleeding in the drug and medical abortion groups was 80% and 84%, respectively with no statistical difference.

Conclusion: The obtained results showed that misoprostol as an effective alternative to surgical termination of pregnancy can be used at the first trimester abortions.

Keywords: therapeutic abortion, surgical abortion, misoprostol

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Please cite this paper as:

Zargar M, Nikbakhti R, Najigivi V, Hemadi M. Comparison of therapeutic abortion efficacy by suction curettage and misoprostol vaginally in the first trimester of pregnancy. Jentashapir J Health Res 2013; 4(5):355-362

Received: 10.03.2013

Accepted: 31.08.2013

Introduction

The decision to perform an abortion is influenced by a variety of medical considerations. There are numerous maternal and fetal indications for termination of pregnancy (1-3).

For example, the pregnant women with hypertension, mitral valve sparseness, severe diabetic retinopathy or eisenmenger syndrome are face with high probability to die during every pregnancy (4-5).

In addition,, if the pregnancy is associated with fetal anencephaly, thalassemia, mole and incomplete abortion, termination of pregnancy is seriously recommended. According to WHO statistics, about 46 million abortions per year are performed in the world today(6).

On the other hand, almost 20% of all maternal deaths are caused by abortion, particularly illegal abortion. Several methods exist for termination of pregnancy in the first trimester of pregnancy that the most important ones are induction and medicine methods (7). Indeed, nearly half of all legal abortions are carried out by induced abortion method.

In the past, the induced abortions were carried out only by surgery so that, in 97% of cases was performed by suction-curettage technique. One of the surgical abortion procedures is cervical dilatation method and then curettage that is performed by Kurt metal and extremely dangerous (8).

Furthermore,another surgical method is cervical dilatation and uterine contents suctioned that is easier and safer method comparison with the previous one.. In recent years, medical termination of pregnancy is introduced as suitable alternative to surgical termination of pregnancy in the entire world. The first medical abortion in the United States in 1960 was conducted by anti metabolite (9-10). In fact, medical abortion was carried out by medicines and without early surgical intervention.

Misoprostol (analog of prostaglandin1), methotrexate and dinoprostol (analog of prostaglandin1) are most famous drug which used for abortion as drug therapy and it seems that the misoprostol due to no need to freeze and easy application into the vagina, is more appropriate (10).

The methotrexate is cytotoxic agent for placental tissue and is applied to treat malignant trophoblastic tumors and other epithelial tumors as well as prescribed as a safe and effective agent in the treatment of non-ruptured ectopic pregnancy (10).

Given that , there are also some studies that reported the simpler and fewer complications of medical abortion in compared to the surgery and this study aimed to compare the success rate and complications of abortion therapy with surgical and medical techniques.

Materials and Methods

A randomized controlled clinical trial study was designed Through the period from July 2007 to July 2009, healthy subjects between the ages of 21 and 41 years undergoing abortion therapy and pregnancy termination (n = 220) due to some medical and legal recommendation based on the statistical methods were randomly divided equally into two groups (n=110) at the start of the abortion procedure: Group surgical method (control, n = 110) and group medicine method (experiment, n = 110) .

The patients were selected based on:1- Patient awareness of both surgical and medical of pregnancy termination methods and related complications 2- Gestational age of 14 weeks or less , based on the ultrasound measurements, with intrauterine pregnancy 3- Having a reason for termination of pregnancy (maternal and fetal reason, missed abortion and null pregnancy) 4- Patients with kidney disease, anemia, pelvic inflammatory disease, asthma and

coagulation disorders 5- Lack of access to the patient for follow-up were also excluded. In addition, an informed consent was completed by all contributors before initiating the study.

Subsequent to selecting the patients, initially they were divided into two medical and surgical groups so that the medical group was received vaginally misoprostol and the surgery method was performed by suction curettage technique.

Questionnaire that contains: Gestational age, the dose of misoprostol used for medicinal patients and the time needed for spontaneous expulsion and evacuation was completed for each patient. Additionally, the need for suction curettage, cause of termination of pregnancy, presence or absence of FHR, uterine cramps, duration of the spotting or bleeding after abortion, postoperative pain and satisfaction from treatment was concluded as well.

The data was collected directly from patient answers and observations at several stages and were recorded using an appropriated questionnaires ..

Initially, each patient was noticed with pros and cons of each pregnancy termination method and with full knowledge and notice of the abortion drug method.

The performing suction curettage was also enrolled if they do not respond to medication procedure.

The signed consents to the inclusion of contributors were obtained .The safety of this method in terms of spiritual and material have been approved previously by the Research Ethics Committee of the Medical University of Ahvaz.

Misoprostol group

On the first visit of the patient ,if there is no ban on prescribing n misoprostol, misoprostol tablets 800 mg was placed into her posterior vaginal fornix and then the complete blood tests to determine blood group, urine analysis and a vaginal ultrasound were applied.

72 hours after administration of misoprostol the patient was normally recommended to come back to the clinic for vaginal ultrasound confirming of gestational sac completely removal.

In the second Patient's visit, the patients were asked about pain and the bleeding. In the third Patient's visit (day eight) outcomes were evaluated.

One week after administration of misoprostol and also disposing of the uterine contents and stopping bleeding vaginal, ultrasound was performed to determine pregnancy remains.

If the remains were equal to or greater than 10 mm, the suction curettage was carried out, and in case, the uterine content remains were less than 10 mm, the operation was considered successful.

Suction curettage group:

In surgery group the patients were undergone surgery with general anesthesia.

subsequent to measure of uterine size by bimanual examination, dilatation was performed with appropriate bushey and the contents of the uterus were removed. The patients were all discharged after 6 hours of the procedure.

The patients have prescribed the prophylactic antibiotics with doxycycline 100 mg, 2 times a day for 5 days and have been advised to report any vaginal bleeding to the investigator. Un this study the patients were all followed up for 2 weeks..

Statistical analysis:

The data was analyzed by Chi-square using the software SPSS version 16. Significant level of $P < 0.05$ was applied for statistical analysis.

Results

In this study, 220 women in the first trimester termination of pregnancy were evaluated for medical and surgical methods. The mean age of patients was 28.4

± 6.6 years. Age difference between the two groups was statistically significant. The average number of parity was 6.2 ± 3 (minimum 0 and maximum 8 parity) and the mean gestational age was 9.8 ± 2.8 weeks (minimum 6 and maximum gestational age of 13), respectively. Differences between the average number of gravity and mean gestational age of the two groups were not statistically significant.

Of the 220 studied women, 36 had a live fetus that the forensics agreed to terminate the pregnancy to save the mother's life or had been referred because of fetal anomalies. The most reason of the abortion in the two groups was dead fetus that was confirmed by the ultrasound (control group= 50 cases and medical group= 64 cases). The medical reason of the abortion was in the second step with 70 cases (control group= 35 and medical group= 35). Null pregnancy in 14 cases was observed (control group= 4 and medical group= 10)

The bleeding rate

The bleeding rate was stated in three

Categories: less than a period, the least menstruation, and the most of the period.

that in according it

The results showed that 107 cases had bleeding less than a normal period, 96 subjects had more than menstruation-like bleeding. The menstruation-like bleeding were observed in 17 cases.

It is worth to note that in the medical group, the bleeding of most cases were higher than a normal menstrual bleeding.

However, for the bleeding rate of the two groups there was not statically any significant difference..

The treatment satisfaction rate:

Most of cases reported good satisfaction from the outcome of abortion so that in the medicine group 74 and in the surgical group 76 patients were offered their satisfaction for the final treatment outcome. Satisfaction rate in both groups was not statistically significant

The success rate:

A number of 197 of 220 patients (81%) successfully followed the administration of misoprostol or suction curettage abortion (control group= 110 and medicine group= 87). Therefore, the success rate in the surgical group was significantly higher than the medicine group. The success rate was also correlated with satisfaction rate.

The onset of pain after the first dose and number of doses of misoprostol:

The average onset of pain after taking misoprostol was 5.1 ± 1.5 hours. At least 3 hours and a maximum of 8 hours after the first dose of were recorded for the commencement of the pain. the number of 60 patients with a single dose and 50 ones received the second dose of medication for abortion.

Significant link was not observed between the onset of pain after the first dose and the success rate. Moreover, there was not detected a relationship between the number of doses of misoprostol and the abortion.

Table 1. Baseline characteristics women who admitted to the department were comparable in the two groups

Parameters	Medicine abortion	Surgery abortion	P- value
Age	27.7 \pm 6.2	28.4 \pm 6.6	0.22
Gravity	2.9 \pm 2	3.1 \pm 1.7	0.04
Parity	1.6 \pm 1.4	1.8 \pm 1.5	0.001
Gestational age	9.7 \pm 2.8	10 \pm 3.1	0.007

Table 2. Compare number (percent) Reasons for abortion among medical and surgical abortion groups

Groups	Dead fetus abortion	Medical abortion	Missed abortion
Medicine	(35(31.8%)	64(58.2%)	10(9.1%)
Surgery	35(31.8%)	50(45.5%)	4(7%)
Total	70(35.3%)	114(57.5%)	14(7%)

Table3. Compare the bleeding rate after abortion between medical and surgical abortion treatment

Groups	More than a normal period	Menstruation-like bleeding	Less than a normal period
Medicine	91(82.7%)	6(5.5%)	13(11.8%)
Surgery	5(4.5%)	11(10%)	94(85.5%)
Total	96(43.6%)	17(7.7%)	107(48.6%)

Table 4. Compare the satisfaction rate after abortion between medical and surgical abortion treatment

Groups	Dissatisfaction	Relative satisfaction	Completely satisfied
Medicine	22(20%)	14(12.7%)	74(67.3%)
Surgery	17(15.5%)	17(15.5%)	76(69.1%)
Total	39(17.7%)	31(14.1%)	150(68.2%)

Table 5. Compare the success and failure rates after abortion between medical and surgical abortion treatment

Groups	Success	Failure
Medicine	87(79.1%)	23(20.9%)
Surgery	110(100%)	-
Total	197(89.5%)	23(20.9%)

Discussion

Medicine abortion procedure is a new opportunity for women to avoid surgery. Therefore, the present study investigated the comparison of the two abortion methods, in a clinical trial that is currently being carried out around the world. The most pregnant cases in both groups were at 10 weeks gestation. The results showed that the age, gestational age, gravity and parity numbers were similar in both groups. Therefore, in terms of the factors that may affect the outcome of abortion there was a consistent in the two groups.

The subjects of the present study had different reasons to perpetrate a abortion and ultrasound exam of the dead fetus (missed

abortion) was the most applied device in the two groups. Except missed and medical abortions, other abortion reasons had statistically significant differences between the two groups so that all the cases of incomplete abortion were observed in the surgery group. However, in other cases i.g. null pregnancy and inevitable abortion, the number of patients were neglected.

The amount of bleeding in the two groups differed significantly and in the medicine group this rates was higher than other group so that the bleeding rate of more than four-fifths cases of this group were higher than menstruation-like bleeding.

Conversely, in the surgery group the postoperative bleeding was low so that the bleeding more than a normal period in less than 5% of cases was reported.

In one study by Davis *et al.*, (11) between 2002 and 2004 as a clinical trial 652 women was studied to assess the bleeding patterns after misoprostol compared with surgical treatment. This study stated that the misoprostol, in overall, cause to being more severe and last longer bleeding than suction curettage. This study also suggested that severe bleeding after misoprostol more occurred in younger women as well as in, multiparous women and pregnant women with high gestational age. Because hemoglobin levels after taking drug rarely is causing any interference with curettage or blood transfusion. It's outstanding to note that the results of the present study in terms of haemorrhage were in consistent of the mention study and other completed studies.

Patient's satisfaction in the present study was similar in both treatment groups and the majority of them expressed satisfaction for the operation outcome. In one of the completed studies on misoprostol, majority of patients were satisfied with the medicine treatment and they declared that this regimen was recommended to other friends who they are in a similar situation. In this study, 83 percent of patients were willingness to recommend the medicine abortion regimen to the others.

In the current study, the success rate of monotherapy regimens using misoprostol in the abortion versus surgical abortion treatment nearly was about 80 percent. The success rate of about 84 percent in abortion by misoprostol was obtained in the study conducted by Zhang *et al.*, (13). In this study, 16 and three percent of treatments were failed in medicine and surgical abortion groups, respectively.

In another study, the success rate of abortion by single-dose misoprostol 800

micrograms was compared with suction curettage. In this study, the rate of complete abortion by misoprostol regimen and surgical abortion was nearly 94 and 95 percent, respectively. The present study indicated the fewer side effects and accepting of abortion method was more observed in the medicine group (12).

In another study that conducted in Greece and was published in 2008 was reported that the success rate of abortion by 800 micrograms of misoprostol regimen vaginally was 85 percent. The study suggested that the misoprostol was an effective, safe and acceptable agent for medicine abortion.

In the present study the misoprostol 800 micrograms vaginally was also used for abortion (14).

In another study, for inducing abortion in women with a gestational age of less than 70 days, from 800 micrograms of misoprostol vaginally every 48 hours (up to three doses) was used. The results showed that the rate of pregnancy termination was about 94 percent (15).

While, in another study that conducted by Carbonel *et al.*, (16) in women with amenorrhea for a period of 36-63 days, the same amount of misoprostol (800 microgram) was administered every 24 hours and the rate of pregnancy termination of 89.4 percent was reported that this amount was comparable with results of Bugalho *et al.*, (91.1%) (17) and Jian *et al.*, (88%) (19). Bugalho *et al.*, (18) in other studies pregnancy termination at gestational age less than 6 weeks with vaginal misoprostol was done by 800 microgram and the success rate of abortion was achieved at 87 percent.

In the present study, the success rate of misoprostol in termination of pregnancy was nearly 79 percent, which was less than the mentioned above study.

The lower success rate in the current study could indisputably be due to lack of proper

medicine abortion protocol so that ,in this group, there were cases that after one dose and without take the next dose (in the case of failed abortion), the pregnancy termination by suction-curettage were performed.

However, the current study also had a high success rate in medical abortion.

Nevertheless, the results showed that the one of the main advantages of medicine abortion is that it can get rid of women from the risk of anesthesia and surgery (20).

In Conclusion The results of this clinical trial study showed that the drug abortion technique for pregnancy termination was

appropriate and can be used instead of suction curettage provided the both surgical and medicine procedure to be accessible for the patients

Also, the necessary training about the medication instructions should be given to physician and the appropriated methods are also being taught to the related patients.

Acknowledgments

The authors wish to acknowledge the efforts of Fertility, Infertility and Perinatology Research Center for its support.

References

- 1-Scott JR , DiSaia PJ , Hammond CB , Spellacy WN editor. Danforth's Obstetrics and Gynecology . ninth edition. Philadelphia: JB Lippincott Company; 2003. p. 561.
- 2-Stubblefield PG, Carr-Ellis S, Borgatta L. Methods for induced abortion. *Obstet Gynecol* 2004;104(1):174-85.
- 3-Bartlett LA, Berg CJ, Shulman HB, Zane SB, Green CA, Whitehead S, et al. Risk factors for legal induced abortion-related mortality in the United States. *Obstet Gynecol* 2004;103(4):729-37.
- 4-Lamakov K, Pekhivanov B, Amaliev I. Medical abor tion using methotrexate and misoprostol. Efficacy and .tolerability *Akush Ginekol (Sofiiia)*. 2005;44(3): 8-16
- 5-Borgatta L, French A, Vragovic O, Burnhill MS. Early medical abortion with methotrexate and misoprostol: outcomes and satisfaction among women aged 15-21 years. *J Pediatr Adolesc Gynecol* 2001;14(1):9-16.
- 6-Borgatta L, Burnhill MS, Tyson J, Leonhardt KH, Hausknecht RU, Haskell S. Early medical abortion with methotrexate and misoprostol. *Obstet Gynecol*. 2001; 97(1):6-11.
- 7-Dahiya K, Madan S, Hooda R, Sangwan K, Khosla AH. Evaluation of the efficacy of mifepriston/ misoprostol and methotrexate/misoprostol for medical abortion. *Indian J Med Sci* 2005;59(7):301-6.
- 8-Creinin MD, Wiebe E, Gold M. Methotrexate and misoprostol for early abortion in adolescent women. *J Pediatr Adolesc Gynecol* 1999;12(2):71-7.
- 9-Creinin MD, Fox MC, Teal S, Chen A, Schaff EA, Meyn LA. A randomized comparison of misoprostol 6 to 8 hours versus 24 hours after mifepristone for abortion. *Obstet Gynecol* 2004;103(5 Pt 1):851-9.
- 10-Mufftey PE, Stitely ML, Gherman RB. Early intrauterine pregnancy failure: a randomized trial of medical versus surgical treatment. *Am J Obstet Gynecol* 2002;187(2):321-5.
- 11-Davis AR, Hendlish SK, Westhoff C, Frederick MM, Zhang J, Gilles JM, et al. Bleeding patterns after misoprostol vs surgical treatment of early pregnancy failure: results from a randomized trial. *Am J Obstet Gynecol* 2007;196(1):31.e1-7.
- 12-Cates W, Grimes DA, Schulz KF. Abortion surveillance at CDC: creating public health light out of political heat. *Am J Prev Med* 2000;19(1 Suppl):12-7.
- 13-Zhang J, Gilles JM, Barnhart K, Creinin MD, Westhoff C, Frederick MM. A comparison of medical management with misoprostol and surgical management for early pregnancy failure. *N Engl J Med* 2005;353(8):761-9.
- 14-Prasad S, Kumar A, Divya A. Early termination of pregnancy by single-dose 800 microg misoprostol compared with surgical evacuation. *Fertil Steril* 2009;91(1):28-31.
- 15-Salakos N, Iavazzo C, Bakalianou K, Gregoriou O, Paltoglou G, Kalmantis K, et al. Misoprostol use as a method of medical abortion. *Clin Exp Obstet Gynecol* 2008;35(2):130-2.
- 16-Carbonell Esteve J, Varela L, Velazco A., Tanda R, Cabezas E, Sánchez C. Early abortion with 800 µg of misoprostol by the vaginal route. *Contraception*. 1999; 59; 219-225
- 17-Bugalho A, Mocumbi S, Faúndes A, David E. Termination of pregnancies of <6 weeks gestation with a single dose of 800 microg of vaginal misoprostol. *Contraception* 2000;61(1):47-50.

18-Bugalho A, Bique C, Almeida L, Faúndes A. The effectiveness of intravaginal misoprostol (Cytotec) in inducing abortion after eleven weeks of pregnancy. *Stud Fam Plann* 1993;24(5):319-23.

19-Jain JK, Dutton C, Harwood B, Meckstroth KR, Mishell DR Jr. A prospective randomized, double-blinded, placebo-controlled trial comparing mifepristone and vaginal misoprostol to vaginal misoprostol alone for elective termination of early pregnancy. *Hum Reprod* 2002;17(6):1477-82.

20-Creinin MD, Huang X, Westhoff C, Barnhart K, Gilles JM, Zhang J. Factors related to successful misoprostol treatment for early pregnancy failure. *Obstet Gynecol* 2006;107(4):901-7.