Medical abortion at first trimester of pregnancy with misoprostol

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ABSTRACT

الأهداف: تقييم كفاءة الإجهاض الطبي للحمل في الأشهر الثلاثة الأولى باستخدام عقار ميسوبروستول المهبلي.

الطريقة: أجريت هذه الدراسة الوصفية التحليلية على 100 سيدة في الأشهر الثلاثة الأولى من الحمل، واللواتي تم تحويلهن إلى المستشفيات التعليمية التابعة لجامعة مشهد للعلوم الطبية – مشهد – إيران، من أجل إنهاء حملهن في عام 2006م. تلقت جميع المريضات جرعة أولي من عقار ميسوبروستول بمقدار (800µg – المهبل)، وتلقت المريضات الجرعة الثانية بمقدار (800µg – المهبل) بعد 24 ساعة من الجرعة الأولى إذا كان طرد محصول الحمل غير ناجح وأجريت عملية الكشط (الكحت) إذا كان الحمل لا يزال باقيا.

النتائج: من بين 100 سيدة، 83 (83%) أجريت لهمن عملية إجهاض كاملة وناجحة، واحتاجت 17 منهن إجراء عملية الكشط (كحت). تم إنهاء الحمل لـ55 (62%) مع أول جرعة من عقار ميسوبروستول، 28 سيدة (34%) احتجن للجرعة الثانية. لم يتم ملاحظة أية آثار جانبية مهمة نتيجة للمعالجة المهبلية بعقار ميسوبروستول.

خاتمة: يعتبر الإنهاء الطبي للحمل في الأشهر الثلاثة الأولى باستخدام عقار ميسوبروستول المهبلي، آمن فعالة وبدون آثار جانبية.

Objectives: To evaluate the efficacy of medical abortion at first trimester of pregnancy with vaginal misoprostol.

Methods: This is a descriptive analytic study. It was performed on 100 women at first trimester of pregnancy referred to teaching hospitals related to the Medical Sciences of Mashhad University, Mashhad, Iran for termination of pregnancy in 2006. Each patient received first dose of misoprostol (800 µg/vaginal), the second dose (800 µg/vaginal) was administered 24 hours after the first dose if expulsion of conceptus was not successful and curettage was performed if product of conception remained.

Results: From 100 patients, 83 women (83%) had successful complete abortion, and 17 cases required curettage. Among them, pregnancy was terminated in 55 (62%) with first dose of misoprostol and 28 (34%) of them required second dose. No important side-effects were noted due to vaginal misoprostol treatment.

Conclusion: Termination of pregnancy by medical methods at first trimester of pregnancy with vaginal misoprostol is safe, cost effective, and without side-effects.

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Not all pregnancies result in a live born infant. Of clinically recognized pregnancies, 10-15% are lost at first trimester.[1] Induced abortion is the medical or surgical termination of pregnancy before the time of fetal viability with maternal or fetal indications. Maternal indications include severe cardio vascular diseases, cervical invasive cancer, and so forth. Fetal indications are to prevent a viable birth of a fetus with a significant anatomical or mental deformity. In United States, from every 4 alive births, one elective abortion is performed, and the American College of Obstetricians and Gynecologists supports that elective abortion is a medical method. In Islamic countries such as Iran, elective abortion with mother's request is not permitted, however in many cases, the law has permitted termination of pregnancy with maternal or

fetal indications. From 1930, the standard treatment for abortion at first trimester of pregnancy was dilatation and curettage followed sometimes by complications such as uterine perforation, severe hemorrhage, and infection.[2] Medical pregnancy termination has been an acceptable, replacement for surgical techniques in recent decades. The studies performed with misoprostol indicate that this medication is a suitable replacement for dilatation and curettage and does not have the risks of surgery and anesthesia. In performed studies with administration of misoprostol, success rate of 63-88% have been reported.[3-9] In a study performed on women with gestational age of 12 weeks in 2 groups of medical and surgical treatment in Kashan University in 2005, the success rate in medical treatment was 87.5% and in surgical treatment was 92.5%.[10] A study performed in Tehran University in 2002 reported success of 63% in medical treatment on women with gestational age of less than 13 weeks.[11] The aim of this study is to evaluate the efficacy of misoprostol in pregnancy termination during the first trimester.

Methods. This is a descriptive analytic study. The statistical population involves 100 pregnant women referred to teaching hospitals related to the Medical Sciences of Mashhad University, Mashhad, Iran in 2006 for pregnancy termination with maternal or fetal indications. This study was approved by the Human Investigational Review Board at each participating institution, and all the women gave informed consent. The including criteria were patients complete awareness and acceptance of both medical and surgical methods and their outcomes, intrauterine pregnancy with gestational age of <14 weeks based on sonography or date of the last menstrual period, and specific reasons for abortion [missed abortion (the uterus retains dead products of conception behind a closed cervical os for days or even weeks), blighted ovum (when gestational sac is full of fluid and surrounds small macerated fetus or when no fetus is visible), and therapeutic abortion]. The excluding criteria involve sensitivity to drug, the use of intrauterine device, severe anemia, coagulability disorders, use of anticoagulants, or corticosteroids, active liver diseases, cardiovascular diseases, uncontrolled seizure, and kidney diseases.

We explained the steps of performing the study and circumstances of treatment for qualified patients. A questionnaire was completed for each patient including: Patient's age, gestational age, gravidity, dosage of declared misoprostol, the beginning of vaginal bleeding, time of conceptus expulsion, the need for curettage, period of bleeding after abortion, and probable outcomes (fever, tachycardia, and diarrhea). At the first visit (day one), each patient received 800 μg vaginal dry misoprostol in the posterior fornix of the vagina by a clinician without any additional intervention. We observed the patients for 4 hours for appearing of probable outcomes and if no complication appeared, the patients were discharged. Blood group and rhesus factor (Rh) were determined at first visit. If conceptus expulsion also did not occur based on patient's report (second day), patients received again 800 μg vaginal misoprostol. After one week, control sonography was performed and curettage was carried out if residue remained or if pregnancy continued. During treatment, with beginning of bleeding, Rhogam was injected if the patient's Rh was negative and her husband's Rh was positive.

The data was analyzed by Statistical Package for Social Science (SPSS, version 11) software and Chi-square test. The results on quantitative variables are suggested as mean ± standard deviation (mean±SD) and on qualitative variables $p \leq 0.05$ was considered statistically significant.

Results. In this study, 100 pregnant women were evaluated for termination of pregnancy with vaginal misoprostol during first trimester. The average age of the patients was 27±5 years (minimum 17 and maximum 40), average of pregnancy number 2±1 (minimum 1 and maximum 7) and average of gestational age 10±2 weeks (minimum 6 and maximum 14). Among 100 patients, 83 had successful abortion, 55 of them (62%) following first dose of misoprostol and 28 (34%) required second dose. In the other words, 83 patients had complete abortion and 17 cases required curettage, because conceptus expulsion did not occur or abortion was incomplete (existence of residue in sonography). Correlation between gestational age, pregnancy number, and type of pregnancy with the dose number of drug administration and curettage among 100 patients is summarized in **Table 1**. Statistical analysis with the use of chi-square test indicates that there is significant relation between misoprostol dose and abortion, between gestational age and dose number of medicine declaring, between gestational age and need to curettage, and between type of pregnancy and need to curettage. However, there is no significant relation between gravidity and dose number of medicine declaring, between pregnancy number and need to curettage and between type of pregnancy and dose number of medicine declaring. In this study, no important side-effect was observed.

Discussion. In the last decade, medical abortion has emerged as a realistic alternative to surgical abortion. Medical abortion has been described as a safe, successful, and inexpensive method by patients who have had an experience with this method. There is an increasing awareness among both the general public

and the medical profession for the need to incorporate patients' preferences into medical decision making. The acceptability of any method of treatment will influence the degree to which it is used by consumers and with implications for health care planners. The worry on surgical complications remained the major concern prompting patients to choose a medical rather than a surgical method of abortion. The side effects produced by misoprostol were minimal, and temporary. Misoprostol has been used alone for medical abortion with variable efficacy. The studies of misoprostol-induced abortion in the first trimester reported complete abortion rates of 5-11% among women given a total dose of 400 μg of oral misoprostol.[12,13] Up to 3 800 μg doses of vaginal misoprostol given every 48 hours resulted in complete abortions in up to 96% of women who were no more than 63 days pregnant.[14] The variation in rates of complete abortion among women given misoprostol alone may be due to differences in study design, since rates are often lowest in randomized trials, or to efforts to increase vaginal administration of misoprostol in some studies. In a study performed in Paris University at 2004,[2] 102 patients with gestational age of up to 16 weeks were chosen. On the first day, 800 μg misoprostol was administered and on the second day, sonography was performed, and misoprostol was again administered if products of conception remained. Seventy-two patients had missed abortion, and 30 has required curettage for another reason. In this study, the success rate was 87.4%. In our study, the success rate was 83%, which is less than mentioned study, since missed abortion is less (n=55). A study performed in Colombia University of America on bleeding pattern after medical abortion, in 80 patients with gestational age of up to 11 weeks with the use of 800 μg vaginal misoprostol, the bleeding lasted up to 14 days, but did not affect patient's hemoglobin significantly.[5] In our study, the bleeding days was 10.5±5 days (2-40 days) and only one patient required transfusion because of severe hemorrhage after incomplete abortion (**Figure 1**). We should mention that this patient had missed abortion with gestational age of 12 weeks. Similar studies have performed in our country. In Yazd University in 2005, 50 patients with gestational age of up to 25 weeks and missed abortion were treated with vaginal misoprostol (200 μg every 4 hours up to maximum 4 doses), 44% had complete

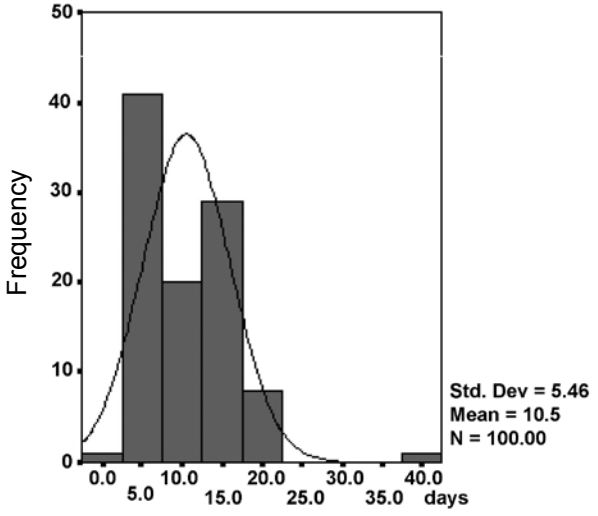

Figure 1 - Frequency of vaginal bleeding days after abortion among 100 patients in Mashhad University in 2006.

Table 1 - Correlation between gestational age, pregnancy number, and type of pregnancy with the dose number of drug administration and curettage among 100 patients in Mashhad University in 2006.

Parameters	Number of drug administration				Need to curettage			
	First dose	Second dose	Total	*P*-value	Yes	No	Total	*P*-value
	n (%)				n (%)			
Gestational age				0.000				0.040
First 7 weeks	14 (87)	2 (13)	16 (100)		10 (0.0)	16 (100)	26 (100)	
Second 7 weeks	44 (52)	40 (48)	84 (100)		17 (20)	67 (80)	84 (100)	
Pregnancy number				0.36				0.980
First pregnancy	26 (63)	15 (48)	41 (100)		7 (17)	34 (83)	41 (100)	
Second and more pregnancy	32 (54)	27 (66)	59 (100)		10 (17)	49 (83)	59 (100)	
Type of pregnancy				0.43				0.050
Missed abortion	30 (55)	25 (54)	55 (100)		13 (24)	42 (76)	55 (100)	
Blighted ovum and therapeutic	28 (63)	17 (38)	45 (100)		4 (9)	41 (91)	45 (100)	

and 56% had incomplete abortion. Probably, this high percent of incomplete abortion compared with our study is because of higher gestational age and lower prescribed misoprostol dose.[15]

In the performed study in Tehran University in 2001, 30 patients with gestational age of less than 13 weeks with missed abortion were treated with vaginal misoprostol (200 μg every 4 hours up to 4 doses) had 63% success rate.[11] Compared with our study, this rate of success may be due to lower misoprostol dose and lower statistical population. The limitation of this study was that some of the patients also did not accept this method when we explained the study's conditions for them. Moreover, others did not refer for follow-up. Based on the results, it would be useful to recommend this treatment strategy to clinical centers.

In conclusion, pregnancy termination with vaginal misoprostol is a safe and economical method without any serious side effects and there is no need for hospitalization. Patient's reception through performed method was desirable, and the most patients suggested this method to others. We hope that performing such studies with more extensive statistical population and choosing suitable ways can result in detailed planning for better health interventions.

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