Misoprostol versus Surgical Intervention for Incomplete Abortion in Iran

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Abstract: Introduction: Incomplete abortion is still one of the most important causes of maternal mortality and morbidity in developing countries. Surgical treatment is the standard treatment for incomplete abortion for years, but Misoprostol usage is recently noted and is safe, effective, and low cost treatment especially in areas with low resources. The aim of this study was to compare the efficacy and safety of misoprostol and surgical treatment in incomplete abortion. **Methods:** In this randomized clinical trial study 150 women with incomplete abortion that referred to Shariati hospital of Bandar-Abbas were evaluated. The patients were divided in 2 groups randomly. Group A received 600 mg misoprostol and D&C was perform for Group B. after 7 days, patients were reevaluated. Successful treatment approved by ultrasonography. Data were analyzed by SPSS-16, descriptive study, Chi-square and T-test. Significant level was set as $P<0.05$. **Results:** The mean age of patients was 27.74 ± 5.84 years. Two groups were not different in age, gestational age, and hemoglobin ($P>0.05$). The success rate after treatment in surgery group (96%) significantly higher than the misoprostol (10.66%) group ($P=0.000$). The patients who had failure of treatment with 2 course of misoprostol were underwent to D&C surgery and all of them were successful. **Conclusion**: The results of this study and other study indicate, although the success rate of misoprostol was lower than surgery, but use of misoprostol for incomplete abortion in women is safe and could prevent uterine rupture and unnecessary surgeries, particularly in women who anesthesia or surgery is contraindicated. Large randomized trials focusing on patients with incomplete abortion are needed to confirm these results.
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1. Introduction

Incomplete abortion is still one of the most important causes of maternal mortality and morbidity in developing countries. Treatment options for incomplete abortion include expectant management, surgical treatment, and medical treatment using misoprostol. Surgical treatment is the standard treatment for incomplete abortion for years and its safety and effectiveness is well established when high quality post-operation care is available for women. Expectant management is also associated with good results but often women prefer to receive faster treatments. Misoprostol usage is recently noted and is safe, effective, and low cost treatment especially in areas with low resources (1).

Recent studies show that medical and expectant management in women with abortion has equal safety and effectiveness but shorter hospital duration and lower need for curettage (2). Even studies which have reported lower success rates in medical treatment in comparison to surgical treatment have recommended medical treatment in low resource areas because of higher satisfactory of women with medical treatment (3). Also patients who undergone medical treatment can start their daily activities faster (4). Misoprostol can be used through oral and vaginal routs (5-7).

Shochet et al have reported misoprostol use in five sub-Saharan African countries. Their results show that misoprostol is safe, effective, and easily available treatment with high satisfactory rate (8). Similar results were reported in a study in Burkina Faso. Also misoprostol was used in a study in Nigeria with a 90% success rate as a safe and acceptable treatment for incomplete abortion. The aim of this study was to compare the efficacy and safety of misoprostol and surgical treatment in incomplete abortion.

2. Material and Methods

This randomized controlled trial was done in 2011. Incomplete abortion was defined as history of expulsion of pregnancy products, seeing incomplete expulsion of pregnancy products in physical exam or by vaginal or pelvic sonography. All patients with diagnosis of incomplete abortion and uterus size less than 12 weeks of gestation; who were equal or more than 18 years old and were living in Bandar Abbas were enrolled in our study, after completion of the written informed consent form.

The exclusion criteria were: History of previous hypersensitivity to Misoprostol; sign and symptoms of septic abortion including fetal or maternal tachycardia, uterus tenderness, plural and malodor secretions, fever, decrease of the level of consciousness, and septic shock; unstable hemodynamic; contraindications of misoprostol administration including asthma, glaucoma, liver and cardiovascular diseases; history of cesarean section or hysterectomy.

Patients were randomly assigned either to receive 600 micrograms oral misoprostol or dilatation & curettage procedure. Study was confirmed by ethics committee of Hormozgan University of Medical Sciences (HUMS). Patients in Misoprostol group received oral misoprostol tablets under the observation of the study researchers. All patients were visited 7 days after the first visit. All patients were asked to contact the researchers for reporting the side effects or asking their questions. Patients were asked to return the hospital after one week after treatment for assessment of the progress. Patients were free to choose to undergone D&C or receive medical treatment if they had treatment failure after one week.

Data was analyzed using SPSS 16 software. Descriptive statistics (frequency, mean, and standard deviation), Chi-Square and Fishers' Exact test, and student t-test were used to analyze the data. P Value less than 0.05 were assumed to be significant.

3. Results

In this study, 150 patients with incomplete abortion were enrolled. No patient had history of hypersensitivity to Misoprostol, symptoms of infection, or hemodynamic instability. Mean age of the participants was 27.74 ± 5.84 years. Also mean gestational age was 9.22 ± 1.51 in our study.

Table 1. Baseline characteristics of the two groups

		Misoprostol	D&C	P Value
Educational level	Uneducated	5 (6.7%)	8 (10.7%)	0.72
	Less than Diploma	26 (34.7%)	18 (24%)	
	Diploma	43 (57.3%)	47 (62.7%)	
	License of higher	1 (1.3%)	2 (2.7%)	
Place of residence	Bandar Abbas	51 (68%)	48 (64%)	0.51
	Rural areas	14 (18.7%)	14 (18.7%)	
	Other cities	10 (13.3%)	13 (17.3%)	
Previous abortion		29 (38.7%)	23 (30.7%)	0.3
Age		28.01 ± 6.19	27.47 ± 5.5	0.569
Gestational age		9.43 ± 1.36	9.01 ± 1.62	0.09
Abortion		0.49 ± 0.64	0.41 ± 0.66	0.454
Death		0.13 ± 0.34	0.16 ± 0.4	0.663
Live		1.17 ± 1.1	0.95 ± 1.06	0.203
Hemoglobin Level		10.59 ± 0.99	10.83 ± 1.15	0.17

Table 2. Comparing the success rate of the two groups

		Misoprostol	D & C	P Value
First Phase	Success	8 (10.66%)	72 (96%)	<0.001
	Failure	67 (89.33%)	3 (4%)	
Second Phase	Success	14 (20.89%)	3 (100%)	-
	Failure	53 (79.1%)	-	

Table 1 compares the baseline characteristics of the patients in two groups. Patients in two groups had similar baseline characteristics in our study.

The primary outcome in our study was treatment success. Table 2 compares the success rate in two groups in our study. We assessed treatment success in two phases. All patients who had treatment failure in misoprostol group were undergone D&C which was successful. Table 3 compares the rate of treatment side effects in two groups. Other treatment side effects weren't reported in our study.

Table 3. Comparing the rate of treatment side effects in two groups

	Misoprostol	D & C	P Value
Severe hemorrhage	2 (2.7%)	0 (0%)	0.49
Uterus rupture	0 (0%)	2 (2.7%)	0.49

4. Discussions

Overall 150 patients were enrolled in our study for incomplete abortion. Patients had similar baseline characteristics in two groups. The success rate was 96% in D & C group in the first phase. This rate was 10.66% in misoprostol group. In the second phase, the success rate was 100% in D & C group in comparison to 20.89% in misoprostol group. At the end all the patients who had treatment failure after two phases of misoprostol treatment were undergone successful D &C.

Other studies confirm our findings about the higher success rate in D & C group (5, 7, 9-11). Also Hung Chang et al have shown that 50% of patients in medical treatment group need surgical treatment (10). Also Ashok et al have confirmed higher rate of need for further procedures in medical treatment group (12). All patients in misoprostol group in our study choose to repeat medical treatment if they had treatment failure in the first phase. Other studies confirm higher compliance in patients in medical treatment group in comparison to surgical treatment group (13). For example, Bique and Demetroulis study reported that although the success rate is higher in surgical treatment but the patients are more satisfied with medical treatment group (3, 10).

The study by Ashok et al reported that 70% of the patients in medical treatment group, and 79% of the patients in surgical treatment group had tendency to repeat the same treatment in future if needed (8). Also we reported saver hemorrhage in two cases in misoprostol group and also uterus rupture in two cases in D & C group.

Other complications weren't reported in our study. Although Ashok et al reported higher rates of complication in medical treatment group, but they reported that both groups had similar rates for major complications within 8 weeks after treatment (8). Hung Chang et al have reported similar results but the rate of late complication was higher in surgical treatment group (11).

Sever hemorrhage seems to be more common in medical treatment group (6, 12). Also Weeks et al have reported lower pain in misoprostol group in comparison to vacuum aspiration (6). According to study results in our study and other similar studies, also treatment with misoprostol has lower success rate but is a safe, acceptable, and high compliance method among pregnant women which can prevent life-threatening complications such as uterus rupture. Also medical treatment is a suitable alternative for reducing unnecessary surgical procedures in women who haven't tendency to surgery or anesthesia or had contraindications for surgery or anesthesia and in the areas with low resources and because of lower costs.

Studies in this issue are limited and often the studies are focused on missed abortion. We haven't seen misoprostol side effects in dosages of 1200 micrograms. Therefore more studies with higher sample sizes and higher dosages of misoprostol are recommended.

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5/5/2013