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Comparison of Medical (Misoprostol) and Surgical Management for Terminating of First Trimester Missed Abortion

M. Behrashi and M. Mahdian
[1]Department of Gynecology, Kashan University of Medical Sciences,
[2]Paramedical Faculty, Kashan University of Medical Sciences, Kashan, Iran

Abstract: To compare misoprostol with curettage in termination of missed abortion (up to 12 week's conception) this study was designed. Eighty women with missed abortion were assigned after random list to be treated with 800 mcg misoprostol intravaginally first and then 400 mcg q.4.h up to 3 doses if was needed (Medical group n = 40) or dilation and sharp curettage (Surgical group n = 40) for terminating of first trimester missed abortion. Thirty five cases (87.5%) in medical group had complete abortion without any need to curettage and in 37 cases (92.5%) in surgical group the uterus was evacuated completely by sharp curettage. This difference was not statistically significant. Duration of bleeding in medical group was significantly more than surgical group. There was no significant difference in hemoglobin level after abortion between two groups. The most complications in medical group were lower abdominal pain and fever. We concluded misoprostol 800 mcg intravaginally (400 mcg q.4.h up to 3 doses, if needed) may offer an efficacious and safe alternative to the surgery and we recommend this method for terminating of first trimester missed abortion.

Key words: Misoprostol, missed abortion, uterine curettage

INTRODUCTION

Early pregnancy failure-also known as blighted ovum, early fetal death, or missed abortion-complicates 15-20% of all pregnancies (Kovavisarach and Jamnansiri, 2005). Uterine curettage has been traditionally used as the surgical method of treatment. It is associated with a 4% to 10% rate of hemorrhage and infection. Uterine adhesions, impaired fertility, cervical trauma, uterine perforation and anesthesia errors are also other potential sequelae of curettage (Muffley *et al*., 2002). Recently, alternatives have been proposed, such as medical treatment by misoprostol, to improve patient satisfaction and to reduce complications and costs generated by surgery (Beucher *et al*., 2003). In series of studies success rate of vaginal misoprostol for terminating early pregnancy failure was reported up to 90% (Beucher *et al*., 2004; Graziosi *et al*., 2004; Ngoc *et al*., 2004; Borgatta *et al*., 2004). However, some studies reported lower success rate (Szymanska *et al*., 2003). On the other hand there are different reports about the complications of this drug (Kovavisarach and Jamnansiri, 2005; Coughlin *et al*., 2004) and (Zou *et al*., 2004). Because of controversial reports about efficacy and complications of misoprostol and to determine weather medical treatment of early pregnancy failure represents a reasonable alternative surgical therapy, this study was designed.

MATERIALS AND METHODS

After obtaining approval from our local IRB and written informed consent 80 patients (mean age 19-42 years) who were diagnosed with missed abortion (confirmed by ultrasonography) were randomly assigned to receive either medical (intravaginal misoprostol) or surgical (dilation and sharp curettage) therapy in Shabih Khani gynecological hospital in Kashan (IRAN) in 2004. All patients examined by gynecologist. Patients who had cardiac disease, hypertension, asthma, glaucoma, inflammatory bowel disease, controlled epilepsy, hypersensitivity to prostaglandin E, severe hepatic disease, lactation period, excessive bleeding and dilated internal cervical os were excluded from the study.

In surgical group patients (control group), dilation and sharp curettage was performed. If cervical dilation was not possible in operating room, patient would undergo medical treatment and follow up till complete recovery, but she did not consider as a participant in medical (case) group. In medical group (case group), initially 800 mcg of misoprostol was placed within the posterior vaginal fornix and as required, it was repeated 400 mcg every 4 h up to 3 doses.

During the treatment period, from the administration of the first dose to 4 h after the last dose, patients' vital signs (blood pressure, pulse rate, temperature) were being

Corresponding Author: M. Behrashi, Department of Gynecology, Kashan University of Medical Sciences, Kashan, Iran
Tel: 0098 361 4460180

controlled and recorded every 1 h. Abdominal pain was relieved with meperidine 50 mg (intramuscularly) or diclofenac suppository 100 mg (rectally) and fever (T>38°C) with acetamionophen (325 mg) q.4.h.

In the case of heavy bleeding during the treatment, the patients underwent curettage. By 24 h after administrating of initial dose, if the pregnancy was not completely aborted at this time, treatment was considered as a failure of therapy and uterine curettage was performed but the patient didn't enroll in surgical arm of study.

Patients in each group were discharged the next morning with follow up care card. If patients' Rh was negative, anti D immunoglobulin ampoule was administered intramuscularly.

The complications of medical or surgical treatment were recorded on a data sheet. In surgical group, doxicyclin was administered for the short period of time after the operation. In medical group 15 days after the initial dose of misoprostol sonography was performed and if products of conception was present, curettage would be carried out. If abnormal bleeding or signs of infection was observed in surgical group, ultrasonography would be performed and if pregnancy products existed, curettage would be conducted again.

Hemoglobin level assessed at the time of admission and 15 days later. The patients were asked about the duration and severity of bleeding.

Statistical analysis was performed with chi-square analysis, fisher's exact test and paired t-test.

RESULTS AND DISCUSSION

There was no statistically significant difference regarding demographic or clinical characteristics between two groups (Table 1). Complete expulsion of conception was less in medical than surgical group, but this different was not significant (Table 2).

In medical group the mean time from the initial dose of misoprostol to start of bleeding was 4.8±2.5 h and the mean time from first dose to expulsion of pregnancy products was 10±3.4 h. Duration of bleeding period after procedure was greater in medical than in surgical group, but there was no significant difference between two groups regarding hemoglobin levels before and after abortion (Table 3).

Neither of the patients in both groups need blood transfusion. The most complication in medical group were abdominal pain and fever (Fig. 1) and the most serious complication in surgical group was uterine perforation occurred in one case. Other important complications after curettage were heavy bleeding (1 case), cervical laceration

Table 1: Clinical characteristics of the studied population

Surgical therapy (control) n = 40	Medical therapy (case) n = 40	Patients' characteristics
28±5.6	28.3±5.9	Age (Year)
77.9±15	81.3±16.5	Pregnancy age based on LMP (days)
52.9±11.1	52.5±12.3	Pregnancy age based on sonography (days)
8 (20%)	6 (15%)	Cesarean section history
6 (15%)	8 (20%)	Abortion history
14 (35%)	16 (40%)	Nulliparity

*p>0.05

Table 2: Frequency distribution of success and failure rate concerning two methods of treatment

Medical group		Surgical group		Groups
(%)	No.	(%)	No.	Expulsion
87.5	35	92.5	37	Complete
10	4	5	2	Incomplete
2.5	1	2.5	1	Remained pregnancy
100	40	100	40	Sum

*p>0.05

Table 3: Duration of bleeding after procedure and post treatment hemoglobin in two arms of study

	Medical group	Surgical group	p-value
Duration of bleeding (day)	12.1±3.7	9±1.7	p<0.001
Post treatment Hb (g dL^{-1})	12.1±1.2	12.3±1.1	p = 0.50

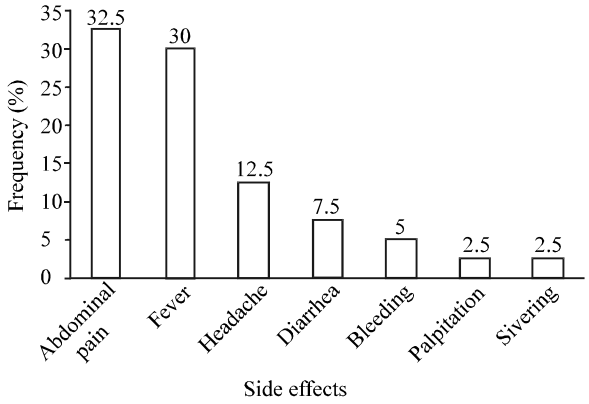

Fig. 1: Side effects of misoprostol in 40 patients underwent medical treatment

(1 case), remained products of conception and infection (1 case), undilated cervix (2 cases), shivering (2 cases) and vomiting (2 cases).

Several clinical trials have evaluated the use of misoprostol alone for the termination of early pregnancy failure (Jain *et al*., 2001; Muffley *et al*., 2002; Wood *et al*., 2002; Prasartsakulchai and Tannirandorn, 2004).

The success rate reported in the most of them (60-90%) depended on dosage and the mode and frequency of drug administration. The complete abortion rate in this study (87.5%) was close to that obtained by Ngai *et al*. (2001), Wood *et al*. (2002), Bagratee *et al*. (2004) and Phupong *et al*. (2004).

Lower success rate (30.3%) for misoprostol, reported by Szymanska *et al*. (2003). Compare to our study they used 400 mcg rather than 800 mcg and this success variation maybe due to this reason.

Differences in initial dosage, time intervals during drug administration, methods of drug administration, populations and criteria for diagnosis of incomplete abortion were suggested to be relevant in explaining differences in out come (Kovavisarach and Jamnansiri, 2005).

There was no occurrence of life- threatening bleeding and no subject required transfusion in both groups. This finding is similar to findings of Singh *et al*. (2003), Wood *et al*. (2002), Muffley *et al*. (2002) and Davis *et al*. (2004).

There maybe additional benefit with misoprostol even if the treatment is not completely successful. Two cases in medical arm of present study needed curettage and no cervical dilation was required for them, because they had dilated cervix at the time of surgery. In such cases, The risk of perforation and cervical laceration would be decreased.

In this study, there was low incidence of side effects and complications such as fever and abdominal pain and they were tolerable and treated easily. Vomiting was not reported by any of women enrolled in medical group of this study.

Finally, this study suggests misoprostol 800 mcg intravaginally (400 mcg up to 3 doses if needed) may offer an efficacious and safe alternative to the surgery.

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