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Vaginal misoprostol for first trimester termination of pregnancy before nine weeks of gestation

Key Messages

The use of misoprostol alone is not recommended for first trimester abortion up to 9 weeks of pregnancy, because of the high failure rate and low acceptability among patients. Surgical treatment using vacuum evacuation remains the most effective method of managing this group of patients.

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Introduction

Termination of pregnancy is one of the commonest procedures in gynaecological practice. Vacuum aspiration is generally used for first trimester termination of pregnancy. However, this technique is associated with complications such as uterine perforation, cervical injury, and excessive haemorrhage, which may affect an individual's future fertility. The overall complication rate associated with vacuum aspiration is 4 to 10%.

Medical (pharmaceutically induced) abortion has been available in Europe since 1990. With this technique, women can avoid the risks of surgery and anaesthesia. Mifepristone in combination with misoprostol is highly effective for first trimester medical abortion. However, mifepristone is not available in Hong Kong. Mifepristone is a synthetic steroid that competes with the natural hormone progesterone for progesterone receptor binding sites. Misoprostol is a synthetic prostaglandin E1 analogue initially used for the treatment of gastric ulcers. We have shown that it is a safe and effective cervical priming agent prior to vacuum aspiration for first trimester abortions. When given as repeated doses it is also an effective abortifacient for second trimester abortions. A 92% complete abortion rate for first trimester medical abortions (amenorrhoea of <70 days) has been obtained by simply adding water to the misoprostol tablets prior to vaginal insertion.[1] This is the only published study that has shown satisfactory results. We decided to perform this prospective study to find out whether the addition of water to misoprostol tablets before insertion improved the efficacy of first trimester medical abortions with misoprostol alone.

Methods

This study was conducted from July 1998 to June 1999. The subjects were aged between 16 and 42 years. All women met the following criteria: (1) normal general and gynaecological examination; (2) the duration of menstrual delay was <35 days (as calculated from the date when the missed menstrual period should have started); (3) the size of the uterus on pelvic examination was compatible with the estimated duration of pregnancy. Exclusion criteria were: (1) a history or evidence of disorders that represent a contraindication to the use of misoprostol (including mitral stenosis, glaucoma, sickle cell anaemia, diastolic pressure of >100 mm Hg, bronchial asthma); (2) a history or evidence of thromboembolism, severe or recurrent liver disease, or pruritus of pregnancy; (3) presence of an intrauterine contraceptive device in the uterus; (4) suspected or proven ectopic pregnancy; (5) heavy smoker (smoking ≥10 cigarettes daily in the past 2 years) or another risk factor for cardiovascular disease.

Women were randomised into two groups; group 1 received misoprostol with 3 drops of water per tablet, whereas group 2 received misoprostol only. On day 1, women in group 1 received vaginal misoprostol 0.8 mg with 3 drops of water added onto each tablet; women in group 2 received vaginal misoprostol 0.8 mg without water. All women stayed in the day ward for 4 hours of clinical observation. The time of misoprostol administration and expulsion of gestational products, if it occurred, were recorded on the data forms. Women were asked to bring back the tissue mass if it was passed at home. They were

Table 1. Patient characteristics

Patient characteristics	Group 1, n=40	Group 2, n=40
Age (mean±SD) [years]	26.1±6.5	25.5±6.4
Marital status		
Single	24 (60%)	22 (55%)
Married	15 (38%)	17 (43%)
Divorced	1 (3%)	1 (3%)
Nulliparous	32 (80%)	30 (75%)
Menstrual delay (mean±SD) [days]	21.6±7.9	22.0±6.6
Prior abortion	14 (35%)	16 (40%)
Weight (mean±SD) [kg]	49.3±6.5	50.4±7.9
Height (mean±SD) [cm]	158.4±4.3	159.2±5.4

advised to come back if excessive bleeding or abdominal pain was noted. On days 3 and 5, vaginal misoprostol (same treatment as that on day 1) was inserted and the observations were repeated. The women were followed up again on days 15 and 43. A transvaginal ultrasound scan was performed in all women on day 15. Patients were examined and their bleeding patterns were checked on day 43. For those presenting with persistent bleeding or in whom menstruation had not returned, further follow-up appointments were made.

The outcomes of treatment were classified as complete abortion, incomplete abortion, missed abortion, or live pregnancy. The initial judgement about the outcome of therapy was made at the follow-up visit on day 15.

Women not requiring vacuum aspiration were defined as successful cases. Failure was defined as the recourse to surgical abortion due to either method failure or change of patients' decision. The incidence of side-effects, the duration of vaginal bleeding, dosage of analgesic required, and infection rate were compared between the two groups. A standardised questionnaire was given to patients during and after the abortion, in order to assess the acceptability of the treatments.

Results

Patient characteristics

The differences between the patients in groups 1 and 2 are presented in Table 1. A total of 73 of 80 women completed the medical treatment. Seven women, all in group 2, withdrew from the study; three on day 3 and four on day 5, because they did not want to wait any longer. All of them had suction evacuation with no complications.

Side-effects

The incidence of side-effects is shown in Table 2. There were no statistically significant differences in the frequency of any side-effects between the groups. All patients considered that the side-effects were tolerable and transient, and decreased gradually after the first day of treatment. Nausea and vomiting were common but well tolerated. About one quarter (20-28%) of patients in both groups complained of breast tenderness and half (53-58%) complained of fatigue, which was probably related to the pregnancy itself. Pain (uterine cramps) were the commonest problem (75% and 57% in groups 1 and 2, respectively).

The analgesia requirement was similar between the two groups (55.8% and 55.3% in groups 1 and 2, respectively). The majority of patients needed a single dose of oral dextropropoxyphene (Doloxene; Eli Lilly and Co, Indianapolis, US). The incidence and intensity of pain did not vary in relation to the treatment group or gestational age. The duration of bleeding was well tolerated by all women. The pre- and post-treatment haemoglobin levels were comparable between the two groups and there was no significant decrease in haemoglobin levels after treatment. No patient suffered from excessive bleeding or required blood transfusion. The mean time for the onset of bleeding was 6.9 hours in group 1 and 4.4 hours in group 2.

Outcome of treatment

The outcome of termination of pregnancy is shown in Table 3. The success rates were similar between the two groups. In group 1, treatment was successful for 34 of 40 patients (85%; 95% confidence interval [CI], 70-94%) and for 26 of 40 patients in group 2 (65%; 95% CI, 48-79%; P=0.07). There was a trend toward higher success rates in early pregnancy (menstrual delay of <21 days), with the success rate of 94% (95% CI, 72-99%) in group 1 versus 77% (95% CI, 43-87%) in group 2 (P=0.08).

Table 2. Incidence of side-effects*

Side-effects	Day 1		Day 3		Day 5	
	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
Nausea	6 (15)	3 (8)	2 (5)	1 (3)	0 (0)	0 (0)
Vomiting	1 (3)	2 (5)	0 (0)	0 (0)	0 (0)	0 (0)
Diarrhoea	1 (3)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Dizziness	6 (15)	12 (30)	2 (5)	2 (5)	2 (5)	2 (5)
Fainting	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Fatigue	23 (58)	21 (53)	6 (15)	1 (3)	1 (3)	2 (5)
Pain	30 (75)	23 (58)	11 (28)	7 (18)	3 (8)	8 (20)
Breast tenderness	11 (28)	8 (20)	0 (0)	1 (3)	1 (3)	0 (0)
Headache	2 (5)	4 (10)	0 (0)	1 (3)	0 (0)	0 (0)
Others	0 (0)	1 (3)	0 (0)	0 (0)	0 (0)	0 (0)

* Values are presented as No. (%)

Table 3. Outcome of abortion*

Outcome	Group 1, n=40	Group 2, n=40
Successful/complete abortion		
Gestation <7 weeks	17/18 (94)	13/19 (68)
Gestation 7-9 weeks	17/22 (77)	13/21 (62)
Overall success	**34/40 (85)**	**26/40 (65)**
Method failure		
Live pregnancy	1/40 (3)	4/40 (10)
Missed abortion	5/40 (13)	3/40 (8)
Woman's change of mind	0 (0)	7/40 (18)
Doctor's decision	0 (0)	0 (0)
Overall failure	**6/40 (15)**	**14/40 (35)**

* Values are presented as No. (%)

Table 4. Reasons for choosing medical termination of pregnancy

Reason	Patients No. (%)
Worry about risks and complications of surgery	54 (72)
Anxious about undergoing surgery	49 (65)
Worry about the effect of surgery on future pregnancy	11 (14)
Lack of confidence in new medical technology	10 (13)

The breakdown of the 20 failed cases was: (1) method failure: six women in group 1 and seven women in group 2 had either live pregnancy or missed abortion on day 15 requiring vacuum aspiration; (2) woman's change of mind: seven women in group 2 changed their decision and opted for vacuum aspiration before completion of medical treatment; (3) doctor's decision: no women required transfusion or intravenous therapy and none had emergency operations for excessive pain or bleeding.

Reasons for choosing medical termination of pregnancy

The reasons for choosing medical abortion are shown in Table 4. Worry about the risks and complications of surgery was the patients' major concern. The possible adverse effect of surgery on future pregnancies and the lack of confidence about new medical technologies also contributed to the decision-making. Overall, 40% of the patients said they would prefer surgical abortion in the future, because of the inconvenience of medical abortion due to repeated visits (n=15), high failure rate (n=8), prolonged bleeding (n=3), uncertainty about the success of medical treatment (n=1), and pain (n=1).

Discussion

The small sample size was a limitation of our study. Although it reached the estimated sample size calculated before the start of the study, the difference in the overall complete abortion rates between the two groups was less than our initial assumptions. We assumed that the treatment in group 1 and group 2 would lead to complete abortion rates of 90% and 60%, respectively. Under these circumstances, the sample size in each group was set at 40, allowing a 5% dropout rate. Nonetheless, seven women in group 2 withdrew from the study, which exceeded the initial 5% estimate. Recruiting more subjects would have increased the statistical power, but the overall complete abortion rate of 85% in group 1 was not a clinically acceptable result. The small sample size also prevented meaningful subgroup analysis. We found that the complete abortion rate in group 1 is reasonable (94%) in pregnancies with menstrual delays of ≤7 weeks. Further studies may be worthwhile in this group of women.

There is an increasing awareness among both the general public and the medical profession of the need to incorporate patients' preferences into medical decisions. The acceptability of any method of treatment will influence the degree to which clients use it, with important implications for health care planners. Therefore, the patients' views on acceptability of treatment were included in this study. We considered that the acceptability of the misoprostol regimen with or without water was low because 40% of the women said they would not choose this regimen for future abortions. This was largely due to the high failure rate and inconvenience related to frequent visits. Overall, about one fifth of the patients commented that the frequency of visits was higher than expected. Unacceptable side-effects, including prolonged bleeding and pain, also contributed to the preference for a surgical method in the future.

Conclusions

The use of misoprostol alone (either with or without water added) is not recommended for first trimester abortion up to 9 weeks of pregnancy, because of the high failure rate and low acceptability to patients. Further study focusing on medical abortion up to 7 weeks may be worthwhile. Surgical treatment by vacuum evacuation remains the most effective method for managing this group of patients.

Acknowledgement

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Reference

1. Carbonell JL, Varela L, Velazco A, Fernandez C. The use of misoprostol for termination of early pregnancy. Contraception 1997;55:165-8.