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ORAL MISOPROSTOL IS AN EFFECTIVE AND ACCEPTABLE ALTERNATIVE TO VAGINAL ADMINISTRATION FOR CERVICAL PRIMING BEFORE FIRST TRIMESTER PREGNANCY TERMINATION

Gynaecology

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ABSTRACT

Background : Cervical priming agents mainly prostaglandins in different doses and routes are used during first trimester vaccum aspiration to prevent cervical injury and shorten the abortion procedure. This study was carried out to assess women's acceptability, the efficacy and side effects of oral versus vaginal administration of misoprostol in facilitating cervical dilatation prior to first trimester vaccum aspiration.

Methods : A randomised control study where 120 women were divided in oral (51) and vaginal (69) group. Each group received 400 mcg of misoprostol either orally or vaginally 04 h prior to first trimester pregnancy termination. Baseline cervical dilatation, women's acceptability and side effects and complications were noted in both the groups.

Results : There was no difference between the oral and vaginal misoprostol groups with respect to mean cervical dilatation (5.53 mm vs 5.43 mm; $p > 0.05$). A total of 88% of women in the oral group expressed satisfaction with the route of misoprostol administration as compared to 74% in the vaginal route. The women in the vaginal group were experienced more preoperative vaginal bleeding (43% vs 25%).

Conclusion : Oral administration of misoprostol is an effective alternative to vaginal administration in preinduction cervical ripening prior to first trimester pregnancy termination.

KEYWORDS

Oral misoprostol, Cervical dilatation, First trimester pregnancy termination

Introduction

For termination of first trimester unwanted pregnancy, surgical vaccum aspiration is the method of choice. Cervical injury during surgical evacuation can be reduced by making the cervix softer and easier to dilate by using cervical priming agents. Various methods have been described for preoperative cervical ripening prior to vaccum aspiration in first trimester pregnancy termination.

Prostaglandins are frequently used in medical termination of first trimester pregnancy.[1] Misoprostol, a prostaglandin E1 analogue, has been shown to be a better alternative to other prostaglandin preparation, as it is relatively inexpensive, stable at room temperature and associated with fewer side effects than the older prostaglandin analogues.[2]

Vaginal misoprostol given in a dose of 400 mcg, 3–4 h before surgery was shown to be well tolerated and achieved optimal cervical dilation with minimal side effects.[3,4] It has been reported that women prefer the oral route of administration and find it more convenient.[5]

The purpose of this study was to compare the efficacy, acceptability and side effects of the oral and vaginal routes of misoprostol administration in facilitating cervical dilatation prior to first trimester pregnancy termination.

Materials and methods

One hundred twenty-three pregnant women at 6–12 weeks of gestation opting for voluntary termination of pregnancy by vaccum aspiration between January and December, 2016, at Sheth Vadilal Sarabhai(VS) general hospital were recruited for the study. Informed consent was obtained from all women willing to participate in this study. Gestational age was calculated from LMP and in cases of unsure dates, it was confirmed by ultrasonography. Women with known allergy to misoprostol, current medical disorders, a history of previous cervical surgery were excluded from the study.

The subjects were randomly allocated to receive 400 mcg of misoprostol either by oral or vaginal administration, 4 h prior to surgery. Patients were randomised to oral or vaginal misoprostol by drawing a sealed envelope from a box. There were four envelopes in the box and two envelopes were written oral & other two were written vaginal. The symptom questionnaire involved a structured series of questions regarding recognized side effects of the drug. Abdominal pain was graded on a scale of 0–3 (0 – no pain; 1 – mild pain; 2 – moderate, pain requiring no analgesics; 3 – severe pain requiring analgesics) and preoperative vaginal bleeding on a scale of 0–3 (0 – no bleeding; 1 – minimal spotting; 2 – bleeding like menstrual flow (moderate); 3 – heavy bleeding with clots (severe)).

For women's acceptability for the route of administration of misoprostol questionnaire involved was structured questions, satisfied, dissatisfied or don't know.

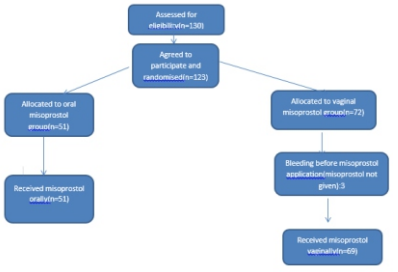
All patients underwent suction termination using a Karmans suction cannula of 6–10-mm diameter under total intravenous anaesthesia (Propofol + Ketamine). Cervical dilatation was measured with Hegar's dilators using sequentially smaller dilators until a dilator entered the internal os easily without resistance. The size of the largest dilator that could be passed into the cervical os without resistance was recorded as the cervical dilatation achieved. The suction cannula chosen was of the same diameter (mm) as the gestational age in weeks. If the suction cannula could slide easily into the uterus, the cervix was considered adequately dilated and abortion was completed without extra dilatation. If further dilatation was needed, it was achieved with successively larger Hegar dilators and the abortion was completed.

The data were entered in the SPSS system and Student's paired *t*-test, arithmetic mean and standard deviation were calculated, the level of statistical significance was set at $p < 0.05$.

Results

123 women recruited for this study and they were randomized into two groups of oral misoprostol ($n = 51$) and vaginal misoprostol ($n = 72$), respectively. 03 women in vaginal group were excluded from the study as they had bleeding before application of vaginal misoprostol. The study design and the no of women recruited to the study are shown in Fig 1. Demographic characteristics among the two treatment groups (Table 1) did not differ significantly. Cervical dilatation between two groups was similar (Table 2) (5.53 vs 5.43, $p = 0.749$).

Fig.1



Study design and number of women recruited.

(Table 1)Characteristics of women undergoing cervical priming with oral and vaginal misoprostol.

characteristics	Oral(n=51)	Vaginal (n=69)	P value
Age(years)	27.76+/-5.36	28.61+/-4.0	0.321
Parity	2.69+/-1.20	3.04+/-0.96	0.078
Period of gestation(days)	57.86+/-13.64	58.96+/-8.19	0.583
BMI	21.21+/-1.96	21.32+/-3.32	0.833

(Table 2)Primary outcome

outcome	Oral(n=51)	Vaginal(n=69)	P value
Cervical dilatation(mm)	5.53	5.43	0.748
Women's acceptability (satisfied)	45	51	0.065

A total of 45/51 (88%) women in the oral group were satisfied with the route of misoprostol administration, 1/51 (2%) were dissatisfied while 5/51 (10%) answered 'don't know'. In the vaginal group, 51/69 (74%) women expressed satisfaction with the route of misoprostol administration, 12/69 (17%) were dissatisfied while 6/69 (9%) answered 'don't know'.

Questionnaire responses showed that the incidence of gastrointestinal side effects such as nausea, vomiting and diarrhoea were not significantly different among the groups. The number of women requesting treatment for lower abdominal pain and fever were also similar in both groups(table 3). Shivering was seen in two patients in the oral group, whereas none of the women in the vaginal group experienced this side effect.

(Table 3)Side effects.

Side effect	Oral(n=51)	Vaginal(n=69)	P value
Fever	01(2%)	00	0.425
Vomiting	02(4%)	01(1.5%)	0.574
Abdominal pain	03(6%)	12(17%)	0.921
Preoperative vaginal bleeding	13(25%)	30(43%)	0.054

The incidence of preoperative vaginal bleeding was increased in the vaginal group as compared to the oral group (43% vs 25%, $p = 0.054$) (Table 3). However, these side effects were mild and did not require any specific treatment. No major side effects such as excessive vaginal bleeding (500 mL), uterine perforation or incomplete abortion were seen in either group. The duration of postoperative bleeding was similar in both groups, with a median of 4 days for the oral misoprostol group and 5 days for the vaginal misoprostol group.

Discussion

Prostaglandins are widely used for the purpose of cervical ripening before vacuum aspiration for first-trimester pregnancy termination. However, their administration is associated with side effects such as abdominal pain, nausea, vomiting and vaginal bleeding in a significant proportion of women. Studies concluded that misoprostol to be significantly more effective than placebo[6,7] and at least as effective as gemeprost and dinoprostone[2,8] in relation to basal cervical dilatation, blood loss and duration of surgery. Although in a majority of comparative studies vaginal administration of misoprostol has been shown to be more effective than oral administration,[9,10] misoprostol may take a long time to dissolve in the vagina, and there may be variability in vaginal absorption between individual woman.[11,12]

This randomised controlled trial compared the acceptability and efficacy of oral and vaginal administration of misoprostol in facilitating cervical dilatation prior to first trimester pregnancy termination. The study showed that over two-thirds of women in each group were satisfied with the route of misoprostol administration used, although of the remaining women, a higher proportion in the vaginal group (17% vs 2%), expressed dissatisfaction compared with those in the oral group. The findings also suggest that oral administration is an effective alternative to vaginal administration and the prevalence of side effects was similar in both the group.

The study was not blinded and both women and staff were aware of the route of misoprostol administration used. This may have introduced bias; however, women's acceptability of the route of misoprostol administration was one of the primary outcome of the study and this would have been difficult to assess had women been blinded to the route of administration.

Recently, the sublingual route has been evaluated as an alternative to oral and vaginal administration. Tang et al13 studied the pharmacokinetics of different routes of administration for a single dose of 400 mcg misoprostol in Asian women undergoing first-trimester pregnancy termination. Sublingual misoprostol was able to achieve the highest serum peak concentration compared to the oral and vaginal routes and it provides additional choice to women, in particular those wishing to avoid vaginal administration but side effects are much more in sublingual group compare to vaginal misoprostol.14,15 The study demonstrates that oral misoprostol achieved similar cervical dilatation as with vaginal misoprostol. There was no difference in gastrointestinal and other side effects noted in both groups. Preoperative vaginal bleeding, similar to menstrual flow, occurred in the 25% of subjects in the oral group and 43% of subjects in the vaginal group.

Oral misoprostol was equally effective in facilitating cervical dilatation prior to vacuum aspiration as vaginal misoprostol. However, the incidence of side effects, such as preoperative vaginal bleeding, was increased in the vaginal group compared to the oral misoprostol group.

This study suggests that oral administration of misoprostol is an effective alternative to vaginal administration in the context of preinduction cervical ripening. Oral administration offers additional choice to women, in particular those wishing to avoid vaginal administration.

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