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Misoprostol – A Cervical Ripening Agent in First Trimester Abortions

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OBJECTIVE – To determine the effective dose of vaginal misoprostol as cervical ripening agent and to find the optimal time interval prior to suction aspiration of first trimester pregnancy. **METHODS** – Three hundred healthy women desirous of termination of pregnancy between six to twelve weeks of gestation were selected for the study. Either 400mg or 600mg misoprostol was kept in the posterior fornix of the vagina. Suction evacuation was done after three hours in the 400mg group and after two hours in the 600mg group. By using Hegar's dilator, dilatation of the cervix was measured. If dilatation was less than Hegar dilator number 8, further dilation was done at the time of evacuation. Amount of blood loss was measured and side effects of the drug and complications of the procedure were noted. **RESULTS** – In the 600mg group, 113 women (75.33%) achieved a cervical dilatation of more than 8mm compared with 137(91.33%) in the 400mg group. The mean cervical dilatation for 400mg and 600mg misoprostol was 8.67 and 7.89 respectively ($p<0.001$) while 600mg misoprostol was associated with more side effects as compared to 400mg and the difference was statistically significant. **CONCLUSIONS** – 400mg of intravaginal misoprostol is effective for cervical ripening and an interval of three hours is an optimal time prior to suction evacuation in first trimester abortions.

Key words : misoprostol, cervical ripening, cervical dilatation, first trimester abortion

Introduction

Cervical priming before suction evacuation of first trimester medical termination of pregnancy is an important pre-requisite in reducing the risks of cervical injury and uterine perforation that are often associated with mechanical dilatation of cervix[1]. The conventional prostaglandin E_1 analogue, gemeprost, has been shown to successfully facilitate cervical dilatation. However, gemeprost is expensive, relatively unstable and requires refrigeration for storage.

Misoprostol, a synthetic 15 deoxy-16 hydroxy 16 methy1 analogue of naturally occurring prostaglandin E_1 is stable, easily stored, inexpensive and used for prevention and treatment of peptic ulcer. It is now being used for termination of first and second trimester pregnancies, for induction of labor and for active management of third stage of labor. It has been used in several treatment regimens with varying degrees of success for preabortion cervical priming.

In a previous study by Singh et al[2], it has been shown that optimal clinical dosage of intravaginal misoprostol for preabortion cervical ripening is 400mg administered three to four hours before vaccum aspiration for first trimester abortions. This is associated with minimal side effects and risks to women.

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The aim of the present study was to determine the effective dose of vaginal misoprostol as a cervical ripening agent and to find the optimal interval prior to suction aspiration.

Material and Methods

Three hundred pregnant women with gestational age between six to twelve weeks were recruited for the study after taking informed consent. Cases were divided in two groups –

In group I, 400mg of misoprostol was kept in posterior fornix of vagina for three hours.

In group II, 600mg of misoprostol was kept in posterior fornix of vagina for two hours.

Side effects if any, of misoprostol, like pain in abdomen, vaginal bleeding and pyrexia more than 38°C were noted. Suction evacuation was done after two to three hours under preremedication with injection pentazocine. Injection glycopyrolate and injection midazolam. General anesthesia was used only if required.

At the time of evacuation, cervical dilatation was measured by using Hegar's dilator. The size of the largest dilator that could be passed into cervical canal without resistance was recorded as the baseline cervical dilatation achieved. If dilatation was less than 8mm, further dilatation was done which was recorded.

Evacuation was done with Karman suction cannula No.8. After the end of the procedure, the uterus was

curetted with a small curette. The amount of intraoperative blood loss was recorded. The Women were kept in the hospital under observation for three to four hours. Any persistent side effect or complication of the procedure was also recorded.

Data recorded was subjected to statistical analysis.

Results

Table I shows that the two groups were similar in relation to maternal age, gravidity and gestational age.

Table I : Characteristics of Women

	Group I	Group II	p-value
Mean age (years)	27.33	27.29	>0.05
Mean gravidity	3.28	3.21	>0.05
Mean gestational age (weeks)	8.23	8.15	>0.05

p>0.05 nonsignificant

Table II shows that the mean cervical dilatation for 400mg and 600mg misoprostol was 8.67 mm and 7.89mm respectively (P<0.001). One hundred and thirty seven (91.33%) of the women who had received 400mg misoprostol for three hours achieved cervical dilatation of more than 8mm compared to 113 (75.33%) of the women who received 600mg misoprostol for two hours. Difference was statistically significant. Women requiring further dilatation were 9.33% in 400mg group as compared to 25.33% in 600mg group (P<0.01). The mean intraoperative blood loss was significantly higher with 600mg of misoprostol (P <0.01).

Table II : Intraoperative Findings

	Group I (n=150)	Group II (n=150)	p-value
Mean cervical dilatation	8.67	7.89	<0.001
Cervical dilatation > 8 mm	137 (91.33%)	113 (75.33%)	<0.01
Cases requiring further dilatation	14 (9.33%)	38 (25.33%)	<0.01
Mean intraoperative blood loss (ml)	54.07	72.40	<0.01

P<0.01 significant p<0.001 highly significant

Table III shows 51.33% women in group II experienced pain in abdomen as compared to 26.67% in group I (P<0.001) while 42% women in group II had vaginal bleeding as compared to 24.67% in group I (P<0.01). 9.33% women experienced fever in group II against none in group I (P<0.01). These results were statistically significant.

Table III : Side Effects

	Group I	Group II	p-value
Pain in abdomen	40 (26.67%)	77 (51.33%)	<0.001
Vaginal bleeding	37 (24.67%)	63 (42%)	<0.01
Products of conception at extent os	6 (4%)	6 (4%)	>0.05
Pyrexia > 38°C	-	14 (9.33%)	<0.01

p>0.05 - non significant p< 0.01 - significant P<0.001 - highly significant

Table IV : Comparison with other studies.

	Present study		Singh et al[2] Misoprostol 200ug		Henry and Haukkamaa[5]
	Group I (n=1500	Group II (n-150)	400ug (n=30)	600ug (n=30)	
Cervical dilatation >8mm	91.3%	70.3%	93.3%	16.7%	7.1
Mean cervical dilatation	8.67	7.89	8.1	6.6	41.1%
Vaginal bleeding	24.67%	42%	20%	26.7%	50.5%
Abdominal pain	26.67%	51.33%	10%	53.3%	-
Fever > 38°C	-	9.33%	-	10%	-

Discussion

The results of the present study confirm an earlier finding by Singh et al[2] that 400mg of intravaginal misoprostol is effective for cervical priming before first trimester pregnancy interruption (Table IV). In their study, 91.3% of women achieved cervical dilatation > 8mm in the 400mg group which was comparable to our findings. Moreover, more side effects were seen with 600mg of misoprostol in both the studies, though the incidence of side effects in the two studies varied.

Our results differ from those of El Rafaey et al[3] who described their experience with 600mg of vaginal misoprostol and those of Lawrie et al[4] who used 800mg of vaginal misoprostol. They did not report any woman with products of conception at os, excessive vaginal bleeding, abdominal pain or fever.

In the study by Henry and Haukkamaa[5], vaginal misoprostol used for cervical priming was 200mg with 4 hours and 47 min. pretermination time. Baseline cervical dilatation achieved was 7.1 mm which is much less as compared to that in the present study, but the incidence of side effects like pain in abdomen and vaginal bleeding was almost the same as in the present study (Table IV). Keeping in view all the factors, it can be said that 400mg misoprostol intravaginally is a better choice because higher cervical dilatation is achieved with minimal side effects in a shorter time, and a shorter treatment time is more practical in day care procedures.

The results of the present study suggest that misoprostol is effective for cervical ripening. Misoprostol offers several advantages over other prostaglandins. It is cost effective, stable at room temperature, orally effective (does not require syringes or needles) and has minimal side effects. These advantages render it a desirable drug for cervical priming before suction evacuation in first trimester abortion. Further the efficacy of vaginal misoprostol for cervical priming is both dose and time dependent. The use of misoprostol 400mg vaginally with a three hour time interval before evacuation appears to be optimal for cervical priming before suction evacuation in first trimester pregnancy termination.

References

1. Grimes DA, Schultz KF, Cates WJ. Prevention of uterine perforation during curettage abortion. *JAMA 1984; 251: 2108-11.*
2. Singh K, Fong YF, Prasad RNV et al. Evacuation interval after vaginal misoprostol for preabortion cervical priming : A randomised trial. *Obstet Gynecol 1999; 94: 431-4.*
3. El Refaey H, Calder T, Wheatley DN et al. Cervical priming with prostaglandin E1 analogues. Misoprostol and Gemeprost. *Lancet 1994; 343: 1207-9.*
4. Lawrie A, Penney G, Templeton A. A randomised comparison of oral and vaginal misoprostol for cervical priming before suction termination of pregnancy. *Br J Obstet Gynecol 1996; 103: 1117-9.*
5. Henry AM, Haukkamaa M. Comparison of vaginal Misoprostol and Gemeprost as pretreatment in first trimester pregnancy interruption. *Br J Obstet Gynecol 1999; 106: 540-3.*