J Obstet Gynecol India Vol. 57, No. 3 : May/June 2007 Pg 210-212

ORIGINAL ARTICLE

The Journal of Obstetrics and Gynecology of India

Comparative study of intravaginal misoprostol and extra amniotic ethacridine lactate instillation for mid trimester pregnancy termination

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Objective: To compare acceptability, safety, efficacy, complications and induction-abortion interval of misoprostol and ethacridine-lactate(0.1%) for midtrimester pregnancy termination.

Method: Twenty-five women of 13-20 weeks pregnancy were randomized in two groups. In group-I, 600 ?g misoprostol was given vaginally followed by 400 ?g 8 hourly upto a maximum 48 hours. In group-II, 150 ml of ethacridine was instilled extraamniotically. Success rate, induction-abortion interval, complications and satisfaction were studied and analyzed using unpaired *t*-test.

Results: Misoprostol was 92 % effective as compared to ethacridine with 80% effectiveness. Mean induction-abortion interval in group-I was 13.94 hours and in group-II, it was 28.86 hours ($p < 0.0001$). In group-I, 84% aborted within 24 hours, and 92% within 36 hours whereas in group-II 16% aborted within 24 hours and 68% within 36 hours while 32% women in group-I and 44% in group-II experienced complications.

Conclusion: Misoprostol is safer, more effective and acceptable than ethacridine for mid trimester termination of pregnancy.

Key Words: isoprostol, ethacridine lactate, midtrimester pregnancy termination

Introduction

Midtrimester termination of pregnancy is one of the most controversial areas of gynecological practice[1]. It has moral, emotional, social and technical issues. There is continuous need for termination of pregnancy in second trimester, more recently due to increase in the use of antenatal diagnostic procedures. Because of inherent morbidity and mortality, midtrimester termination done either by surgical or medical methods deserves special importance. The ideal method is still eluding us. It is debatable which method is safest, most effective and having least complications. No method is simple, safe and optimally effective. Trials are still going on. Dilation and evacuation the only acceptable surgical method is loosing its popularity due to lack of proper training schedule, its inherent complications and the challenge offered by medical methods. Nowadays, majority of midtrimester abortions are carried out medically. There are various medical regimens with variable success rates and complications.

The development of prostaglandin analogues has been a major breakthrough in abortion technology. Natural prostaglandins like PGE; $PGF_{2a,}$ PGE_2, PG analogues like 15-methyl PGF_{2a} have been used by various routes like intravenous, intramuscular, intra/extra amniotic, oral and vaginal. Ethacridine lactate works by producing prostaglandin from decidua; whereas misoprostol being synthetic analogue of PGE_1 is supposed to act directly.

The present study was therfore carried out to compare the acceptability, safety, efficacy and complications of

Paper received on 12/12/2005; accepted on 25/04/2006

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misoprostol with the age old method of ethacridine lactate instillation for midtrimester pregnancy termination in a tertiary referral hospital catering for both rural and urban population.

Methods

Women with pregnancy of 13-20 weeks coming to our termination of pregnancy (MTP) clinic for seeking abortion were counseled regarding various methods, their side effects, dosage schedules and need for subsequent follow up. In one year study from September 2004 to August 2005, 50 women of 13-20 weeks pregnancy were selected and admitted in our hospital for medical termination of pregnancy due to various reasons including missed abortion and fetal congenital malformation. Gestational age was arrived at by first day of last menstrual period (LMP), pelvic and bimanual examinations and urinary pregnancy test if done during early pregnancy. Obstetric ultrasonography was done for dating of pregnancy when the date of last preganncy was not known with certainty and in women havin g bleeding. Women having hemoglobin less than 8g/dL, low lying placenta, scarred uterus, coagulation disorder, current use of long term systemic steroid, uncontrolled hypertension, cardiac disorder, jaundice, renal disease, history of allergy, intolerance to misoprostol and ethacridine lactate were excluded from the study.

Women were randomized in two groups by using random number tables each group comprising of 25 women. In group I, women were given misoprostol 600 ?g vaginally followed by 400 ?g eight hourly till expulsion of products or upto 48 hours [2-4]. In group II, 150 ml of ethacridine lactate was instilled in extra-amniotic space by Foley's catheter [5,6] which was expelled out spontaneously with product of conception or removed after 24 hours. Reinstillation was not done. Women were observed for 48 hours for spontaneous expulsion of products. In our study the cut off time limit was fixed at 48 hours [7] and if no expulsion occurred in 48 hours the case was stamped as method was considered to have failed.

Success rate, induction-abortion interval, complication and postabortion satisfaction were noted. The data was subjected to statistical analysis using unpaired *t*-test where appropriate.

Results

Most of the women were young (mean age 25.6 ± 5.8 years). Mean age of the women in group I were 25.7 ± 5.8 years and mean age in group II 27.2±3.6 years. Mean gestational age in group I was16.2±3.4 weeks and in group II, 15.7±2.5 weeks. In group I 52% and in group II, 76% were between 13 and 16 weeks of gestational age.

Mean induction abortion interval in group I was 13.94 ± 3.13 (SD) hours and in group II it was 28.86 ± 6.32 hours which is statistically highly significant ($p<0.0001$). Of the women in group I, 20% aborted within 12 hours, 84% within 24 hours, and 92% within 36 hours, whereas none of the women in group II aborted within 12 hours, 16% aborted within 24 hours and 68% within 36 hours (Table 1). Success rate in group I was 92% (23/25) where as in group II it was 80%(20/25). In group I mean dose of misoprostol required was 1100 ?g and mode dose was 1000 ?g; average cost being Rs. 80. In group II, 150 mL of 0.1% ethacridine lactate was instilled in every cases. Repeat dose was not given and average cost was Rs.150. In group I, 32% and in group II 44% women experienced some side effect of the drug or complication of the procedure.

Table 1. Induction-abortion interval.

Induction-Abortion interval (hours)	Group I (misoprostol) n=25	Group II (ethacridine) n=25
0-12 hours	5 (20%)	0 0
13-24 hours	16 (64%)	4 (16%)
25-36 hours	2 (8%)	13 (52%)
37-48 hours	- -	3 (12%)
Mean ± SD	13.94 ± 3.13 [a]	28.86 ± 6.32 [a]

[a] - Range in brackets represent percentages.

In group I, 16% of women suffered from chill, 12% from abdominal cramps and 4% from nausea, which were managed easily with minor medication. In group II, 24% women suffered from abdominal cramps and 20% had relatively serious complication needing immediate management. (Table 2). Around 40% women in group I and 24% in group II rated their experience as highly satisfactory.

Table 2. Comparison of side effects and complications.

Side effect/ complications	Group I (misoprostol)		Group II (ethacridine)	
	Number	Percentage	Number	Percentage
Cramping abdominal pain	3	(12%)	6	(24%)
Nausea	1	(4%)	0	
Chill	4	(16%)	0	
Retained placenta	0		1	(4%)
Cervical tear	0		1	(4%)
Undue hemorrhage	0		2	(8%)
Infection	0		1	(4%)
Total	8	32%	11	44%

Discussion

Although the bulk of termination of pregnancy is performed during the first trimester; the abortion-seekers in second trimester termination of pregnancy deserve special importance because of the additional inherent morbidity and mortality.

Two different methods were tried in this study. Ethacridine works by releasing prostaglandins from the decidua. The introduction of misoprostol (prostaglandin analogue) has shown a great promise in optimizing the outcome of midtrimester abortion. The therapeutic dilemma of misoprostol regarding optimal dose, dosing schedule and route of administration can be resolved by multicentric randomized controlled trials on a large scale. Due to lack of adequate evidence-based trials on the newer drug (misopristol) in developing countries, the present study aimed to compare the safety, efficacy and complications of misoprostol with those of ethacridine lactate.

Both misoprostol and ethacridine lactate are effective in midtrimester abortion. In our study the success rate of misoprostol (92%) is higher than that of ethacridine lactate (92% vs 80%). This is in accordance with the study done by Herabutya et al [8], showing 92 % success rate using 600 ?g vaginal misoprostol every 12 hours until abortion and also with the studies by Bhathena R K et al [9] and Inan et al [10].

In our study the mean induction-abortion interval with misoprostol was 13.94 hours with a mean dose of 1100 ?g (range 600-1400 ?g) as compared to ethacridine 28.86 hours with a dose of 150 mL. The study by Bugalho et al [11] showed that the mean duration from the application to expulsion with misoprostol was 11.8±3 hours with an initial dose of 800?g and the total dose ranged from 1200 to1600 ?g. A study by EL Mowafi et al [12] showed mean time for the induction of abortion with misoprostol was 14.35±3.1 hours with a mean dose of 584.6±15.9 ?g (range 400-800 ?g). In our study, with misoprostol 84% abortions occurred within 24 hours and 92% within 36 hours but with ethacridine lactate only 16% occurred within 24 hours and 68% within 36 hours. In the study of Bugalho et al [11] with misoprostol 80 % aborted within 36 hours, and another 11% aborted within 56 hours of which 8.3% failed to respond within 56 hours. Our present study clearly shows that misoprostol acts quicker than ethacridine lactate.

In our study complications with the misoprostol were less (32%) and were of minor type, as compared to those with ethacridine lactate which had 44% complications which were sometimes of serious type,. Misoprostol is safer agent in inducing abortion in second trimester. In the study of Ghorab et al [13] vomiting and diarrhea were present in 45% and 5% respectively where as in our study none had vomithing and diarrhea. More over misoprostol is much cheaper and is stable at room temperature. It is a highly cost effective.

Conclusion

Although both misoprostol and ethacridine lactate are effective for midtrimester termination of pregnancy, misoprostol is safer, more effective and more acceptable than ethacridine.

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