ORIGINALARTICLE

Intravaginal Misoprostol Versus Intra-amniotic 15 Methyl PG F2α for Termination of Second Trimester Pregnancy

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Abstract

To compare the efficacy of intravaginal application of misoprostol and intra-amniotic injection of prostaglandin 15-methyl F2 alpha (PG F2α) in terminating second trimester pregnancies, eighty pregnant women at 14-20 weeks of gestation with single live fetuses and requesting for termination of pregnancy were randomised into two groups.Women in group I: received four tablets of vaginal misoprostol (200 mg/tablet) and in group II : intra-amniotic injection of (10 ml) 2.5 mg 15 methyl - PGF2α. Failure to abort within 48 hours after intiation of treatment occurred in one woman (2.5%) in the misoprostol group and 10 women (25%) in the 15 methyl PGF2α group (P = 0.009). Mean induction-to-abortion interval was 16.3±13 hr in the misoprostol group and 21.2±16 hr in the 15 methyl PGF2a group (P=.001). Lower abdominal pain was significantly higher in the misoprostol group than in the 15 methyl PGF2α group (P = 0.001). Intravaginal misoprostol in a dose of 800mg is more effective than intra-amniotic 15-methyl PGF2α for second trimester pregnancy termination.

Key Words

Second trimester abortion, Misoprostol, Prostaglandins

Introduction

Various methods have been described for the termination of second trimester pregnancy. These are dilatation and evacuation, intra-amniotic, extraovular, intramuscular or intravaginal application of prostaglandin compounds and intra-amniotic hyperosmolar urea and hypertonic saline (1-3). Different management protocols for the termination of second trimester pregnancy have been used and these are continuously being revised, aiming to achieve improved success rates and reduced discomfort to the patient. Recently a PGE1 analogue, misoprostol is being evaluated for 2nd trimester pregnancy termination (4). In the present study we compared the efficacy of intravaginal misoprostol (Cytotec ®, Searle) with intra-amniotic administration of 15 methyl prostaglandin F2α (Prostadin ®, Astra – IDL).

Materials and Methods

Eighty pregnant women between 14 to 20 weeks of gestation admitted for second trimester pregnancy termination at AIIMS hospital between December 2001 to August 2002 were included in this study. The gestational age was determined by reliable menstrual history and confirmed either by clinical examination or ultrasound. Exclusion criteria included fetal death, multiple pregnancies and maternal medical disorders. This study was approved by local ethics committee. An informed consent was obtained from each woman prior to inclusion in the study.Subjects were randomly assigned to two groups, Group I was treated with a single dose of vaginal misoprostol (800 mg). In Group II, 10 ml (0.25mg/ml) of 15 methyl PGF2α was injected into the amniotic sac under ultrasound guidance. Randomization was achieved by

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opening of sequentially numbered sealed opaque envelopes prepared using random number table. All women were kept under observation in the hospital till abortion. Vital signs were checked every 4 hours and any adverse sign or symptoms was recorded. None of the women received any premedication, but were treated for side effects as they developed. Acetaminophen 500 mg orally was used to treat fever (temperature > 38°C), diphenoxylate plus atropine (Lomotil ®) 5.0 mg orally to treat diarrhoea, metoclopromide hydrochloride 10 mg intramuscularly was given for vomiting and intramuscular injection of pethidine 50mg was given for pain.Within 1 hour of fetal expulsion the uterine cavity was gently curetted using suction cannula in all patients under intravenous analgesia using 30 mg pentazocine and 10 mg diazepam. All patients remained in hospital for the duration of treatment and were discharged 12 hours following completion of abortion. Failure of treatment was defined as failure to expel the fetus within 48 hours following the initiation of treatment.

A sample size estimation indicated that 40 patients in each group were required to detect a change in rate of treatment failure, from 35% to 5% with a power of 0.8 and 0.05. The difference between the two groups were analysed by using student's paired t test, chai square test (SPSS corporation, Chicago, IL) and the level of statistical significance was set at P<0.05.

Results

The mean age, gravidity, parity, gestational age of the women in the two groups were similar (Table I). Abortion occurred within 24 hours after intiation of treatment in 77.5% of the women in misoprostol group and in 70% women in 15 methyl PGF2α group, this difference was not statistically significant (P > .05). By 48 hours the abortion rate increased significantly to 97.75% in the misoprostol group compared to 75% in 15 methyl PGF2α group (P<.05; Table II).Abortion failed to occur within 48 hours of intiation of treatment in one (2.5%) woman in misoprostol group and in 10 (25%) women in PGF2α group (P < 0.05). The rate of complete abortion was 72% and 67.5% in the misoprostol group and 15 methyl PGF2α group respectively (P > .05). The mean induction to abortion interval in misoprostol group was 16.3±13 hr and 21.2 ±16 hr in 15 methyl PGF2α group (P = <.05). The most common side effect among the women in misoprostol group was moderate pain requiring analgesia in the form of 50 mg pethidine intramuscularly. Thirty three women in the misoprostol group and 19 women in PGF2α group experienced significant pain and this difference was statistically significant (P<.05) (Table III). The estimated blood loss was less than 500 ml in both the groups. None of the women required blood transfusion and there was no other serious complication. Out of the 11 women who did not abort within 48 hours, two aborted spontaneously in the subsequent 2 hours without further intervention, five were treated with intramuscular injections of 15 methyl $PGF_2\alpha$ and four women had dilation and evacuation (D&E) following an infusion of oxytocin for 2-6 hours duration.

Table 1. Patient characteristics

	Misoprostol group Mean ± SD	15 methyl PGF2α group Mean ± SD	P value
Age	26.25±4.7	26.5±4.8	> .05
Gravida	3.3±1.24	3.2±1.11	> .05
Parity	2.02±1.25	2.05±1.19	> .05
Gestational age (wks)	16.97±2.01	16.51±1.97	>.05

Table 2. Abortion rates in two groups

Response	**Misoprostol n=40 (%)**	**15 methyl PGF2α n=40 (%)**	**P value**
Within 24 hrs	31 (77.5)	28 (70)	> .05
24-48hrs	8 (20.7)	2 (5)	< .05
Failure	1 (2.5)	10 (25)	< .05
Complete abortion	29 (72)	27 (67.5)	> .05
Mean I-A* interval in hoursMean ± SD	16.13±10.8	21.2±16.37	<.05

·IA = Induction abortion interval

Table 3. Side effects

Side effect	**Misoprostol group n=40**	**15 methyl PGF2α group (n=40)**	**P value**
Nausea &vomitings	14	15	> .05
Fever (³ 38°C)	9	13	> .05
Diarrhoea	8	9	> .05
Lower abdominal pain	33	19	< .05

Discussion

Intra-amniotic instillation of 15 methyl PGF2∝ has been shown to be an effective method for termination of second trimester pregnancy (5). Misoprostol, a prostaglandin E1 analogue has also been successfully used for this purpose. Use of misoprostol has considerable advantages over the other prostaglandin analogues as it is less expensive, stable at room temparature and is easy to administer (4).

In this study we compared intra-amniotic injection of 15 methyl PGF2∝ with intravaginal misoprostol for second trimester pregnancy termination. Our results show that vaginal misoprostol is a superior abortifacient compared to the intra-amniotic 15-methyl PGF2α. The successful termination rate within 48 hours from the intiation of treatment was significantly higher in misoprostol group as compared to 15 methyl PGF2α. Women in the misoprostol group had a more rapid uterine evacuation and higher cummulative fetal expulsion rate at 48 hours. The frequency of abdominal pain and fever (> 38°C) was higher with misoprostol, but the frequency of other side effects were similar in both the groups and well accepted by the women. None of the women suffered from major complications, such as cervical lacerations, excessive haemorrhage (> 500 ml) or uterine rupture. The incidence of complete abortion rate was similar in both the groups.In our study, the rate of successful abortions within 24 hr and 48 hr with use of misoprostol was 77% and 92% respectively. Others have reported success rates for misoprostol ranging from 54% to 90% (6,7,8). The success rate was shown to be influenced by the dose schedule, the time interval between doses (8) and the route of administration. Vaginal route was found to be more effective than the oral route (7). Our study suggests that the use of intravaginal misoprostol for mid trimester pregnancy termination is safe and is associated with a higher rate of successful abortion within 48 hours than intra-amniotic injection of 15 methyl PGF2α.

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