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Assessment of effectiveness of sublingual and vaginal misoprostol for second-trimester abortion

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Abstract

Background: Second-trimester abortion is an important component of women's health care, and women seek termination later in pregnancy for a variety of medical and social reasons. The present study was conducted to assess effectiveness of sublingual and vaginal misoprostol for second-trimester abortion.

Materials & Methods: 92 second-trimester medical termination of pregnancy cases were divided into two groups equally: group I was given a starting dose of 400 mcg of misoprostol sublingual, and group II (n = 120) was given 400 mcg of misoprostol vaginally and a dose of 400 mcg repeated at 4-h interval in 24 hours.

Results: The mean gestational age in group I was 16.5 weeks and in group II was 16.4 weeks. Maternal age was 24.3 years and 24.1 years, BMI was 24.1 Kg/m² and 24.4, parity was 0 in 24 and 26, 1 in 10 and 8, 2 in 8 and 7 and >2 in 4 and 5 in group I and II respectively. The difference was non-significant ($P > 0.05$). The success rate was seen in 38 in group I and 35 in group II. Side effects was fever and chills seen in 23 in group I and 22 in group II, nausea/vomiting in 18 in group I and 17 in group II, pain abdomen 9 in group I and 10 in group II and vaginal bleeding 5 each. The difference was non-significant ($P > 0.05$).

Conclusion: Authors found that sublingual route is a better option in second-trimester abortion.

Keywords: Sublingual, second-trimester abortion, vaginal

Introduction

One of the direct causes of maternal mortality all over world is unsafe abortion. Incidence for unsafe abortion is 8%, which is a preventable factor ^[1]. Second-trimester abortion is an important component of women's health care, and women seek termination later in pregnancy for a variety of medical and social reasons ^[2]. Circumstances that can lead to second-trimester abortion include delays in suspecting and testing for pregnancy, poverty, difficulties in locating and traveling to a provider, lower education level, having multiple disruptive life events and major anatomic or genetic anomalies which have been associated with higher rates of seeking second-trimester abortion ^[3].

Misoprostol is a synthetic analogue of naturally occurring prostaglandin E1. It is used for prophylaxis and treatment of gastroduodenal ulcers. Due to its uterotonic effect, it is contraindicated in pregnancy ^[4]. Unlike gemeprost, it can be taken orally and is associated with fewer gastrointestinal side effects. The use of mifepristone, a progesterone receptor blocker, prior to second trimester abortion with prostaglandin has been shown to significantly reduce the time between the first administration of a prostaglandin to expulsion of the fetus ^[5]. This antigestagen targets cells of the endometrium and myometrium and sensitizes the pregnant uterus to exogenous prostaglandin. It has been demonstrated that a dose of 200 mg mifepristone is sufficient for this purpose without the loss of efficacy ^[6]. The present study was conducted to assess effectiveness of sublingual and vaginal misoprostol for second-trimester abortion.

Materials & Methods

The present study comprised of 92 second-trimester medical termination of pregnancy cases. The consent was obtained from all patients.

Data such as name, age etc. was recorded. Information regarding marital status, education, socioeconomic conditions, duration of amenorrhea, gravidity, parity, previous spontaneous or induced abortions and medical diseases was recorded. General, systemic and bimanual examination was performed, ultrasonography was performed, blood investigations like Hb, blood grouping and Rh typing, BT, CT, VDRL, HIV, HbSAg were done.

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Patients were divided into two groups equally: group I was given a starting dose of 400 mcg of misoprostol sublingual, and group II (n = 120) was given 400 mcg of misoprostol vaginally and a dose of 400 mcg repeated at 4-h interval in 24 hours. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

Results

Table I: Demographic characteristics

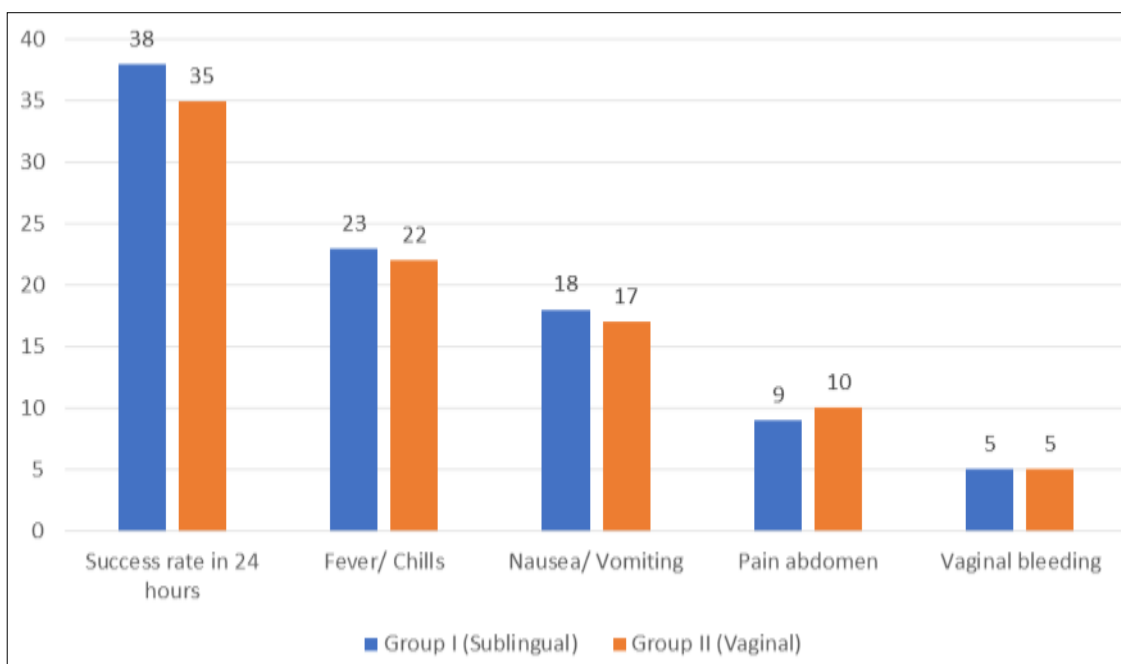
Groups	Group I (Sublingual)	Group II (Vaginal)	P value
Gestational age (weeks)	16.5	16.4	0.81
Maternal age (years)	24.3	24.1	0.95
BMI (Kg/m ²)	24.1	24.4	0.97
Parity			
0	24	26	0.90
1	10	8	
2	8	7	
>2	4	5	

Table I shows that mean gestational age in group I was 16.5 weeks and in group II was 16.4 weeks. Maternal age was 24.3 years and 24.1 years, BMI was 24.1 Kg/m² and 24.4, parity was 0 in 24 and 26, 1 in 10 and 8, 2 in 8 and 7 and >2 in 4 and 5 in group I and II respectively. The difference was non-significant (P > 0.05).

Table II: Success rate and side effects

Parameters	Group I (Sublingual)	Group II (Vaginal)	P value
Success rate in 24 hours	38	35	0.91
Fever/ Chills	23	22	
Nausea/ Vomiting	18	17	
Pain abdomen	9	10	
Vaginal bleeding	5	5	

Table II, graph I shows that success rate was seen in 38 in group I and 35 in group II. Side effects was fever and chills seen in 23 in group I and 22 in group II, nausea/vomiting in 18 in group I and 17 in group II, pain abdomen 9 in group I and 10 in group II and vaginal bleeding 5 each. The difference was non-significant (P > 0.05).



Graph I: Success rate and side effects

Discussion

For more than two decades, prostaglandins or their analogues have been used frequently for medical abortion [7]. This method has proved to be a safe alternative to surgical termination of pregnancy [8]. There are different types of prostaglandin analogues that can be used for second trimester medical abortion. The two most commonly used prostaglandin analogues, gemeprost and misoprostol, have both been shown to be safe and effective when combined with mifepristone [9]. Since only the former was licensed for the purpose of medical abortion, it was more widely used in the past [10, 11]. However, as compared to misoprostol, gemeprost is expensive and requires specific conditions for storage and transfer. Therefore, in recent years, there is a trend to use misoprostol for second trimester abortion [12]. The present study was conducted to assess effectiveness of sublingual and vaginal misoprostol for second-trimester abortion.

In present study, mean gestational age in group I was 16.5 weeks

and in group II was 16.4 weeks. Maternal age was 24.3 years and 24.1 years, BMI was 24.1 Kg/m² and 24.4, parity was 0 in 24 and 26, 1 in 10 and 8, 2 in 8 and 7 and >2 in 4 and 5 in group I and II respectively. Goh *et al.* [13] performed analysis of 386 women who underwent termination of pregnancy between 12 and 24 weeks' gestation. Each woman received 200 mg mifepristone orally followed by vaginal misoprostol 800 Ag 36 to 48 h later. Three hours after the initial misoprostol administration, 400-Ag doses of vaginal misoprostol were administered every 3 h, to a maximum of four doses in 24 h. If abortion failed, 200 mg mifepristone is given again 3 h after the last misoprostol dose, followed by 12 h of rest before vaginal misoprostol administration is repeated as per previous course of treatment. Overall, 97.9% and 99.5% of the women aborted within 24 and 36 h, respectively. The median induction-to-abortion interval was 6.7 h (range: 1.4–73.8 h), and nulliparous women took significantly longer time to abort (6.0 h in multiparous women compared to 7.6 h in nulliparous women;

pb.0001). One woman failed to abort within 48 h. Surgical evacuation of the uterus was performed in 5% of women for incomplete abortion or retained placenta. Multiparous women were less likely to need analgesic administration for pain relief, and to experience vomiting and diarrhea, than nulliparous women.

We observed that success rate was seen in 38 in group I and 35 in group II. Side effects was fever and chills seen in 23 in group I and 22 in group II, nausea/vomiting in 18 in group I and 17 in group II, pain abdomen 9 in group I and 10 in group II and vaginal bleeding 5 each. Mukherjee *et al.* ^[14] compared the efficacy and safety of sublingual and vaginal misoprostol in second-trimester termination of pregnancy in 24 and 48 h. This is a retrospective study of 240 pregnant women seeking termination in second trimester (13–18.5 weeks), in which the patients are subdivided into two groups—first group received 400 mcg of misoprostol sublingually (n = 120), and second group received 400 mcg of misoprostol vaginally (n = 120) every 4 h for a maximum of five doses. The course of misoprostol was repeated if the patient did not abort within 24 h. The mean induction-to-abortion interval was shorter in sublingual group (10.28 ± 3.1 h) versus 14.68 ± 4.2 h in vaginal group in 24 h (p = 0.0001), and 36.9 ± 4.4 h in sublingual versus 29.7 ± 14 in vaginal group in 48 h (p = 0.0933). Mean dose requirement for misoprostol by sublingual route was low as compared to vaginal misoprostol (1048 ± 301 mg versus 1250 ± 375 mg; p = 0.0001 in 24 h and 1110 ± 833 mg versus 1325 ± 536 mg; p = 0.0231 in 48 h). No significant difference was found in the success rate (both at 24 and 48 h) and in side effects among the two comparison groups.

Conclusion

Authors found that sublingual route is a better option in second-trimester abortion.

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