

Dinoprostone Followed by Prostaglandin Compared to Prostaglandin Alone in Second Trimester MTP

Sudharani M¹, Spandana JC², Bhagyalaxmi Sidenur³, Amrutha AM¹, Vijayalaxmi M¹

¹Associate Professor, Department of Community Medicine, BMCH, Chitradurga

²Assistant Professor, Department of OBG, BGS GIMS, Bengaluru

³Assistant Professor, Department of Community Medicine, BMCH, Chitradurga.

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Corresponding author: Dr. Bhagyalaxmi Sidenur

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Abstract

Introduction: Worldwide, 10%–15% of all induced abortions occur during the second trimester. Overall, two thirds of all major complications of abortions are attributable to those performed in the second trimester.

Materials and methods: This was a comparative study in which women pregnant women advised mid trimester abortion were divided into two groups randomly. Group A were induced with intra-cervical insertion of dinoprostone gel [PGE2 gel] 0.5mg. The patient was made to remain supine for least 30 minutes. Six hours later vaginal examination was done to check for progress of abortion, if uterine action was inadequate or failed to occur, tab misoprostol 400microgram was inserted vaginally every 4th hourly for maximum of 4 doses, failure of expulsion of products of conception inspite of 4 doses of misoprostol was considered as failure of procedure. Whereas second group had group (B) received one tab of multivitamin (placebo) and after 24 hours followed by Misoprostol (50mg) maximum 6 doses vaginally.

Results: Intracervical dinoprostone (PGE2) gel plus misoprostol is a safe and effective protocol with less induction to abortion interval method for second trimester medical termination.

Conclusion: Intracervical dinoprostone gel followed by serial insertion of misoprostol is found to be effective in second trimester medical termination of pregnancy with minimal side effects and shorter induction to abortion interval.

Keywords: Dinoprostone, Misoprostol, Prostaglandin, Second Trimester Termination of Pregnancy.

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Introduction

The termination of a pregnancy before the viability period is referred to as an abortion. Around 10-15% of all induced abortions occur during the mid-trimester (13–20 weeks), which also accounts for two-thirds of the most serious complications connected to abortion (WHO;1997)

Pregnancies are gradually being terminated in the second trimester due to the

widespread use of prenatal screening procedures to identify pregnancies complicated by significant cardiovascular and skeletal defects. [1] The Indian Act allows for specific reasons to intentionally end a pregnancy before the foetal viability age. It should be carried out by licenced medical professionals in a location that has

been authorised by the appropriate authority.

Of the 210 million pregnancies that occur each year, >46 million (22%) end in abortions. Ninety percent (90%) of terminations occur in the first trimester. Mid-trimester abortions account for 10–15% of all abortions globally, but they also cause two-thirds of all significant complications. [2]

Many substances are used to ripen the cervix, increase uterine contractions, and cause abortion after 12 weeks, however there is little information about their efficacy. [3,4]

Prostaglandins have dual action of cervical ripening and uterine contraction inducing effect. Misoprostol is a different option that can be employed, is stable at room temperature, is somewhat less expensive, and can be administered in a number of ways (oral, vaginal, sublingual, buccal and rectal). [5] In this study, intracerebral dinoprostone gel and vaginal misoprostol tablets were compared for their efficacy in inducing labour in pregnant women with hypertensive disorders of pregnancy.

Methodology

After receiving approval from the institutional ethical committee, a prospective study was conducted in department of OBG of a tertiary care centre.

The sample size was calculated by using the following formula, $n = Z^2 pq / d^2$, considering prevalence of 2nd trimester abortions as 15% [6], allowable error as 10%. At 95% confidence interval, the calculated sample size was 49, rounded off to 50, which is divided into two groups of 25 each.

The study was conducted for 12 months among 50 women with singleton pregnancy between 12-24 weeks for maternal and fetal indications fulfilling Medical Termination of Pregnancy act guidelines [7] attending the OPD/IPD of our hospital were enrolled. We excluded patients in the process of

abortion, with multiple gestations, with underlying medical condition like cardiac disease, asthma, renal disease, haematological disorders, with previous caesarean section, scarred uterus, myomectomy, with cervical lesions, with disseminated intravascular coagulopathy, coagulopathies and patients with known maternal allergy to prostaglandins or previous adverse reactions.

A thorough history was taken, including the length of amenorrhea, gravidity, parity, any prior spontaneous or induced abortions, and any history of illnesses. There was a general physical and systemic assessment. To determine the length of the pregnancy and rule out any pelvic disease, a vaginal examination was performed. The menstrual history and vaginal examination were used to calculate the gestational age. Conformation was checked by ultrasonography.

Two groups of 25 each were randomly selected and one group (A) was induced with intracervical dinoprostone gel inserted under aseptic precautions followed 6 hours later by serial insertion of 400mcg misoprostol vaginally, every 4th hourly, the dosage and interval of insertion was followed as per the FIGO recommended guidelines, 2017, for a maximum of 4 doses[1,4]. While the second group (B) received one multivitamin tablet as a placebo, followed by a maximum of six vaginal doses of misoprostol (50mg) administered within 24 hours. Misoprostol, a prostaglandin, was withdrawn after a 6 cm dilation.

After the completion of expulsion, products were examined for completeness and confirmed by per vaginal examination and check ultrasound.¹⁰ Complete abortion is defined as passage of fetus and placenta without operative assistance.

Induction to abortion interval, bleeding, abdominal pain, cervical dilatation, expulsion of fetus including placenta and membrane were looked for. The induction

to abortion interval is defined as the interval from the time of administration of dinoprostone gel to the time when the fetus is expelled. [2,8] They were kept under observations for two hours after abortion. The mean induction abortion interval and mean dose of misoprostol required were analysed.¹² Following treatment, a pelvic examination was conducted on each woman, and it was asked if there had been

any unusual bleeding or delayed adverse effects. [2,9]

Results

The mean age of study participants in group A was 21.9±3.02 years and group B was 22.01±3.1 years. The mean gestation age among group A was 20.68±3.62 weeks and group B was 21.02±3.2 weeks. The baseline characteristics was comparable between two study groups (Table 1).

Table 1: Baseline characteristics

Baseline characteristics		Group A	Group B	P value
Age	< 20 years	2 (8%)	1 (4%)	0.889
	21 to 25 years	10 (40%)	11 (44%)	
	26 to 30 years	11 (44%)	10 (40%)	
	31 to 35 years	2 (8%)	3 (6%)	
Gestation	13 to 16 weeks	5 (20%)	6 (24%)	0.940
	17 to 20 weeks	4 (16%)	4 (16%)	
	21 to 24 weeks	16 (64%)	15 (60%)	
Marriage	Non-consanguious	13 (52%)	14 (56%)	0.776
	Consanguious	12 (48%)	11 (44%)	
Locality	Rural	15 (60%)	13 (52%)	0.569
	Urban	10 (40%)	12 (48%)	
Parity	G1	11 (44%)	10 (40%)	0.962
	G2	8 (32%)	7 (28%)	
	G3	4 (16%)	5 (20%)	
	G4	4 (16%)	3 (12%)	

The mean induction to abortion time in group A was 8.32±3.2 hours and group B was 15.95±3.67 hours and was statistically significant (p<0.001).

Table 2: Outcome variables

Induction to abortion interval	Group A	Group B	P value
0-6 hours	4 (12%)	1 (4%)	0.016*
7-12 hours	15 (60%)	7 (28%)	
13-18 hours	5 (20%)	8 (32%)	
19-24 hours	1 (4%)	5 (20%)	
>24 hours	0	4 (16%)	

Discussion

Just 10% to 15% of all induced abortions take place in the second trimester; however this technique is responsible for 50% of maternal deaths and 65% to 70% of all maternal morbidity. In a community where contraceptives are widely available, an abortion should ideally not be required; instead, it should be identified much earlier

and ended in the first trimester itself. Despite the considerable public education measures made by the government to prevent abortion, the problem will not go away due to the widespread poverty and lack of education in this nation.

The combination of mifepristone and misoprostol is supported by the World Health Organization (WHO) as the

recommended course of treatment for both the first and second trimesters of pregnancy; however, dosages, administration routes, and timing depend on gestational age. A systematic assessment of medical abortions performed under evidence-based guidelines at 63 days or less gestation found rates of abortion failure requiring surgical completion, continuation of pregnancy, hospital stay, or blood transfusion to be 4.8%, 1.1%, 0.3%, and 0.1%, respectively. [10] According to Wagaarachchi PT et al. [11], the management of early first trimester abortions using mifepristone and misoprostol is well established.

In compared to misoprostol-only regimens, results from earlier series of cases have revealed that pre-treatment with mifepristone before misoprostol may be related with shorter induction-to-delivery timeframes. The present series had the longest duration to delivery out of all the trials that used both mifepristone and misoprostol in cases with IUFD. While Fairley et al. utilised misoprostol doses ranging from 50 to 200 mg, the author also used the lowest levels. The groups in the current study received dosages ranging from 50 to 300 mg. [12-15]

Conclusion

Dinoprostone gel (PGE2) and misoprostol (PGE1) as effective method for termination of second trimester pregnancy. It is safe, readily available, cost effective, easy to administer, non-invasive, has lesser side effects and quicker method of mid-trimester pregnancy termination as compared to other methods and also avoids repeated monitoring.

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