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Case Series

Misoprostol versus combined regimen of mifepristone and misoprostol in termination of second trimester pregnancy

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ABSTRACT

The present prospective study was conducted over 12 months at Dr. Mansukh Bhai K. Shah medical college and Sushilaben M. Shah multi-specialty hospital, Ahmedabad, serving predominantly lower socioeconomic groups. The objective was to assess the safety and efficacy of misoprostol alone versus a combined regimen of mifepristone and misoprostol in second-trimester pregnancy termination. A total of 18 patients were enrolled and divided into two groups. Group A received 200 mg oral mifepristone, followed 24 hours later by 200 mcg misoprostol administered vaginally every 4 hours up to a maximum of 4 doses or until expulsion occurred. Group B received only 200 mcg vaginal misoprostol every 4 hours, up to 4 doses. Success was defined as complete expulsion of the fetus and placenta without the need for surgical intervention. In group A, the success rate was 100%, and none of the patient's required dilatation and evacuation (D and E). In contrast, group B had a success rate of 80%, with 2 patients (20%) requiring D and E. There were no failures in either group, defined as failure to abort within 72 hours of the last dose. The induction-abortion interval was shorter in the mifepristone-primed group. The study concludes that pre-treatment with mifepristone significantly improves the efficacy of second-trimester pregnancy termination with misoprostol, reduces the need for Surgical intervention, and shortens the induction-to-abortion interval. The combined regimen of mifepristone and misoprostol is thus more effective and safer than misoprostol alone.

Keywords: Second trimester termination of pregnancy, Mifepristone, Misoprostol, Surgical intervention D and E, Induction abortion interval

INTRODUCTION

Before 2000, 2nd trimester termination was carried out for selected sex fetus. After PCPNDT act, 2nd trimester termination of fetus is right fully not carried out for sex selection. Nowadays termination of second trimester pregnancy is indicated in the structural and chromosomal defects in the foetus, metabolic and autoimmune disorders.

Various surgical and medical techniques have been employed for second trimester medical termination of pregnancy, yielding different outcome in the form of success rate and the induction-to-abortion interval.[1]

Availability of prostaglandins has revolutionized safer termination of pregnancy. There are so many methods like extra-amniotic ethacridine lactate, hypotonic saline intra-amniotic infusion, and oxytocin drip for 2nd trimester termination. In these methods the outcome was associated with prolonged induction-to-abortion interval more failure rate and incomplete abortion. Use of prostaglandins is associated with promising results 2nd trimester termination of pregnancy is relatively safer since its availability commercially. It surpasses other prostaglandins due to its stability at room temperature, eliminating the need for refrigeration. Additionally, it is cost-effective, acts as a powerful uterine stimulant and cervical ripening drug, it has vey less side effects, and lacks Broncho constrictive

effects. Misoprostol is administered through vaginal routes and can also be administered through orally and combined with other medications for enhanced efficacy.

Mifepristone, commonly known as RU-486, works by inhibiting progesterone receptors, as it is a derivative of 19-norethisterone. Leading to a state of decrease progesterone and resulting in intrauterine fetal demise. Additionally, it increases the uterus's sensitivity to prostaglandin E1, enhancing its effects. Thus, priming the uterus with mifepristone, increases efficacy of misoprostol. Thus, sensitization of uterus with mifepristone followed by misoprostol has improved the success of termination of second trimester of pregnancy, with less complication, decrease induction abortion interval.[4,5]

CASE SERIES

There were 18 patients for study who sought second-trimester pregnancy termination between September 2023 and August 2024. After obtaining informed written consent and providing appropriate counseling, patients were consecutively assigned into two groups. The participants were observed closely for any adverse effects, uterine contractions, bleeding, and dilation of cervix prior to each misoprostol insertion. The interval from the insertion of the first intravaginal misoprostol tablet to the abortion was recorded. If abortion did not occur or incomplete that part or all of the placenta retained than procedure was deemed unsuccessful. D and E was done if the placenta was retained for more than two hours. An alternative intervention in the form of medical or surgical was done in case of failure. Additionally, Rh immunoglobulin was administered to Rh-negative participants after the procedure. The analysis of collected information was subsequently done.

Table 1: Distribution of patients undergoing termination of pregnancy in second trimester as per the gravida in group A and B.

Gravidity	Group A	Group B	Total
G1	2 (25%)	1 (10%)	3 (16.7%)
G2	1 (12.5%)	1 (10%)	2 (11.1%)
≥G3	5 (62.5%)	8 (80%)	13 (72.2%)
Total	8 (100%)	10 (100%)	18 (100%)

Participants in study group A there were total 8 patients. They were administered 200 mg of mifepristone orally upon admission. Following a 24-hour interval, they were inserted 400 mcg of misoprostol (two 200 mcg tablets) transvaginal, and repeated with doses of 200 mcg administered every four hours thereafter, maximum dose was 1000 mcg. out of 8 (100%) patients, 2 (25%) were primi gravida, 6 (75%) multigravidas. All 8 patients between 12 to 24 weeks of gestation. All 8 patients aborted without any intervention. In this group Interval between Induction and abortion was between 6 to 22 hours. Mean induction abortion interval was 13 hours.

Table 2: Gestational age at termination.

Gestational age (in weeks)	Group A	Group B
12.1-14	0	5 (50%)
14.1-16	2 (25%)	4 (40%)
16.1-18	4 (50%)	1 (10%)
18.1-20	1 (12.5%)	0
20.1-22	0	0
22.1-24	1 (12.5%)	0
Total	8 (100%)	10 (100%)

Table 3: Induction-abortion interval.

Group A		Group B	
N	**Induction abortion interval (hour)**	**N**	**Induction abortion interval (hour)**
3	6-10	2	12-24
2	10-14	3	24.1-36
2	14.1-18	3	36.1-48
1	18.1-22	2	>72

Participants in study group B there were total 10 patients. patient given misoprostol of 200 mcg transvaginal followed by 200 mcg every 4 hourly maximum dose was 1000 mcg. Out of 10 (100%) patients, 1 (10%) was primi gravida, and rest 9 (90%) were multigravida. Out of 10 patients 8 (80%) aborted by vaginally, 2 (20%) patients had to undergo dilatation and evacuation due to incomplete abortion. Interval between induction and abortion in group B was between 12 to 60 hours. Mean induction abortion interval was 39.6 hour.

DISCUSSION

Misoprostol is proven highly effective abortifacient in termination of second trimester pregnancy. It is used with different routes sublingually, oral and vaginally successfully (6-14) priming uterus and cervix with mifepristone 200 mg before misoprostol decreases induction-abortion interval substantially and very a smaller number of patients required D and E. Mifepristone commonly known as RU 486 is drug that block progesterone receptors in uterus which is needed for continuation of pregnancy. As mifepristone blocks progesterone receptors, effect of misoprostol increases on uterine musculature which helps in complete evacuation in a lesser time.[3]

The study is comparison between group A (mifepristone followed by misoprostol) and B (misoprostol alone). In group A all patients had complete abortion and interval between induction and abortion was less, so success rate was 100%. In group B induction abortion interval is higher as compare to group A and about 20% required D and E. When mifepristone combined with misoprostol the average dose of misoprostol required was much lower, consistent with findings from several other studies.

Nausea, vomiting, fever, abdominal cramps, and diarrhea are commonly reported side effects.[15-18]

From this study it can be seen that, patients requiring termination of pregnancy between 12-24 week of gestation, priming the cervix and uterus by mifepristone 200 mg followed by after 24 hours giving misoprostol 200 microgram trans vaginally every 4 hourly, maximum being 4 doses of 200 microgram each 100% success-rate in the form of complete evacuation and less induction abortion interval. Whereas misoprostol 200 microgram trans-vaginally every 4 hourly will induces abortion, but induction abortion interval is increased by substantially and 20% patient required D and E for retained product of conception in group B.

Twelve to 14 weeks of gestation is grey zone for termination of second trimester MTP. Different method like misoprostol, oxytocin in drip, and ethacridine lactate gives disappointing results in second trimester termination of pregnancy, almost all requiring D and E. In present study there was no patient in group A between 12 to 14 weeks and there were 2 (20%) patients in group B, all these 2 patients required D and E.

For termination of second trimester pregnancy 18 cases came. Who were assigned consecutively in group A and B. Success rate was considered as complete of expulsion of aborts with placenta. In group A and B those patients requiring D and E were noted. None of patients required D and E in group A (combined regimen of mifepristone and misoprostol). In group B (only misoprostol) 20% required D and E. Induction-to-abortion interval substantially less in group A than group B.

CONCLUSION

Priming uterus with mifepristone 200 mg 24 hours before administration of misoprostol increases effectiveness of the misoprostol as an abortifacient. It is safe, easy to administer, cost effective method with a good success rate. It also decreases interval between induction and abortion. Chances of complete abortion without supplementing D and E is almost 100% by giving, mifepristone 200 mg before misoprostol. It should be recommended as a routine protocol for termination of second trimester pregnancy.

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