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Research Article

VAGINAL AND ORAL MISOPROSTOL FOLLOWING MIFEPRISTONE ADMINISTRATION IN MEDICAL TERMINATION OF PREGNANCY UP TO 49 DAYS: A COMPARATIVE STUDY

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ABSTRACT

Objective: The objective of this study was to compare and evaluate the efficacy, safety, adverse effects, and patient compliance of vaginal versus oral misoprostol in medical termination of pregnancy after tablet misoprostol up to 49 days of gestation.

Methods: A comparative study of 100 patients divided randomly assigned to two control groups.

Results: The study showed that 200 mg mifepristone followed by 800 mcg vaginal misoprostol is more effective for medical termination in gestational age up to 49 days as compared to 200 mg mifepristone followed by 400 mcg oral misoprostol.

Conclusion: While both routes of administration are safe, gastrointestinal side effects are more with oral misoprostol. The vaginal route is more acceptable to the patients enrolled in the study.

Keywords: Medical abortion, Mifepristone, Misoprostol, Pregnancy, 49 days' gestation.

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INTRODUCTION

According to the American Journal of Public Health, 2014, half of the pregnancies among American women are unintended, and 4 in 10 of these are terminated by abortion [1]. When medical historians look back on the 20th century, the legalization of abortion will stand out as one of its public health triumphs [2]. The term medical abortion refers to early termination of pregnancy usually in the first trimester using medications and performed without primary surgical intervention. Surgical abortion is one of the oldest methods and was practiced earlier in many parts of the world [3]. According to the American College of Obstetricians and Gynecologists [4], outpatient medical abortion is an acceptable alternative to surgical abortion in appropriately selected women with pregnancies <49 days of gestational age.

The MTP Act of India, last amended in 2003, provides recommendations for termination of certain pregnancies up to 20 weeks of gestation, by a registered medical practitioner, provided all prerequisites are fulfilled. It ensures correct intervention depending on the stage of unwanted pregnancy, thereby minimizes the chances of illegal abortions, which is the reason for higher mortality and morbidity in India.

The MTP Act allows the termination of pregnancy if:

1. The continuance of pregnancy involves a risk to the life of a pregnant woman or is likely to result in grave injury to her physical or mental health.
2. There is a substantial risk that in case, the child was born, it would suffer from physical or mental abnormalities (handicap) of a very serious nature.
3. The pregnant woman has alleged that the pregnancy has been caused by rape.
4. A pregnancy occurs as a result of failure of any device or method used by any married woman or her husband for the purpose of limiting the number of children.

Three medications for early medical abortions have been widely studied and used: Mifepristone, antimetabolic methotrexate, and prostaglandin misoprostol. These agents cause abortions by increasing uterine contractility either by reversing progesterone-induced inhibition of contractions – mifepristone causes cervical collagen degradation, possibly due to increased expression of matrix metalloproteinase [5].

While surgical abortions can be performed up to 20 weeks, the advantages of medical abortion include avoidance of surgery and anesthesia, which considerably increase the acceptability of the method [6,7]. With the use of misoprostol, 80–90% of cases lead to complete abortion [8]. It has been shown that misoprostol is an effective agent for cervical ripening and labor induction, but there have been concerns about hyperstimulation associated with its use [9]. Medical termination of pregnancy using a combination of mifepristone and misoprostol is a safe, effective alternative to suction evacuation in early abortion. Various routes of administration of misoprostol and various combination regimens of mifepristone and misoprostol have been investigated [10].

MATERIALS

Place

The study was conducted in the Department of Obstetrics and Gynecology, Santosh Medical College, on carefully selected pregnant women after applying specific exclusion and inclusion criteria.

Time frame

The study duration was from March 2016 to February 2017.

Type of study

This was a prospective randomized comparison study.

Sample size

The sample size was 100 pregnant women in early pregnancy up to 49 days gestational age.

Inclusion criteria

Early intrauterine pregnancy confirmed by the last menstrual period and ultrasound sonography test of ≤49 days and fulfilling prerequisites specified in the MTP Act 1971.

Exclusion criteria

The following criteria were excluded from the study:

- Period of gestation > 49 days
- Multiple pregnancies
- Suspected ectopic pregnancy
- Unexplained genital bleeding during pregnancy
- More than two previous cesarean sections
- Conceived with IUCD *in situ*
- Pelvic infection or adnexal mass
- Hemoglobin (HB) < 8
- Coagulopathy
- Chronic use of corticosteroids
- History of hepatic, renal, or CVS disorder
- Chronic adrenal disease
- Porphyria.

METHODS

The study was conducted after due approval of the Ethical Committee, Santosh Medical College, Ghaziabad. Patients were randomly assigned into two groups after taking informed consents:

- Group 1 was given tablet mifepristone, 200 mg on day 1 and tablet misoprostol 800 mcg vaginally on day 3.
- Group 2 was given tablet mifepristone, 200 mg on day 1 and tablet misoprostol 400 mcg orally on day 3.

Patients were recalled on day 14 for follow-up. They were questioned regarding postabortal fever, duration and amount of bleeding per vaginal, passage of products of conception, foul-smelling discharge and pain abdomen, symptoms of continuation of pregnancy, and any other complications. A necessary clinical and pelvic examination was done. USG was done in all patients to determine whether abortion is complete or not.

Table 1: Demographic characteristics of subjects in the study

	Vaginal mean (median)	Oral mean (median)
Age	30.68 (30)	30.02 (30)
Gravida	2.76 (3)	3.12 (3)
Parity	1.48 (1)	1.66 (2)
Period of gestation	39.8 (40)	41.6 (42)
Hemoglobin day 1	11.8 (12)	11.54 (11.6)

Table 2: Comparative outcomes of the two treatments

Efficacy	Vaginal (%)	Oral (%)
Incomplete abortion	2 (4)	10 (20)
Success	48 (96)	40 (80)

Table 3: Acceptability and satisfaction levels of the two methods

Satisfaction	Vaginal, n (%)	Oral, n (%)
Not satisfied	2 (4)	12 (24)
Satisfied	12 (24)	11 (22)
Very satisfied	36 (72)	27 (54)

Table 4: Side effects of vaginal versus oral methods

	Vaginal, n (%)	Oral, n (%)
Nausea	8 (16)	24 (48)
Vomiting	3 (6)	15 (30)
Headache	2 (4)	1 (2)
Pain abdomen	9 (18)	7 (14)
Diarrhea	3 (6)	2 (4)
Fever	5 (10)	6 (12)
Flushing	2 (4)	3 (6)
Discomfort	6 (12)	9 (18)
Anxiety	5 (10)	11 (22)
Excessive benign positional vertigo	24 (48)	9 (18)
Prolonged benign positional vertigo	6 (12)	18 (36)

Statistical analysis

After the collection of data, a statistical analysis was conducted.

1. Quantitative variables were compared using unpaired t-test/Mann–Whitney U-test between the two groups – oral and vaginal.
2. Qualitative variables were compared using the Chi-square test/Fisher's exact test.

The analysis was done using the Statistical Package for the Social Sciences [SPSS] version 17.0.

RESULTS

Demographic characteristics

Refer Table 1 all subjects were of Indian origin from Ghaziabad, Uttar Pradesh.

Treatment outcomes

Thus, the overall success rate for complete abortion in Group 1 was 96% and Group 2 was 80%, which is statistically significant (0.028). The total incidence of incomplete abortion was 4% in Group 1 as compared to 20% in Group 2. There was no case of continuation of ongoing pregnancy in either group.

Acceptability

There were differences in acceptability between the two groups. Refer Tables 2 and 3.

Side effects

Table 4 depicts the side effects.

DISCUSSION

In this study, both groups were comparable in terms of age, gravity, gestational age, and HB concentration. The overall success rate for complete abortion was 96% in Group 1 and 80% in Group 2. There were no major complications in either group. Minor complications were reported – 30% subjects in Group 1 as against 62% in Group 2, which are statistically significant. Both methods were safe. Nature of complications in Group 1 versus Group 2 was nausea (16% vs. 48%) and vomiting (6% vs. 30%), while pain abdomen, diarrhea, headache, and flushing were evenly matched in both groups. Discomfort and anxiety experienced by both group members were comparable and statistically not significant. This is consistent with the study of el-Refaey *et al*. [11]who reported a higher incidence of gastrointestinal and thermoregulatory side effects on oral administration of misoprostol as compared to vaginal route. Duration and amount of bleeding were statistically significant. It was more in Group 2 as compared to Group 1, whereas the amount of bleeding was more in Group 1 as compared to Group 2. Group 1 subjects were significantly more satisfied than Group 2. This is in accordance with the study of Lokeland *et al*. [12] who reported moderate to heavy bleeding in 74.7% of subjects in their study on medical abortion, in which they administered 200 mg mifepristone followed by 800 mcg misoprostol. In addition, 92% of subjects in Group 1 said that they would choose the same method in future, if required as compared to only 74% in Group 2. It was primarily influenced by the success rates of the procedures. The overall acceptability was 90% in Group 1 as compared to 72% in Group 2. Jyothi *et al*. (64) in their study had a similar experience [13].

CONCLUSION

Results of this study showed that 200 mg mifepristone followed by 800 mcg vaginal misoprostol is more effective for medical termination in gestational age up to 49 days as compared to 200 mg mifepristone followed by 400 mcg oral misoprostol. It is important to mention that both routes of administration are safe. Gastrointestinal side effects are more with oral misoprostol. The vaginal route is more acceptable to the subjects enrolled.

AUTHOR'S CONTRIBUTIONS

Dr. Neelima Agarwal, Professor in the Department of Obstetrics and Gynecology at Santosh Medical College and Hospital (Ghaziabad), assisted in the preparation of the manuscript and organizing the clinical data. Dr. Vipender Singh Chopra, Professor and HOD, Department of Pharmacology at Santosh Medical College and Hospital (Ghaziabad), guided the manuscript preparation and reviewed the manuscript.

CONFLICTS OF INTEREST

The author declares no conflicts of interest.

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