

FIRST TRIMESTER MEDICAL ABORTION PRACTICE IN NORTH EAST INDIAVANREMMAWII^{1*}, LALROMAWII², VANLALHRUAI²¹Department of Obstetrics and Gynecology, Zoram Medical College, Mizoram, India. ²Department of Pharmacology, Zoram Medical College, Mizoram, India. Email: drmamawii@gmail.com

Received: 07 October 2021, Revised and Accepted: 08 November 2021

ABSTRACT

Objectives: This study is to compare the efficacy of Mifepristone combined with Misoprostol (Prostaglandin) administered through vaginal and sublingual route in termination of pregnancy of ≤ 63 days.

Methods: Randomized comparative study comprised of 140 pregnant women of ≤ 63 days gestational age was conducted at Zoram Medical College, Mizoram. Women in group A received 200 mg of Mifepristone orally on day 1 followed by 800 μg of Misoprostol sublingually 36–48 h later, whereas women in group B received 200 mg of Mifepristone orally on day 1 followed by 800 μg of Misoprostol vaginally 36–48 h later. A 2nd dose of 400 μg Misoprostol was given through the same route if abortion process does not start within 4 h. All women who aborted were seen at follow-up and ultrasound pelvis done to confirm complete expulsion of products of conceptions.

Results: The total number of primigravida was 34 (24.3%) and multigravida was 106 (75.7%). Complete abortion was seen in 91.4% and 94.28% of per sublingual and per vaginal route group, respectively ($p = 0.51$). Failure of abortion was 8.57% and 5.71%, respectively, in per oral and per vaginal route ($p = 0.51$).

Conclusion: Sublingual and per vaginal misoprostol after pre-treatment with mifepristone are both an effective method for termination of pregnancy for gestational age of 63 days or less, but the tolerance for sublingual misoprostol was poorer.

Keywords: Misoprostol, Abortion, Sublingual, Vaginal.

© 2022 The Authors. Published by Innovare Academic Sciences Pvt Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>) DOI: <http://dx.doi.org/10.22159/ajpcr.2022v15i1.43322>. Journal homepage: <https://innovareacademics.in/journals/index.php/ajpcr>

INTRODUCTION

Unsafe termination of pregnancy is the cause of substantial maternal mortality and morbidity worldwide. It is estimated that out of 210 million pregnancies that occur each year in the World, 80 million are unplanned and about 25% of pregnancies are assumed to be terminated, and at least 22800 preventable deaths occur globally each year [1].

In the North Eastern state of Mizoram, a Christian dominated state, there is scarcity of willing healthcare providers to perform termination of pregnancy, due to religious belief and fear of social stigma and reprisals, and hence many women resort to over the counter drugs for medical termination of pregnancy without proper knowledge of the possible complications.

Previously, most termination of pregnancy in the first trimester was performed with dilatation and curettage, and later by vacuum aspiration. The initial drugs used to terminate pregnancy such as hypertonic saline, urea and sodium were toxic. Prostaglandins have been tried in the last three decades for termination of pregnancy up to 63 days. The use of medical abortion pill is favored by the patients for reasons of better privacy, lesser embarrassment, and lesser pain. Various studies have shown that medical abortion with Mifepristone and Misoprostol is as equally effective when compared to surgical method. The current clinical protocols for medical termination of pregnancy require the combination of mifepristone (antiprogestone) with Prostaglandins. Hence, this study is conducted to compare the efficacy of Mifepristone combined with Misoprostol (Prostaglandin) administered through vaginal and sublingual route.

Mifepristone was first synthesized by French pharmaceutical company called Roussel Uclaf in the year 1980. It is an anti-progesterone which blocks the action of progesterone, a hormone necessary to

maintain pregnancy and thus inhibiting the action of progesterone. Mifepristone alters the endometrium, causes softening, and dilatation of the cervix [2,3]. Prostaglandins have been used widely for peptic ulcer prevention from Non-steroidal anti-inflammatory drugs use and also from ulcer bleeding. Misoprostol used in medical termination of pregnancy is PGE₁, an analog of prostaglandin, which causes uterine contraction and cervical softening by interacting with specific PG receptors on myometrial cells. Misoprostol has been used by different routes and dosages of administration for termination of pregnancy.

The USFDA approved Mifepristone in September 28, 2000 for use in combination with Misoprostol for medical abortion in ≤ 49 days of gestation. In India, Mifepristone was approved for used in Medical Termination of Pregnancy by Drug Controller General of India in April 2002 [4].

This type of study has never been done in a small north eastern state of India, Mizoram; hence, this study was taken up.

METHODS

This randomized comparative study was conducted from March 31, 2019 to February 28, 2020 at Zoram Medical College, Mizoram, after obtaining approval of Institutional Ethics Committee of the college.

Inclusion criteria

Women with history of amenorrhea of ≤ 63 days seeking legal termination of pregnancy were included in the study. Detailed history of chronic illness, systemic illness and history of allergy to Mifepristone or Misoprostol was taken. Urine pregnancy test as well as ultrasound pelvis was done to confirm intrauterine pregnancy and the period of gestation. Written informed consent was taken from all the participants.

Exclusion criteria

The women with ectopic pregnancy, history of bronchial asthma, hepatic insufficiency, bleeding disorders, and current long term therapy with steroids were excluded from the study.

Procedure

The participants were randomly divided into two groups, Group A (Oral route) and Group B (Vaginal route). Group A were given 200 mg of Mifepristone orally on day 1 followed by 800 µg of Misoprostol sub-lingually 36–48 h later. Group B were given 200 mg of Mifepristone orally on day 1 followed by 800 µg of Misoprostol vaginally 36–48 h later.

The demographic information and obstetric history were recorded in a predesigned questionnaire and written informed consent was taken. The participants were asked to stay for 4 h following administration of Misoprostol, and if abortion process does not start during this period, 2nd dose of 400 µg Misoprostol was given through the same route. The participants were followed up on day 15 of drug administration and the history and complications if any were noted, and ultrasound examinations were done to confirm complete expulsion of the fetus. The patients were informed to report immediately in case of severe bleeding, fever with rigor, or any signs of sepsis. In case of failure to abort, the patients were shifted for surgical evacuation.

RESULTS AND OBSERVATIONS

The mean age of patients in Group A was 29.34±5.8 years, while the mean age of patients in Group B was 29.7±6.5 years. The total number of primigravida in the study was 34 (24.28%) whereas the number of multigravida was 106 (75.71%). The number of primigravida is 27.1% of cases in Group A and 21.5% in Group B, respectively. The percentage of multigravida in Group A was 72.9% and 78.57% in Group B (Table 1).

Period of gestation

Period of gestation (weeks)	Sublingual (Gr. A)	Per-vaginal (Gr. B)
≤49 days	34 (48.57%)	38 (54.28%)
More than 49 days to 63 days	36 (51.42%)	32 (45.7%)

In our study, 49% of cases in sublingual group and 54.28% in per vaginal group were of period of gestation <49 days while the rest were between 49 days and 63 days of period of gestation (Graph 1).

In 96% cases of Group A and of 94.28% cases of Group B, bleeding occurs within 4 h of misoprostol administration. On follow-up at 15 days, complete expulsion of product of conception was found in 91.4% of Group A and 94.28% of Group B and 3% of Group A and 4% of Group B had bleeding per vagina up to 14 days.

All the cases of incomplete abortion had a complaint of bleeding per vagina off and on and eventually dilatation and evacuation was done for these cases (Tables 2 and 3).

Looking at the reasons for termination of pregnancy, it is very clear that there is a huge unmet need of effective contraceptive methods in the State (Table 4) (Graph 2).

Table 1: Demographic profile of the patients

	Group A (sublingual)	Group B (Per vaginal)	p value
Age (in years) (Mean±SD)	29.34±5.75	29.71±6.50	0.250208 (N/S at p<0.05)
Primigravida	19 (27.1%)	15 (21.4%)	0.215231 (NS)
Multigravida	51 (72.9%)	55 (78.57%)	0.333772 (NS)

Nausea was seen more in per vaginal group (70%) compared to 34.3% in sublingual group. Abdominal cramps were seen in 87.14% of per vaginal group compared to 80% of sublingual group. Diarrhea was found in 42.8% of Group A and 14.3% of Group B (Graph 3).

DISCUSSION

Medical abortion using mifepristone 200 mg followed by Misoprostol in the first 63 days of pregnancy is effective and safe. Globally, there have been trials by various investigators involving more than 45000 women over two decades using variety of regimen and treatment protocols. Fewer than 5% required surgical intervention [5-10].

In our study, patients were given misoprostol (800 µg) by either sublingual or per vaginal route 36–48 h after mifepristone 200 mg was given orally.

The mean age group in our study was 29.34 years and 29.7 years in Group A and Group B, respectively, which is comparable to 27.1±5.7 years in sublingual group and 27.9±4.6 years in per vaginal group by Chavan *et al.* [5], and 30.48±6.07 years in per vaginal group and 31.56±5.85 years by Dehbashi *et al.* [6].

In our study, 27.1% were primigravida and 72.9% multigravida in sublingual group, whereas 21.4% were primigravida and 78.52% were multigravida in per vaginal group. Chavan *et al.* [5] recorded 26.66% primigravida and 73.34% multigravida in sublingual group and 13.33% primigravida and 86.6% multigravida in per vaginal group. Kochar *et al.* [7] reported mean parity of 0.82±0.97 in sublingual group and 0.97±0.99 in per vaginal group.

Patel *et al.* [8] recorded a mean gestational age of 52.5±10.5 days in their study, Pathak *et al.* [9] recorded 64% of gestational age between 50 and 56 days, 22% cases <49 days and 12% cases in 57-63 days period of gestation in sublingual group, while 60% cases were 50-56 days, 24% cases < 49 days and 16% cases between 57 and 63 days period of gestation in per vaginal group. In our study, 48.57% cases were ≤ 49 days period of gestation and 51.42 % were between 49 and 63 days in sublingual group while 54.28% were ≤49 days and 45.7% between 50 and 63 days of pregnancy.

We found 96% complete abortion in per vaginal route group and 91% complete abortion in sub lingual route group, the rest needed surgical

Table 2: Comparison of treatment outcome

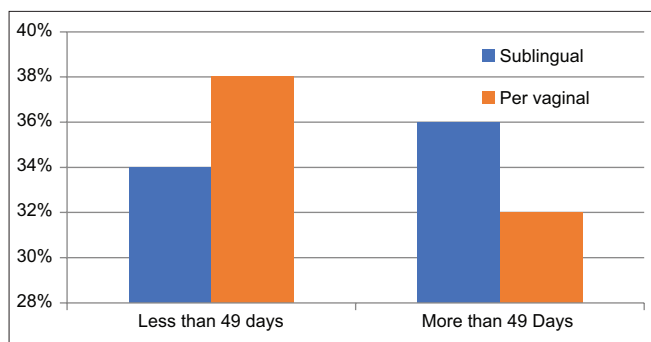
	Group A	Group B	p value
Complete abortion	64 (91.4%)	66 (94.28%)	0.50926 (NS)
Failure	6 (8.57%)	4 (5.71%)	0.50935 (NS)

Table 3: Reasons for termination of pregnancy

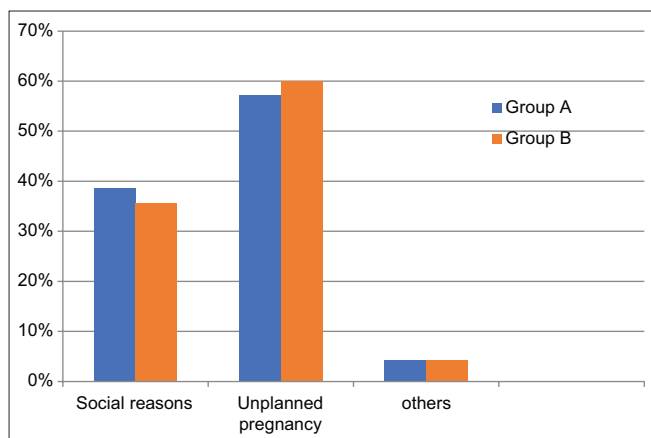
Reasons	Group A (%)	Group B (%)
Social reasons	27 (38.57)	25 (35.7)
Unplanned pregnancy	40 (57.14)	42 (60)
Others	3 (4.3)	3 (4.28)

Table 4: Incidence of side effects

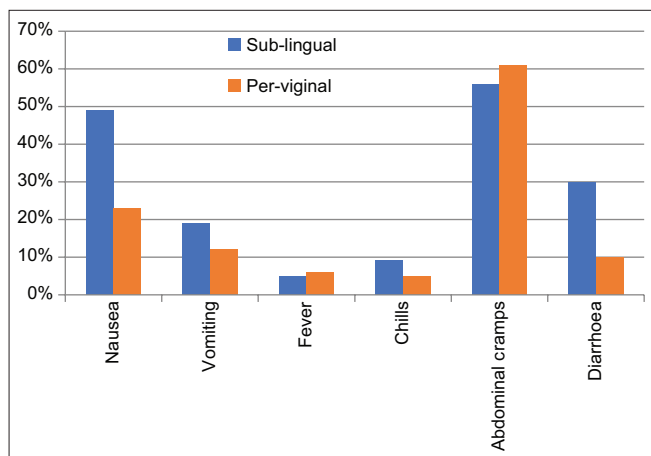
Side Effects	Group A	Group B
Nausea	49 (70%)	23 (32.9%)
Vomiting	19 (27.14%)	12 (17.14%)
Fever	5 (7.14%)	6 (8.57%)
Chills	9 (12.8%)	5 (7.14%)
Abdominal cramps	56 (80%)	61 (87.14%)
Diarrhea	30 (42.8%)	10 (14.3%)



Graph 1: Period of gestation among the two groups (%)



Graph 2: Reason for termination of pregnancy (%)



Graph 3: Incidence of side effects (%)

evacuation. Patel *et al.* [8] found 94.7% complete abortion with per vaginal route, Pathak *et al.* [9] found 96% abortion in sublingual and 94% abortion in per vaginal group.

Regarding side effects, there were no serious side effects recorded in our study. Abdominal cramps were recorded in 80% of sublingual route and 87.14% of vaginal route. Diarrhea was recorded in 42.8%

of sublingual and 14.3% of cases per vaginal route. Nausea was seen in 70% of sublingual group and 32.9% of vaginal route group. Pathak *et al.* [9] reported nausea in 64% in sublingual route compared to 32% in per vaginal route, diarrhea in 52% of sublingual route and no diarrhea in per vaginal route, abdominal cramps in 96% sublingual route and 100% cramps in per vaginal route. Dehbashi *et al.* [6] recorded diarrhea in 22% in sublingual route versus 20% in per vaginal route.

CONCLUSION

Sublingual and per vaginal misoprostol after pre-treatment with mifepristone are both an effective method for termination of pregnancy for gestational age of 63 days or less, but the tolerance for sublingual was poorer because of nausea and vomiting. There is also a great unmet need of contraception among the population, and hence, there should be more awareness program on the use of effective contraceptives method in the state.

AUTHORS CONTRIBUTION

Dr. Vanremmawii is an Associate professor at Zoram Medical College and has carried out the above work at the institution, data analysis, reviewing and editing manuscript. Dr. Lalromawii is involved with data organization, data analysis, reviewing and editing of manuscript. Dr. Vanlalhruii is involved with data analysis, reviewing and editing of manuscript.

CONFLICT OF INTERESTS

None.

AUTHORS FUNDING

None.

REFERENCES

1. World Health Organization. Make Every Mother and Child Count. Geneva: World Health Organization; 2005. Available from <https://www.who.int/whr/2005/en> [Last accessed on 2021 Aug 16].
2. Ho PC. Development of medical termination of pregnancy: A review. *BJOG* 2017;124:1942-7.
3. Faundes A. The combination of mifepristone and misoprostol for the termination of pregnancy. *Int J Gynaecol Obstet* 2011;7:1-4.
4. Jawarkar AK, Lokare PO, Kizhatil A, Jawarkar JA, Kale SG. Study on effectiveness and outcome of mifepristone and misoprostol in medical termination of pregnancy. *Int J Health Allied Sci* 2017;6:35-8.
5. Chavan SV, Mahajan NN, Tilve AG. Randomized comparison of vaginal and sublingual misoprostol with mifepristone priming in termination of second trimester pregnancy. *Int J Res Med Sci* 2019;7:3869-73.
6. Dehbashi Z, Moosazadeh M, Afshari M. Comparison between sublingual and vaginal route of misoprostol in management of first trimester miscarriage missing. *Matter Sociomed* 2016;28:271-3.
7. Kochar S, Meena KK, Khajotia S, Sushma. Comparative study of sublingual versus vaginal misoprostol for the management of missed miscarriage at tertiary care hospital in western rajasthan. *Ind J Appl Res* 2019;9:69-71.
8. Patel AA. Medical termination of pregnancy with mifepristone and misoprostol combined therapy: Evaluation of its safety and efficacy in clinical practice in India. *Asian J Biomed Pharm Sci* 2015;5:7-12.
9. Pathak BL, Roy SH. Comparative study of sublingual versus vaginal misoprostol following mifepristone in early first trimester medical termination of pregnancy a prospective study. *New Indian J OBGYN* 2019;5:107-12.
10. Raymond EG, Shannon C, Weaver MA, Winikoff B. First-trimester medical abortion with mifepristone 200 mg and misoprostol: A systematic review. *Contraception* 2013;87:26-37.