ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 10, Issue – 6, November – 2025, Page No. : 54 – 59

To Evaluate Shorter Versus Standard Mifepristone To Misoprostol Interval for Second Trimester Medical Method of Termination of Pregnancy

[1]Dr. Rudrakshi, SMS Medical College, Jaipur.
[2]Dr. Devendra K Benwal, SMS Medical College, Jaipur.
[3]Dr. Babita, SMS Medical College, Jaipur.
[4]Dr. Navneet, SMS Medical College, Jaipur.
Corresponding Author: Dr. Rudrakshi, SMS Medical College, Jaipur.

Citation this Article: Dr. Rudrakshi, Dr. Devendra K Benwal, Dr. Babita, Dr. Navneet, "To Evaluate Shorter Versus Standard Mifepristone To Misoprostol Interval for Second Trimester Medical Method of Termination of Pregnancy", IJMSIR - November – 2025, Vol – 10, Issue - 6, P. No. 54 – 59.
Type of Publication: Original Research Article
Conflicts of Interest: Nil

Abstract

Background: Second-trimester abortion (13–24 weeks) is vital in women's healthcare but carries higher risks than first-trimester procedures. Medical methods of abortion with mifepristone followed by misoprostol is a highly effective and safe option than any surgical approaches. Traditionally, a 48-hour interval is advised, but shorter intervals may improve efficiency, reduce hospital stay, and enhance patient comfort.

Aim: To evaluate the effectiveness of a shorter versus a standard mifepristone-to-misoprostol interval for second-trimester medical termination of pregnancy.

Methods: A prospective hospital-based study at SMS Medical College randomized women into 24-hour and 48-hour mifepristone-to-misoprostol groups. Standard examinations, investigations, and informed consent were obtained. Abortion outcomes were assessed after administering mifepristone 200 mg orally and misoprostol vaginally, with subsequent dosing as required. Statistical analysis compared efficacy and safety between groups.

Results: The study compared 24-hour and 48-hour mifepristone-to-misoprostol intervals for second-trimester abortion. Both regimens showed similar efficacy, side effects, parity distribution, misoprostol dose requirements, and induction-to-abortion intervals. However, the 48-hour group had a significantly longer mifepristone-to-abortion interval, suggesting the 24- hour protocol may be more time-efficient without compromising safety or outcomes.

Conclusion: Both 24-hour and 48-hour regimens were comparable in efficacy, safety, and side effects, but the 24-hour interval ensured faster abortion completion, making it a more time-efficient yet equally effective protocol.

Keywords: Termination of Pregnancy, Misoprostol Interval, mifepristone-to-misoprostol Interval, pregnancy loss.

Introduction

Pregnancy is often considered a joyful phase, but not all result in favorable maternal and fetal outcomes. Abortion, the termination of pregnancy before fetal

viability, may be medical or surgical, with medical methods increasingly preferred for their effectiveness and procedural advantages. Second-trimester abortion (13–26 weeks) is an important aspect of women's healthcare, performed for reasons including late pregnancy detection, severe fetal anomalies, and complications such as preeclampsia, preterm premature rupture of membranes, or fetal demise.[1] Data remain underreported; only 64% of providers offer services beyond 12 weeks and 23% beyond 20 weeks. Globally, 10–15% of induced abortions occur in this period, often due to delayed diagnosis, limited access, financial constraints, or stigma (Drey 2006).[2] In India, the MTP Act (2021) extended the gestational limit from 20 to 24 weeks under specific conditions. Second-trimester procedures carry higher morbidity. Surgical abortion risks uterine perforation, hemorrhage, and sepsis, whereas medical abortion is safer with fewer infrastructure needs.[3] WHO recommends mifepristone–misoprostol up to 9 weeks,4 while misoprostol alone achieves 97.2% success for later terminations. Medical methods are preferred where D&E is unavailable or when the woman wishes to view the fetus. Protocols involve mifepristone pretreatment followed by misoprostol after 24–48 hours.[4] Mifepristone primes the uterus for misoprostol-induced contractions.8 The combination shortens expulsion time compared to misoprostol alone,[5] which needs higher doses and causes more side effects. A 3-hour dosing interval is more effective than 6 hours. A common regimen is 200 mg oral mifepristone followed by up to 800 mcg vaginal misoprostol. Mifepristone may be given 1– 2 days before misoprostol, with vaginal administration more effective than sublingual, which often requires stronger analgesia.[6] Although a 36–48 hour interval is traditional (Gemzell-Danielsson and Lalitkumar, 2008), shorter intervals could improve efficiency and reduce patient anxiety.

This study aims to evaluate the effectiveness of a shorter versus a standard mifepristone-to-misoprostol interval for second-trimester medical termination of pregnancy.

Materials and Methods

Type of Study: Interventional

Design: Prospective comparative study

Place: Dept. of Obstetrics & Gynaecology, SMS Medical College, Jaipur

Duration: Data collection began Oct 2023 after ethics approval; analysis completed within two months

Universe: All women attending Obstetrics & Gynaecology OPD

Population: Women undergoing second-trimester termination with mifepristone + misoprostol

Sample Size: 60 women (30/group), based on previous study (mean induction-abortion time 23.4 hrs, SD 2.56, 95% CI, 80% power)

Sampling: First-come, first-serve basis

Ethical Clearance: Obtained prior to study

Inclusion: Women ≥18 years with intrauterine pregnancy (12–20 weeks), requesting MTP as per Act, and giving informed written consent.

Exclusion: Women with uterine scar, drug allergy, systemic illnesses, or on corticosteroid/ anticoagulant therapy.

Methodology: History, examination, and investigations were done; participants randomized into two groups; given mifepristone followed by misoprostol (24/48 hrs); repeat doses until expulsion; vitals monitored, CBC repeated, alternatives used if failure.24-hr contact provided for follow-up

Statistical Analysis: Data were analyzed using SPSS; categorical variables expressed as frequencies and percentages; Fisher's exact test applied; $p<0.05$ considered significant; all analyses performed at a 95% confidence level.

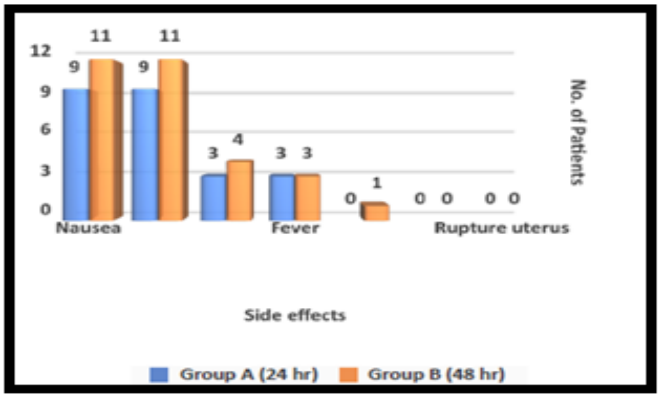
Result and observations In Group A (24-hour) and Group B (48-hour), mean ages were 24.23 ± 4.15 vs. 24.9 ± 3.80 years (p=0.51). Nulliparity was 60% vs. 66.67% (p=0.59). Complete outcomes occurred in 80% vs. 76.67% (p=0.75). Mean repeat misoprostol doses were 2.16 ± 4.1 vs. 2.3 ± 1.17 (p=0.85). Induction-abortion intervals among nulliparas were 5.46 vs. 7.3 h (p=0.34) and among multiparas 4.35 vs. 4.15 h (p=0.004).

Table 1: Distribution of patients according to Gestational age (in weeks)

Gestational age (in weeks)	Group A (24 hr)		Group B (48 hr)	
	No. of Patients	Percentage	No. of Patients	Percentage
Nulliparous	18	60.00	20	66.67
Multiparous	12	40.00	10	33.33
Total	30	100	30	100
Mean ± SD	19.16±2.56		20.4±2.34	
P-value	0.05			

Group A (24-hour) had a mean gestational age of 19.16 ± 2.56 weeks, while Group B (48-hour) showed 20.4 ± 2.34 weeks. Both groups comprised nulliparous and multiparous patients, with nulliparous slightly more common. The difference in gestational age was borderline statistically significant (p=0.05).

Figure 1: Distribution of patients according to Side effects.



In Group A (24-hour), 30% of patients reported nausea and pain, compared to 36.67% in Group B (48-hour). Rigor and fever occurred in fewer patients, while weakness was noted in one patient (3.33%) of Group B. No cases of giddiness or uterine rupture were observed. Overall, side-effect incidence showed no significant difference (p=0.9).

Table 2: Distribution of patients according to Mifepristone to Abortion interval

Mifepristone to Abortion interval	Group A (24 hr)		Group B (48 hr)	
	No. of Patients	Percentage	No. of Patients	Percentage
<15 hrs	1	3.33	0	0.00
15-25 hrs	5	16.67	1	3.33
25-35 hrs	24	80.00	1	3.33
35-45 hrs	0	0.00	1	3.33
45-55 hrs	0	0.00	22	73.33
>55 hrs	0	0.00	5	16.67
Total	30	100.00	30	100.00
Mean ± SD	25.03±9.99		51.45±8.09	
P-Value	<0.0001			

In Group A (24-hour), 80% aborted within 25–35 hours, with a mean interval of 25.03 ± 9.99 hours. In Group B (48-hour), 73.33% aborted within 45–55 hours, mean 51.45 ± 8.09 hours. Few patients aborted outside these ranges. The difference was highly significant (p<0.0001), showing delayed abortion with the 48-hour regimen.

Table 3: Distribution of patients according to Induction abortion interval (in hrs)

Induction abortion interval (in hrs)	Group A (24 hr)		Group B (48 hr)	
	No. of Patients	Percentage	No. of Patients	Percentage
0-3 hrs.	7	23.33	7	23.33
3-6 hrs.	12	40.00	10	33.33
6-9 hrs.	6	20.00	9	30.00
9-12 hrs.	5	16.67	4	13.33
Total	30	100.00	30	100.00
Mean ± SD	4.95±3.18		5.2±3.06	
P-Value	0.75			

In Group A (24-hour), 40% aborted within 3–6 hours and 23.33% within 0–3 hours, while in Group B (48-hour), 33.33% aborted within 3–6 hours and 23.33% within 0–3 hours. Mean induction-abortion intervals were 4.95 ±

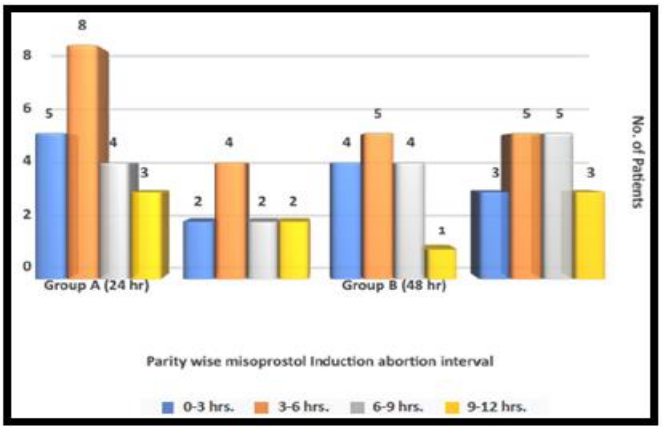
3.18 hours (Group A) and 5.2 ± 3.06 hours (Group B). No significant difference was observed (p=0.75).

Table 4: Distribution of patients according to Total dose of misoprostol

Parameter	Group A (24 hr)		Group B (48 hr)		P-value
	Mean	SD	Mean	SD	
Total dose of misoprostol	866.66	493.63	920	471.53	0.67

Group A (24-hour) required a mean misoprostol dose of 866.66 ± 493.63 µg, while Group B (48- hour) required 920 ± 471.53 µg. The difference was not statistically significant (p=0.67), indicating that extending the interval between mifepristone and misoprostol did not affect total dose requirement.

Figure 2: Distribution of patients according to Gestational age wise misoprostol Induction abortion interval



In Group A (24-hour), the mean induction-abortion interval was 4.77 ± 3.13 hours (12–20 weeks) and 5.3 ± 3.42 hours (>20 weeks), with no significance (p=0.67). In Group B (48-hour), it was 7.3 ± 2.83 hours (12–20 weeks) and 5.75 ± 3.36 hours (>20 weeks), also not significant (p=0.19), showing gestational age had no effect.

Discussion

Second-trimester medical termination commonly uses mifepristone followed by misoprostol, with a 48-hour interval traditionally recommended. Shorter intervals may reduce abortion duration, hospital stay, and improve convenience, though concerns about efficacy and safety remain. This study compares shorter versus standard intervals at SMS Medical College, Jaipur, to evaluate outcomes.

The mean gestational age was 19.16 ± 2.56 weeks in Group A and 20.4 ± 2.34 weeks in Group B (p=0.05). Jaya T et al[7] reported gravidity with 36.7% primigravida, 26.7% Gravida 2, and 36.6% ≥3 in Group 1, while Group 2 showed 30%, 25%, and 45%. Nilas L et al[8] noted parity increased with gestational age (median 0, range up to 2). Nausea and pain were most common (30% Group A, 36.67% Group B), with no significant difference (p=0.9). Chaudhuri S et al[9] observed nausea in 15% and vomiting in 13.3%, with no diarrhea, fever, or rigor. Conversely, Tang O S et al[6] reported higher rates: nausea 48%, vomiting 26%, diarrhea 59%, and fever 64%. Most abortions occurred within 3–6 hours in both groups, with similar mean induction–abortion times (4.95 ± 3.18 vs. 5.2 ± 3.06 hours; p=0.75). Khairnar M M et al[10] reported shorter intervals with mifepristone–misoprostol (6.22 ± 2 hours) versus misoprostol alone (10.82 ± 2). Similarly, Nagaria T et al[11] observed reduced intervals (6.72 ± 2.26 vs. 12.29 ± 3.14 hours). Most abortions occurred within 3–6 hours in both groups, with comparable mean induction– abortion times (4.95 ± 3.18 vs. 5.2 ± 3.06 hours; p=0.75). Patil N G et al[12] reported a mean induction–abortion interval of 9.3 hours in the combination group, while Arora C et al[13] observed moderate induction intervals, indicating variability based on dosage schedules and clinical practices.

The mean misoprostol dose was comparable in both groups (866.66 ± 493.63 µg vs. 920 ± 471.53 µg; P=0.67). Jan E. Dickinson[14] reported a higher cumulative requirement of 1600 µg, likely due to misoprostol-only regimens, while Sharma N et al[15] observed reduced doses

with mifepristone pre-treatment (1247.06 ± 191.07 µg vs. 1405.71 ± 280.69 µg; P=0.003). The mean gestational age was 19.16 ± 2.56 weeks in Group A and 20.4 ± 2.34 weeks in Group B (p=0.05). Jaya T et al[7] reported Group 1 with 36.7% primigravida, 26.7% Gravida 2, and 36.6% ≥3, while Group 2 had 30%, 25%, and 45% respectively. Nilas L et al[8] noted parity tended to increase with gestational age (median 0, range up to 2).

Conclusion

The study found 24-hour and 48-hour mifepristone-to-misoprostol intervals comparable in demographics, parity, booking, locality, completeness, side effects, dosage, and induction-to-abortion time. The 24-hour interval achieved significantly earlier abortion completion without added risks. Parity influenced timing in the longer regimen, while gestational age showed minimal effect, favoring the shorter protocol.

References

1. The American College of Obstetricians and Gynecologists Women's Health Care Physicians Practice Bulletin Clinical Management Guidelines for Obstetrician - Gynecologists Number 135 June 2013 Reaffirmed; 2019.
2. Drey EA, Foster DG, Jackson RA, et al. Risk factors associated with presenting for abortions in second trimester. Obstet Gynaecol 2006;107(1):128-135.
3. Winikoff B, Ellertson C, Elul B, Sivin I. Acceptability and feasibility of early pregnancy termination by mifepristone misoprostol; results of a large multicenter trial in the United States. Arch Fam Med. 1998;7(4):360–6
4. Borgatta L, Kapp N. Society of Family P. Clinical guidelines. Labor induction abortion in the second trimester. Contraception 2011;84(1):4–18.
5. Whitehouse K, Brant A, Fonhus MS, Lavelanet A, Ganatra B. Medical regimens for abortion at 12 weeks and above: a systematic review and meta-analysis. Contracept 2020;X 2:100037.
6. Tang OS, Lau WN, Chan CC, Ho PC. A prospective randomised comparison of sublingual and vaginal misoprostol in second trimester termination of pregnancy. BJOG. 2004;111: 1001–5.
7. Arunadevi Ta. Comparative Stdy of "Mifepristone Plus Vaginal Misoprostol Versus "Vaginal Misoprostol Alone" For Second Trimester Abortion. 2011
8. Nilas L, Glavind-Kristensen M, Vejborg T, Knudsen UB. One or two day mifepristone– misoprostol interval for second trimester abortion. Acta Obstet Gynecol Scand. 2007;86: 1117–21.
9. Jain KJ, Kuo J, Mishell DR. A comparison of two dosing regimens of intravaginal misoprostol for second trimester pregnancy termination. Obstet Gynecol. 1999;93:571-575.
10. Nagaria T, Sirmor N. Misoprostol vs Mifepristone and Misoprostol in Second Trimester Termination of Pregnancy. J Obstet Gynaecol India. 2011;61(6):659–62.
11. Patil NG, Gupta P, Hittinhalli MD, Mudanur SR, Tehalia MK, Nemagouda AS, et al. A randomised Controlled Trial to Compare the Efficacy of Preinduction with Mifepristone 12 Hours Versus 24 Hours Prior for Second Trimister Pregnancy Termination. Int J Reprod Contracept Obstet. 2017;6(8):3628–60.
12. Rose SB, Shand C, Simmons A. Department of Primary Health Care and General Practice, Wellington School of Medicine and Health Sciences, and Level F Unit, Wellington Hospital, Capital and Coast Health Ltd., Wellington, New Zealand Mifepristone and misoprostolinduced mid-trimester termination of pregnancy: a review of 272 cases.

13. Jana Franzis Franke , Kathrin Oelmeier , Mareike Möllers , Ute Möllmann , Janina Braun , Laura Kerschke , Helen Ann Köster , Walter Klockenbusch , Ralf Schmitz and Kerstin Hammer, Termination of pregnancy in the second trimester – the course of different therapy regimens, from the journal Journal of Perinatal Medicine, 2022,
14. Chauduri S, Mitra SN, Chauduri N, Chattopadya D, Banerjee D. Bose S. A comparison of intravaginal misoprostol with extraamnic. -ethacricline lactate for second trimester MTP. J Obstet Gynecol India. 2006;56:518-521.
15. Anita Kant, Usha Priyambada, Divya Kant, A comparitive study between 24 and 48 hours interval between mifepristone and misoprostol for induction of labour, Obstet Gynecol Int J. 2017;7(4):291–293.