

# A study of the efficacy of mifepristone with misoprostol over misoprostol alone in medical termination of pregnancy

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## Abstract

**Introduction:** Misoprostol has proven its efficacy as an effective abortifacient for the second trimester termination of pregnancy. It is being successfully used through all the routes i.e. sublingual, oral and vaginal and in different regimens with the induction abortion interval varying from 12 h to as high as 33 h. **Aims and Objectives:** To Study the Efficacy of Mifepristone with misoprostol over misoprostol alone in medical termination of Pregnancy **Methodology:** This was a hospital based study in patients attending the department of Obstetrics and Gynecology of teaching hospitals attached to Bangalore Medical College, Bangalore (viz. Bowring and Lady Curzon Hospital and Vanivilas Hospital) who needed MTP. Out of 100 Pregnant Women 50 pregnant women given oral mifepristone 200mg followed by vaginal misoprostol 400 microgram after 48 hours and one hour of that 200 microgram of oral misoprostol. 50 pregnant women given 600 microgram vaginal misoprostol alone at a time The statistical analysis done by unpaired t-test. **Result:** Complete abortion was achieved in 88% (44) of the patients in misoprostol alone regimen. Complete abortion was achieved in 96% (48) of the patients in combination regimen. Overall complete abortion was achieved in 92 patients in our study. Failure rate was observed more in Misoprostol alone group i.e. 12.0% as compared to Misoprostol+Mifepristone group i.e. 4.0%. Mean Time to Induction to Abortion was significantly less in Mifepristone with misoprostol than misoprostol alone group. **Conclusion:** From our study it can be concluded that the combination of Mifepristone with misoprostol is superior to misoprostol alone with respect to less failure rate and Mean Time to Induction to Abortion in both Primi and Multi Gravidity.

**Keywords:** Mifepristone, Misoprostol, Medical termination of Pregnancy.

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## INTRODUCTION

Misoprostol has proven its efficacy as an effective abortifacient for the second trimester termination of pregnancy. It is being successfully used through all the routes i.e. sublingual, oral and vaginal and in different regimens with the induction abortion interval varying

from 12h to as high as 33h.<sup>1-9</sup> Combination of mifepristone with misoprostol is now widely used method for first early first trimester pregnancy termination. Priming of the uterus with mifepristone makes it more sensitive to prostaglandins. It binds with the progesterone receptors and antagonizes the actions of progesterone on prostaglandin synthesis and metabolism resulting in increase in production and decreased deactivation of prostaglandins. It also induces cervical softening thus, enhancing the efficacy of the prostaglandins as an abortifacient. The time interval between the insertion of the first tablet of misoprostol and start of contraction was significantly shorter in the study group  $4.66 \pm 2.03$  against  $8.18 \pm 2.68$  in the misoprostol alone group ( $P < 0.001$ ). The time interval between the insertion of the first tablet and the start of the bleeding was also significantly shorter in the study group  $5.52 \pm 2.13$  h as

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compared to  $9.98 \pm 3.12$  h in the control group. ( $P < 0.001$ ). The induction abortion interval was significantly shorter  $6.72 \pm 2.26$  h in the study group while it was  $12.29 \pm 3.41$  h in the misoprostol alone group. ( $P < 0.001$ ). Rodger *et al.*<sup>10</sup> in a double blind study using 600 mg mifepristone 36 h prior to gemeprost found that the IAI was significantly reduced to 6.8 h as compared to 15.8 h in the placebo group. Similar results had been observed by other authors as well using mifepristone followed by prostaglandins<sup>11-15</sup>

### MATERIAL AND METHODS

This was a hospital based study in patients attending the department of Obstetrics and Gynecology of teaching hospitals attached to Bangalore Medical College, Bangalore (viz. Bowring and Lady Curzon Hospital and Vanivilas Hospital) who needed MTP. Out of 100 Pregnant Women 50 pregnant women given oral mifepristone 200mg followed by vaginal misoprostol 400 microgram after 48 hours and one hour of that 200 microgram of oral misoprostol. 50 pregnant women given 600 microgram vaginal misoprostol alone at a time. Patients will be selected for study by subjecting them to following History taking Examination – General physical examination-Systemic and per vaginal examination All pregnant females with duration of pregnancy between 12-

20 weeks needs MTP (satisfying the criteria for MTP) Included into study and Pregnant female with history of previous LSCS, Suspected ectopic pregnancy, Pregnant female with history of asthma Excluded from the study. The statistical analysis done by unpaired t-test.

### RESULTS

**Table 1:** Final outcome in our study

Outcome	Group		Total
	Misoprostol alone	Misoprostol+Mifepristone	
Complete Abortion	44	48	92
Failure	88.0%	96.0%	92.0%
Failure	6	2	8
	12.0%	4.0%	8.0%
Total	50	50	100
	100.0%	100.0%	100.0%

Complete abortion was achieved in 88% (44) of the patients in misoprostol alone regimen. Complete abortion was achieved in 96% (48) of the patients in combination regimen. Overall complete abortion was achieved in 92 patients in our study. Failure rate was observed more in Misoprostol alone group i.e. 12.0% as compared to Misoprostol+Mifepristone group i.e. 4.0%.

**Table 2:** Mean induction to abortion interval

Group	N	Mean Time to Induction to Abortion (in Hrs)	Median	Std. Deviation	Minimum	Maximum	't' value	'p' value
Misoprostol alone	44	14.114	13.500	3.1528	9.5	22.0	212.605	.000

Mean induction to abortion interval in the misoprostol alone regimen was 13.5 hours, the lowest was 9.5 hours and longest was 22.0 hours. Mean induction to abortion

interval in the combination regimen was 7 hours, the lowest was 6 hours and longest was 9.5 hours. This observed difference is statistically significant ( $p < 0.000$ )

**Table 3:** Mean induction to abortion interval with respect to the gravidity

Gravidity	Group	Mean Time to Induction to Abortion (in Hrs)	Median	Std. Deviation	Min	Max	't' value	'p' value
Primi	Misoprostol alone	14.923	14.000	3.0472	12.5	22.0	87.484	<0.001
	Misoprostol+Mifepristone	7.000	7.000	.8549	6.0	8.5		
Multi	Misoprostol alone	13.774	13.500	3.1829	9.5	22.0	130.31	<0.001
	Misoprostol+Mifepristone	7.162	7.000	1.0852	6.0	9.5		

Mean induction to abortion interval in the misoprostol alone regimen in primigravida was 14.92 hours, the lowest was 12.5 hours and longest was 22.0 hours, in the combination regimen mean induction to abortion interval was 7.0 hours lowest was 6.0 hours and longest was 8.5 hours. Mean induction to abortion interval in the misoprostol alone regimen in multigravida was 13.7 hours, the lowest was 9.5 hours and longest was 22.0

hours, in the combination regimen mean induction to abortion interval was 7.162 hours lowest was 6.0 hours and longest was 9.5 hours. This observed difference is statistically significant ( $p < 0.001$ ).

### DISCUSSION

The second trimester termination of pregnancy is increasing because of increased determination of the sex linked genetic, metabolic disorders. Various surgical and

medical methods have been tried for the second trimester MTP with varying success and induction abortion interval. Prostaglandins are associated with not only a high success rate but also with a short induction abortion interval. Misoprostol a newer synthetic prostaglandin E1 has proven its efficacy as an abortifacient for second trimester MTP since 1987. It is superior to all other available prostaglandins as it is stable at room temperature, requires no refrigeration, is cost effective, has fewer side effects, is a potent uterotonic and cervical ripening agent, free from bronchoconstrictive effect. It can be used by both the oral as well as vaginal route and in concurrence with other drugs as well. In our study we have observed that Complete abortion was achieved in 88% (44) of the patients in misoprostol alone regimen. Complete abortion was achieved in 96% (48) of the patients in combination regimen. Overall complete abortion was achieved in 92 patients in our study. Failure rate was observed more in Misoprostol alone group i.e. 12.0% as compared to Misoprostol+Mifepristone group i.e. 4.0%. Mean induction to abortion interval in the misoprostol alone regimen was 13.5 hours, the lowest was 9.5 hours and longest was 22.0 hours. Mean induction to abortion interval in the combination regimen was 7 hours, the lowest was 6 hours and longest was 9.5 hours. This observed difference is statistically significant. ( $p < 0.000$ ) Mean induction to abortion interval in the misoprostol alone regimen in primigravida was 14.92 hours, the lowest was 12.5 hours and longest was 22.0 hours, in the combination regimen mean induction to abortion interval was 7.0 hours, lowest was 6.0 hours and longest was 8.5 hours. Mean induction to abortion interval in the misoprostol alone regimen in multigravida was 13.7 hours, the lowest was 9.5 hours and longest was 22.0 hours, in the combination regimen mean induction to abortion interval was 7.162 hours, lowest was 6.0 hours and longest was 9.5 hours. This observed difference is statistically significant. ( $p < 0.001$ )

## CONCLUSION

From our study it can be concluded that the combination of Mifepristone with misoprostol is superior to misoprostol alone with respect to less failure rate and Mean Time to Induction to Abortion in both Primi and MultiGravidity

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