

## Comparison of successful abortion rate of mifepristone – Misoprostol combination with extraamniotic ethacridine lactate – misoprostol for termination of second trimester pregnancy

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### Abstract

Abortion procedure is one of the commonly practiced procedure in practice thereby demanding a safe and effective method of abortion.

**Objective:** Objective of study was to compare successful abortion rate and to compare the mean induction-abortion interval.

**Materials and Methods:** The present was undertaken among the patients admitted to hospitals attached to J.J.M. Medical College; Bapuji hospital, women and children hospital and Chigateri general hospital Davangere during the study period from November 2016 - October 2017. Patients are randomized in two groups. Patients coming for second trimester abortion to above mentioned hospitals were assigned serial number from one to eighty and all patients with even number will be allocated to group 1 and all patients with odd number will be allocated in group 2, each group comprising 40 women each.

**Results:** In the present study the mean induction abortion interval for group 1 was 19.56±1.82 hours and group 2 was 14.13±2.72 hours. This was statistically significant. Of the 40 cases in each group, 37 had complete abortion i.e. 92.5% 3 cases (7.5%) from both the groups had incomplete abortion and was supplemented with check curettage in both groups.

**Conclusion:** Ethacridine lactate instilled extra-amniotically then by vaginal misoprostol is safer and acceptable, has short I-A interval than mifepristone – misoprostol for 2<sup>nd</sup> trimester termination of pregnancy.

**Keywords:** Abortion rate, Induction-abortion interval Extraamniotic; Ethacridine lactate, Mifepristone, Second trimester abortion, Misoprostol.

### Introduction

Termination of pregnancy during mid trimester is among the most controversial areas of gynecological practice.<sup>1,2</sup> It has moral, emotional, social and technical issues.<sup>1,2</sup> Many medical and surgical methods have been tried for 2<sup>nd</sup> trimester MTP with varying success and induction abortion interval.<sup>3</sup> Reasons for termination are fetal demise, fetal anomalies, failure of contraception, determination of genetic and metabolic disorders, to safeguard maternal health.<sup>3-5</sup>

A combination of mifepristone, and misoprostol is effective for medical abortion in second trimester. Pre-treatment with mifepristone adds to the efficacy of misoprostol as an abortifacient.<sup>3</sup>

The good regimen is still under investigation, but is required to be characterized by short induction abortion interval, low side effects, decreased surgical intervention, high abortion rate and high acceptability.

This study is therefore designed for comparison of successful abortion rate of mifepristone–misoprostol combination with extraamniotic ethacridine lactate – misoprostol for termination of pregnancy (2<sup>nd</sup> trimester). The objective of study was to compare successful abortion rate and to compare the mean induction-abortion interval.

### Materials and Methods

The present was undertaken among the patients admitted to hospitals attached to J.J.M. Medical College; Bapuji hospital, women and children hospital and Chigateri general hospital Davangere. Patients admitted to the above mentioned hospitals during the study period of 1 year from November 2016 - October 2017 are included in the study. Permission for the study was obtained from the college authorities prior to commencement. Patients are randomized in two groups. Patients coming for second trimester abortion to above mentioned hospitals were assigned serial number from 1-80 and all patients with even number will be allocated to group 1 and all patients with odd number will be allocated in group 2, each group comprising 40 women each.

**Inclusion Criteria:** Healthy women aged between 21 to 35 years with singleton intrauterine pregnancy between 13 and 20 weeks of gestation admitted for termination of pregnancy.

**Exclusion Criteria:** Multiple pregnancies, grand multipara, cardiac, renal and liver disease, scarred uterus, ruptured membranes, placenta previa, hemoglobin less than 8 g%, hemorrhagic disorders & treatment with anticoagulants, intolerance to misoprostol and ethacridine lactate.

**Method:** Gestational age is determined from first day of last menstrual period (LMP), Pelvic and bimanual

examination.<sup>1,5</sup> Urinary pregnancy test if done during early pregnancy.<sup>1</sup>

Obstetric ultrasonography is done when date of LMP is not known or where LMP and clinical findings differ.<sup>1,5</sup>

Informed written consent will be obtained from each patient. Selected patients will be registered, detailed history noted, routine investigations will be sent & gestational age confirmed.

**Group 1:** A single dose of mifepristone 200mg orally given on admission, 12 hours later 400µg of misoprostol vaginally and 400µg repeated every 4 hourly if no response for maximum of 5 doses. Vaginal examination done every 4 hours.

**Group 2:** 0.1% extraamniotic ethacridine lactate (10 ml per week of gestation to maximum of 150ml instilled using Foleys catheter, bulb inflated with 20ml of distal water) followed 6 hourly by intravaginal misoprostol 400µg/4hourly if no responses for maximum of 5 doses. Four hourly vaginal examination done.

Foley's catheter removed after 24 hours if not expelled out spontaneously.

Patient in each group will be explained regarding the dosage schedule, side effects like nausea/vomiting, diarrhea, headache, fever, chills, abdominal cramps and complications such as hyperstimulation, cervicovaginal tear, uterine rupture.

Pulse rate, blood pressure, uterine contraction will be noted every 4 hours.

The induction-abortion interval is calculated as time taken from initial insertion of mifepristone / ethacridine lactate to time when fetus & placenta aborted.<sup>4</sup>

Complete abortion is defined as the expulsion of fetus and placenta without operative interventions.<sup>5</sup>

If placenta appears complete, no further interventions will be undertaken.

If placenta is incomplete or fails to get expelled, suction evacuation or check curettage will be done.<sup>4</sup>

Those who did not expel fetus by 48 hours are considered failures.<sup>1,5</sup>

## Data Analysis

SPSS (version 16) was used for all the analysis. Mean±SD, and range values for continuous data and Number and percentages for categorical data. T-test (unpaired) was used to compare the mean values. Chi-square test was used to analyse the categorical data. A P-value of 0.05 or less was considered for statistical significance.



**Fig. 1: Instruments used for ethacridine lactate instillation**

## Results

Majority of the cases in both the groups were between 21-25yrs the mean age was 24.7±4.0yrs in group 1 and 25.8±4.4yrs in group 2. Range in both the groups was 21-35yrs. (P value>0.05). Most of the participants in the groups were multigravidas. In group-1, 42.5% were primigravida and 57.5% were multigravida. In group 2, 30.0% were primigravida and 70.0% were multigravida. Eleven cases from group 1 and 12 cases from group 2 were of gestational age between 14-16 wks. 29 pregnant women from group 1 and 28 cases from group 2 were of gestational age between 18-20 wks

Mostly of the cases were aborted in both the group for anomalous fetus as indication, followed by IUFD, MTP+Tubectomy and humanitarian grounds.

**Table 1: Indications for abortion**

Indications		Gr 1	Gr 2	Total
Anomalies	No.	15	23	38
	%	37.5%	57.5%	47.5%
IUFD	No.	11	10	21
	%	27.5%	25.0%	26.3%
MTP+Tubectomy	No.	8	6	14
	%	20.0%	15.0%	17.5%
Humanitarian	No.	6	1	7
	%	15.0%	2.5%	8.8%
Total	No.	40	40	80
	%	100%	100%	100%
Chi-Square	5.59	P = 0.13, NS		
P > 0.05, Not Sig.				

Sixty five percent of the cases in group 1 used 1-2 doses of misoprostol whereas mean dose of misoprostol used was 2.3. 82.5% of the pregnant women in group 2 used 1-2 doses of misoprostol whereas misoprostol dose was 1.9.

The amount of misoprostol used in group 1 (2.3±0.6 doses co-related with 920±240 µg of misoprostol) and group 2 (1.9±0.6 doses co-related with 760±240 µg of misoprostol) was significant.  $p < 0.001$

**Table 2: Number of dose of misoprostol used**

No. of Misoprostol		Gr 1	Gr 2	Total
1 - 2	No.	26	33	59
	%	65.0%	82.5%	73.8%
3 - 4	No.	14	7	21
	%	35.0%	17.5%	26.3%
Total	No.	40	40	80
	%	100%	100%	100%
Mean±SD		2.3±0.6	1.9±0.6	-
Gr 1 v/s Gr 2		t = 10.50, p < 0.001, HS		
Unpaired t test				

In the present study the mean induction abortion interval for group 1 was 19.56±1.82 hours and group 2 was 14.13±2.72 hours.

**Table 3: Induction to abortion interval**

Induction- Abortion Interval (Hrs)		Gr 1	Gr 2	Total
< 12 Hrs	No.	0	7	7
	%	0.0%	17.5%	8.8%
12 -- 18 Hrs	No.	5	28	33
	%	12.5%	70.0%	41.3%
18 -- 24 Hrs	No.	35	5	40
	%	87.5%	12.5%	50.0%
Total	No.	40	40	80
	%	100%	100%	100%
Mean Age ± SD (Hrs)		19.56±1.82	14.13±2.72	-
Range		16 - 23.Hrs	9 - 21.5 Hrs	
Gr 1 v/s Gr 2		t = 10.50, p < 0.001, HS		
Unpaired t test				

Of the 40 cases in each group, 37 had complete abortion i.e., 92.5% 3 cases (7.5%) from both the

groups had incomplete abortion and was supplemented with check curettage in both groups.

**Table 4: Outcome in two groups**

Outcome		Gr 1	Gr 2	Total
Complete	No.	37	37	74
	%	92.5%	92.5%	92.5%
Incomplete	No.	3	3	6
	%	7.5%	7.5%	7.5%
Total	No.	40	40	80
	%	100%	100%	100%

## Discussion

The induction abortion interval obtained in group 2 is comparable with other studies done by different authors on extraamniotic ethacridine lactate-misoprostol for IIInd trimester termination and found to be shorter than other studies.

Authors	Extraamniotic ethacridine-vaginal misoprostol
Mamta G et al <sup>6</sup>	18.3±6.1 hours
Siddareddy Y et al <sup>47</sup>	16.44 hours
Jyothi IS et al <sup>2</sup>	19.8±10.15hours
Present study	14.13±2.72 hours.

In the year 2011, Tripti and Namrata in their study concluded that pretreatment with mifepristone 12 hours prior to intravaginal misoprostol improves the induction abortion interval (6.72±2.26 hours).<sup>3</sup> I-A interval is taken from administration of misoprostol. From administration of mifepristone to abortion, time is 18.72±2.26 hours. In present study, above interval was 19.56±1.82 hours which are comparable.

Neelamma Patil, Priyanka Gupta, Megha D. Hittinalli, Subhaschandra R. Mudanur, Manpreet Kaur J. et al conducted a study in 2017 to compare the efficacy of preinduction with mifepristone 12 hours versus 24 hours prior for second trimester pregnancy termination and found induction abortion interval was 9.3 hours when misoprostol given 12 hours after mifepristone.<sup>47</sup> Induction abortion interval is taken from administration of misoprostol. Time from administration of mifepristone to abortion is 21.3 hours. In our study, the induction abortion interval is taken from the time of administration of mifepristone to abortion which was 19.56±1.82 hours. Hence the results are comparable.

Same study conducted by Smiti Nanda and Anshu Pau et al showed the induction-to-abortion interval in the mifepristone- misoprostol group, 58.31 ± 3.62 hours with complete abortion rate of 90%. In the study misoprostol was given 48 hours after administering mifepristone. Mean time from misoprostol to abortion was 10.54±5.81 hours.<sup>4</sup> In our study, misoprostol is given 12 hours from mifepristone and the induction

abortion interval is taken from the time of administration of mifepristone to abortion which was 19.56±1.82 hours with complete abortion rate of 92.5%. Hence the results are comparable.

RCOG Best practice recommends that fourteen weeks and more period of gestation should undergo medical termination in a medical facility. Mifepristone and misoprostol should be used to shorten the induction interval. ACOG recommends mifepristone 200 mg orally followed in 24-48 hours by misoprostol 800µgm vaginally followed by 400µgm every 3 hours maximum of 5 doses. If abortion is not complete after 5 doses, the women may rest before starting next cycle.<sup>47</sup>

The recommended method for medical abortion by WHO is 200 mg mifepristone administered orally followed 36 to 48 hours later by repeated doses of misoprostol. The initial misoprostol dose following oral mifepristone administration may be either 800µgm administered vaginally or 400µgm administered orally. Subsequent misoprostol doses should be 400µgm, administered either vaginally or sublingually, every 3 hours up to four further doses.<sup>47</sup>

The suggested protocol by FOGSI is also mifepristone 200 mg followed by misoprostol 400µgm after 36-48 hours either oral, sublingual or vaginal every 4-6 hours for maximum of 5 doses.<sup>47</sup> But present study proved that the duration between mifepristone and misoprostol can be reduced to 12 hours without affecting the efficacy.

Comparison of complete abortion rate of present study with different studies shown below:

Authors	Mifepristone -misoprostol	Ethacridine -misoprostol
Nanda S et al, <sup>4</sup>	90%	-
Mamta G et al <sup>6</sup>	-	83.33%
Jyothi IS et al <sup>2</sup>	-	72%
Nagara T et al <sup>3</sup>	95%	-
Patil N et al <sup>47</sup>	100%	-
Siddareddy Y et al <sup>46</sup>	-	99%
Present study	92.5%	92.5%

If placenta is incomplete or fails to get expelled, suction evacuation or check curettage will be done.<sup>4</sup>

3 cases (7.5%) from both the groups had incomplete abortion and was supplemented with check curettage in both groups

### Conclusion

Misoprostol had synergistic effect with prostaglandin released due to stripping of membranes

from extra-amniotic Ethacridine. With this combination success rate was high (92.5%), with short induction abortion interval, less rate of incomplete abortion without any major complications. Thus, ethacridine lactate instilled extra-amniotically followed by vaginal misoprostol is effective, safer and acceptable, has short induction abortion interval than mifepristone – misoprostol.

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