

Comparative Study of Mifepristone and Misoprostol Vs Misoprostol Alone in Second Trimester Medical Termination of Pregnancy

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Abstract: Introduction: Abortion is the termination of pregnancy by the removal or expulsion of products of conception. Medical abortions are those induced by abortifacient drugs. Medical abortion became an alternative method of abortion with the availability of prostaglandin analogs in the early 1970s and the antiprogesterone Mifepristone in the 1980s. Although many different drugs have been used, alone and in combination, to induce abortion, a regimen composed of Mifepristone plus Misoprostol has been the one most widely used since Mifepristone was first approved as an abortifacient. The World Health Organization (WHO) recommends this drug combination, with an initial dose of Mifepristone followed by Misoprostol 24 to 36 hours later, for early medical abortion. The World Health Organization approved both Mifepristone and Misoprostol for termination of early pregnancy by including them in the list of Essential Medicines in 2005. Aim: To compare the efficacy of Mifepristone and Misoprostol vs Misoprostol in second trimester medical termination of pregnancy. Methodology: Data of women attending GYNAEC OPD MMCH & R I, Kaanchipuram seeking MTP for various reasons will be collected. Sample Size: 50 patients in each group. {Randomly selected} GROUP A: Combination regimen -- 200 mg oral Mifepristone, followed 48 hours later by 400micrograms of vaginal Misoprostol every 4th hourly upto 4 doses. GROUP B: Misoprostol alone - 400micrograms of Misoprostol vaginally inserted 4th hourly upto 4 doses. Results: Majority of the patients had termination of pregnancy in 13 to 15 weeks of gestation in Mifepristone plus Misoprostol group and 19 to 21 weeks in Misoprostol group. 2) The most common indication for termination of pregnancy in both the group is unintended pregnancy. 3) Among both the groups mean abortion interval in Mifepristone plus Misoprostol group was 9.08hrs whereas in Mifepristone group 17.86hrs. 4) The difference between them was found to be statistically significant with p value < 0.001. 5) When compared to induction abortion interval and parity in both the groups' multigravida is comparatively shortened than primigravida with p value no significant. 6) Repeat dosage of Misoprostol in Mifepristone plus Misoprostol is comparatively less when compared to Misoprostol group alone. 7) There was no failure in Mifepristone + Misoprostol group compared to 4% failure rate in Misoprostol group with p value of 0.046 8) The percentage of complete abortion in Mifepristone plus Misoprostol group was 88% whereas in Misoprostol group was 72%. 9) Successful abortions who expelled completely or incompletely within 48hrs in Mifepristone plus Misoprostol group is 100% and 96% in Misoprostol group. 10) Average cost of Misoprostol group is Rs.56.10 and Mifepristone plus Misoprostol group is Rs.329.60. Conclusion: Mifepristone plus vaginal Misoprostol combination group is associated with shorter induction abortion interval and 100% success rate and complete abortion when compared to Misoprostol group alone. Misoprostol group alone is cost effective

Keywords:

1. Introduction

Abortion is the termination of pregnancy by the removal or expulsion of products of conception prior to viability. Approximately 205 million pregnancies occur each year worldwide. Over a third are unintended and about a fifth of them end in induced abortion either by medical or surgical methods. It has become a preferable method of termination with the availability of prostaglandin analogs in the early 1970s and the antiprogesterone Mifepristone in the 1980s.

Mid trimester termination of pregnancy is one of the controversial issues in Obstetrics and Gynaecology which has moral, technical, emotional and social issues. Many Indian women opt for MTP (Medical Termination of Pregnancy) for unintended/unplanned pregnancies some delay it to second trimester unaware of increased morbidity like excessive haemorrhage, uterine perforation and infection moreover there is a continuous need for termination of pregnancy in second trimester as there is advanced antenatal diagnostic tests which enable us to identify lethal fetal anomalies.

Medical method of abortion has the advantage over surgical methods as it is non-invasive, without complications and administration of drugs are easy than surgical intervention. The various drugs used in induction of abortion have

undergone tremendous change. From instillation of intra-amniotic hypertonic saline, urea and then to extra-amniotic ethacridine lactate and now to prostaglandin analogues, the entire scenario is undergoing a new trend of metamorphosis.

Although many drugs have been used, singly or in combination, to induce abortion, a regimen composed of Mifepristone plus Misoprostol has been the one most widely used since Mifepristone was first approved as an abortifacient in China and France in 1988.

The World Health Organization (WHO) recommends this drug combination, with an initial dose of Mifepristone followed by Misoprostol 36 to 48 hours later, for early medical abortion and included them in the list of Essential Medicines in 2005. 26 million women worldwide preferred this drug combination to terminate their pregnancies. The present study is undertaken to analyze the usage of Mifepristone and Misoprostol in combination VS Misoprostol alone for a safe and effective medical method of abortion in the second trimester of pregnancy.

2. Methods and Materials

Data of women attending GYNAEC OPD MMCH, Kaanchipuram seeking MTP for various reasons will be collected.

Sample Size: 50 patients in each group. {randomly allocated}

Period of Study: one and half years i.e. from January 2016 to July 2017

Methodology

Group A: Combination regimen -- 200 mg oral Mifepristone, followed 48 hours later by 400micrograms of vaginal Misoprostol every 4th hourly upto 4 doses.

Group B: Misoprostol alone - 400micrograms of Misoprostol vaginally inserted 4th hourly upto 4 doses

Basic investigations such as Complete Haemogram, Coagulation profile, LFT & RFT, Urine routine and Ultrasonography.

Analysis

Data was analysed using SPSS software using ANOVA, Independent sample test and Chi -Square test and significant p -value being less than 0.001

3. Observation

Table 1: Gestational Age Group

GA (Weeks)	Group		Total (N%)
	MIFE + MISO (N%)	MIFE (N%)	
13-15 WEEKS	17(34)	15(30)	32(32)
16-18 WEEKS	15(30)	12(24)	27(27)
19-20 WEEKS	18(36)	23(46)	41(41)
MEAN	17.14 ± 3.04	17.86 ± 3.38	17.50 ± 3.22
P VALUE	0.266		

Table 2: Indications For Termination

Indication	GROUP		Total
	MIFE + MISO (N%)	MIFE (N%)	
Anomalous	12(24)	11(22)	23(23)
Unintended	31(26)	14(28)	27(27)
Mixed Abortion	9(18)	9(18)	18(18)
Iud	5(10)	9(18)	14(14)
Incomplete Abortion	5(10)	3(6)	8(8)
Unmarried	6(12)	4(8)	10(10)

Table 3: Induction – Abortion Interval

Induction Abortion	MIFE + MISO (N=50)	MIFE (N=50)	P Value
Mean	9.08	17.86	0.0001S
STD Deviation	5.76	7.71	
STD Error Mean	0.814	1.09	

Table 4: Induction – Abortion Interval And Parity

PARITY	GROUP	
	MIFE + MISO HRS	MISO ONLY HRS
G1	17.2	11.9
G2	14.6	11.2
G3	10.5	13.3
G4	11.0	4.5
G5	8.0	14.0
G6		18.0
P VALUE	0.438NS	0.441NS

Table 5: Repeat Dose of Misoprostol

MODE	NUMBER OF DOSES			
	1	2	3	4
MIFE + MISO	19	18	8	5
MISO ONLY	1	8	16	25

Table 6: Outcome in Groups

	Group		P Value
	MIFE + MISO (N%)	MIFE (N%)	
Complete	44(88)	36(72)	0.046S
Incomplete	6(12)	12(24)	
Failure	0(0)	2 (4)	

Table 7: Success Rates in both groups

	Group		P Value
	MIFE + MISO	MISO ONLY	
<12 HOURS	42(84)	9(18)	0.0001S
12-24 HOURS	6(12)	35(70)	
25-36 HOURS	2(4)	5(10)	
37-48 HOURS	0(0)	1(2)	

Table 8: Cost Incurred in both groups

Cost In Rupees	Group	MIN Cost Per Dose	Average Cost (MEAN)	Std Deviation	Std Error Mean
	MIFE + MISO	34	329.62	45.79	6.47
	MISO ONLY	17	56.10	13.84	1.95

4. Results

Majority of the patients had termination of pregnancy in 13 to 15 weeks of gestation in Mifepristone plus Misoprostol group and 19 to 21 weeks in Misoprostol group.

The most common indication for termination of pregnancy in both the group is unintended pregnancy.

Among both the groups mean abortion interval in Mifepristone plus Misoprostol group was 9.08hrs whereas in Mifepristone group 17.86hrs. The difference between them was found to be statistically significant with p value < 0.001.

When compared to induction abortion interval and parity in both the groups' multigravidas are comparatively shortened than primigravida with p value not significant

Repeat dosage of Misoprostol in Mifepristone plus Misoprostol is comparatively less when compared to Misoprostol group alone.

There was no failure in Mifepristone plus Misoprostol group compared to 4% failure rate in Misoprostol group with p value of 0.046 (highly significant). 2 patients underwent hysterotomy

The percentage of complete abortion in Mifepristone plus Misoprostol group was 88% whereas in Misoprostol group was 72%. The percentage of incomplete abortion was 12% in Mifepristone plus Misoprostol group and 24% in Misoprostol group alone with p value < 0.05.

Successful abortions who expelled completely or incompletely within 48hrs in Mifepristone plus Misoprostol group is 100% and 96% in miso group with highly

significant p value <0.001.

Average cost of Misoprostol group is Rs.56.10 and Mifepristone plus Misoprostol group is Rs.329.60. Misoprostol group found to be cost effective

5. Discussion

Gestational Age

In the present study, the mean gestational age in Mifepristone + Misoprostol group was 17.14 weeks while that in Misoprostol group was 17.86 weeks.

In the study of JAN E DICKINSON (1) the mean gestational age was 19.1 weeks in Mifepristone + Misoprostol group and 19.6 weeks in Misoprostol group.

In study of TRIPTI NAGARIA (2011) (2) mean gestational age in Mifepristone + Misoprostol group was 16 weeks and Misoprostol group alone is 19 weeks.

Indication

In the present study, the most common indication for pregnancy termination was unintended pregnancies in both the groups.

In study of TRIPTI NAGARIA (2011) (2) the commonest indication for pregnancy termination is unwanted pregnancies.

In the study of PATEL U CHAUHANK (2013) (3) majority of the patients are terminating due to unwanted pregnancies.

Induction Abortion Interval

In the present study mean induction abortion interval in Mifeprestone + Misoprostol group was 9.08 hrs where as in Mifeprestone group was 17.86 the difference between abortion interval in Mifepristone + Misoprostol is 6hrs and 12hrs in Misoprostol group alone

In the study of JAN E DICKINSON (1) the mean induction abortion interval was 8.6hrs for Mifepristone + Misoprostol group and 15.5hrs for Misoprostol group.

In the study of PATEL U CHAUHANK (2013)(3) Int J Reprod Contracept Obstet Gynecol) the mean induction abortion interval was 18hrs for Mifepristone + Misoprostol group and 24.2hrs for Misoprostol group.

When the study is compared to NEHA AGARWAL STUDY(2014) (4) INDIAN JOURNAL OF CLINICAL PRACTICE mean induction abortion interval in Mifepristone + Misoprostol group is 15hrs and 18.5hrs in Misoprostol group alone.

Induction-Abortion Interval & Parity

In the present study induction abortion interval is shortened in multigravidas than in primigravida .

Success Rates in Both Groups

In the present study successful abortions included those patients who expelled completely or incompletely within forty eight hours.

The number successful abortions in Mifepristone +

Misoprostol group was 100% and that in Misoprostol group was 96%.

Patients in Misoprostol alone group did not expel even after the fourth dose hence, hysterotomy was done in those 2 patients

The group with Mifepristone + Misoprostol expelled earlier than Misoprostol group in the same time with significant p value.

Outcome in Various Studies

- When the study is compared to NEHA AGARWAL STUDY(2014) (4) INDIAN JOURNAL OF CLINICAL PRACTICE .The number of successful abortions in Mifepristone + Misoprostol is 95% and 90% in Misoprostol group.
- In the study of TRIPTI NAGARIA(2011) (2) successful abortions in Mifepristone + Misoprostol is 95% and 90% in Misoprostol group.
- In the study of JAN E DICKINSON(1) the successful abortions in Mifepristone + Misoprostol is 98%
- In the study of Ashok et al(5) the successful abortions in Mifepristone + Misoprostol is 99.2%.
- In the study of SIN Ee GOH, KokJoo Thong(6) the successful abortions in Mifepristone + Misoprostol is 99.5%

Cost

The average cost for mifepristone + misoprostol group is 329.60 whereas misoprostol is 56.10

6. Conclusion

- 1) Mifepristone plus vaginal Misoprostol combination group is associated with shorter induction abortion interval and 100% success rate when compared to Misoprostol group alone.
- 2) Mifepristone plus vaginal Misoprostol combination group is associated with complete abortion rate compared to Misoprostol alone group.
- 3) Though Misoprostol alone costs less and seems to be cost effective, Mifepristone + Misoprostol combination has success rate of 100% with complete abortion of 88% hence, more effective than Misoprostol group.

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