Original Article

A Randomized Controlled Trial Comparing the Management of Incomplete Abortion with Oral 600 mg Misoprostol with Manual Vacuum Aspiration (MVA)

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ABSTRACT

Introduction: In the first trimester, almost one in five identified pregnancies end in spontaneous miscarriage, and another 22% result in induced abortion. After a spontaneous and/or induced abortion, there may be retained products of conception (POC). Because of its relatively poor efficacy and the unpredictability of the time interval until spontaneous evacuation, expectant treatment is not often chosen by healthcare professionals. In view of these facts, the current study's objective was to weigh the effectiveness of MVA and oral misoprostol 600 mg in managing incomplete abortion. **Materials and Procedures:** The investigation was conducted at the tertiary care center in India. The survey was conducted for one year. Subjects were selected from those attending the department for either spontaneous or induced abortions. A total of 230 women were randomly assigned to receive the interventions of a single dose of oral misoprostol 600 mcg or MVA. They were equally distributed to two groups and observed for the various parameters of success, signs and symptoms, satisfaction, and complications. The obtained values were compared statistically for the significance at <0.05 of *P* values. **Results:** Of the 200 subjects (30 lost to follow-up), there was no significant variance in the demographics, clinical outcomes, and complications between the groups. However, the pain, fever, shivering, and satisfaction parameters were statistically variant between the groups. Fever, shivering, and pain were lower for the MISO subjects while satisfaction was reported higher from subjects in MISO group. **Conclusion:** MISO and MVA are acceptable, safe, and efficient therapies for first-trimester un-complicated incomplete abortion. Nonetheless, misoprostol appears to be a marginally superior option to MVA in terms of accessibility, low therapy costs, reduced pain, and reduced demand for specialized personnel or equipment.

Keywords: *Abortion, conception, manual vacuum aspiration, misoprostol, pregnancy*

Introduction

In the first trimester of a recognized pregnancy, one out of every five pregnancies ends in a spontaneous miscarriage, while another 22% result in an induced abortion. There may be "*Products Of Conception* (POC)" following an induced abortion (either using risky or safe means) or afterward a spontaneous abortion, which is referred to as miscarriage.[1-3] Self-induction may be used by some women. Women are more likely to encounter problems after abortions and seek therapy for partial terminations if these symptoms exist.[4] Both expectant treatment, which allows for spontaneous uterine evacuation, and active management, which

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uses surgical or medicinal techniques, are options for treating incomplete abortion. Expectant treatment is not frequently recommended by medical professionals due to its generally lower efficacy and the unpredictability of the period until spontaneous evacuation.[5] Up until recently, incomplete abortions were typically treated with surgery of some sort, such as "*Dilation And Curettage* (D + C)" or "*Manual Vacuum Aspiration (*MVA)". Although these therapies are efficient, they call for specialized tools and knowledge. This study aimed to compare the effectiveness of MVA and oral MISO 600 mg in managing incomplete abortion in a tertiary teaching center in India.

Material and Methods

Study design and site

The current study was designed as a prospective observational clinical study. The ethical clearance was obtained for the study. Utmost care was taken to follow all the ethical principles and patient safety. A total of 230 women were randomly assigned to receive either MVA or a single dose of oral MISO 600 mcg. Instead of being based on a power calculation, all the subjects who consented for the study and were needful of the intervention were included in the study. The subjects were equally distributed in the two groups of MVA and MISO (N = 115); they were chosen to assure the ideal number of participants for the approach's advantages and disadvantages to be fully revealed within a year. Nonetheless, the sample size was sufficient as per the previous study by Mondal *et al*.[1] The randomization was done using the computer-based codes that was constructed in batches of ten to conduct the randomization. Using sequentially numbered envelopes, participants were randomized to one of the two trial regimens.

Results

From the included 230 subjects 200 were finalized as 30 were lost to follow-up, and 20 in MVA and 10 in MISO were lost to follow-up. MVA group average age was 24.5 ± 6.5 and MISO group average age was 23.6 ± 4.7 years. There was no significant variance between the groups for the characteristics of primi, multi, single previous miscarriage, >2 previous miscarriages, and induced abortion history or for the weeks since last missed menstruation. Most patients had gravid uteruses that were 8 to 10 weeks old when they first showed up. The distribution was similar for both the interventional cohorts [Table 1]. When the two were compared for the success rate it was observed that for the characteristics of success, failed after the intervention, evacuation repeated, and failed due to other causes there was no significant variance. In both the groups, nearly 93% of the subjects were successfully treated. Only one subject in the MVA group had uncontrolled bleeding and had to be treated to address the severe hemorrhage [Table 2]. Ten subjects in MVA and 5 subjects in MISO reported complications. When observed, there was no significant variance for the blood transfusions, infections, total complications between the groups. Cervical trauma was reported in two subjects in the MVA group only. Two subjects in each group needed blood transfusion. Six subjects had infection in MVA, while only 3 had infections in MISO groups [Table 3]. Over 70% subjects in both the groups reported satisfaction after the treatments. However, majority in the MISO group shared that they were very satisfied than the MVA group. Only a single subject was very unsatisfied in the MISO group while in the MVA 5 subjects felt very unsatisfied. The variance was statistically significant ($P < 0.05$) [Table 4].

Discussion

By showing that the treatment of incomplete abortion with 600 mg of oral misoprostol is just as effective as manual vacuum aspiration, this study implies that the medical therapy of this condition may be feasible and effective in less developed countries.[1,6] In both therapy groups, problems and side effects were infrequently recorded. Three women getting MISO and 6 receiving

Table 1: Characteristics of subjects

Characteristics	MVA (*n*=80)	MISO (*n*=90)	*P*
Age	24.5±6.5 years	23.6±4.7 years	0.245
Primi	55 (68.75%)	64 (70.4%)	0.406
Multi	25 (31.25%)	26 (28.6%)	0.512
Single previous miscarriage	10 (12.5%)	12 (13.2%)	0.321
More than two previous miscarriages	4 (5%)	7 (7.7%)	0.314
Induced abortion history	10 (12.5%)	15 (16.5%)	0.331
Weeks since last missed menstruation			
<8 wk	22 (27.5%)	24 (26.7%)	0.321
8-10 wk	55 (68.75%)	64 (70.4%)	0.406
>10 wk	3 (3.75%)	2 (2.2%)	0.416

Table 2: Success

Clinical outcome	MVA	MISO	*P*
Success	75 (93.75%)	85 (93.5%)	0.465
Failed after the intervention	2 (2.5%)	3 (3.3%)	0.341
Evacuation repeated	2 (2.5%)	2 (2.2%)	0.413
Failed due to other causes	1 (1.25%)	Nil	-

Table 3: Complications in two groups

	MVA (*n*=80)	MISO (*n*=90)	*P*
Blood transfusions	2 (2.5%)	2 (2.2%)	0.321
Cervical trauma	2 (2.5%)	-	-
Infections	6 (7.5%)	3 (3.3%)	0.524
Total complications	10 (12.5%)	5 (5.5%)	0.062

Table 4: Satisfaction with method

	MVA (*n*=80)	MISO (*n*=90)	*P*
Very Satisfied	30 (37.5%)	55 (68.75%)	0.024
Satisfied	20 (25%)	20 (22.0%)	
Neutral	10 (12.5%)	20 (22.0%)	
Unsatisfied	15 (18.75%)	4 (4.4%)	
Very Unsatisfied	5 (7.5%)	1 (1.1%)	

MVA both experienced pelvic infections, which were all successfully treated using medicines. This low percentage is most likely due to routine antibiotic use among all women.[1,7] Compared to women who had manual vacuum aspiration, those who received misoprostol reported significantly less pain but more blood.[1] Women were largely pleased with their care, regardless of the method used. This study reveals that misoprostol may be more advantageous than manual vacuum suction in low-resource settings.[1] Misoprostol seems to be a much more adaptable treatment, to start. Before using a manual vacuum aspiration, an accurate diagnosis of gestational age and abortion status must be made. This rule may not apply to misoprostol.[1,8] Reviewing the known failures in this study reveals that one of the two failures in the manual vacuum aspiration group was caused by an incorrect clinical diagnosis, which resulted in profuse bleeding that was impossible to control by MVA and required curettage to complete the evacuation. The four failures in the misoprostol group were all the result of drug failure.[2,3] Misoprostol's simplicity of usage is its second advantage. A specific equipment and a qualified operator are needed for manual vacuum aspiration. There may occasionally be a shortage of skilled surgical personnel or manual vacuum aspiration kits, even in a training facility.[9,10] According to this study, these techniques can be supplied to women without the need for an unneeded ultrasound test, which is costly and requires trained professionals.

Conclusion

MVA and 600 mg of oral MISO are both affordable, secure, and efficient treatments for simple incomplete abortion in the first trimester. Nonetheless, misoprostol appears to be a marginally superior option to MVA in terms of accessibility, low therapy costs, reduced pain, and reduced demand for specialized personnel or equipment. Because of its inexpensive cost, misoprostol as an option for care after abortion would lessen the strain on tertiary healthcare facilities.

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Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Mondal W, Mondal D, Dutta I. Oral 600µg misoprostol vs manual vacuum aspiration (MVA) for the management of incomplete abortion- A randomized controlled trail. Indian J Obstet Gynecol Res 2021;8:20-5.
2. Greibel CP, Halvorsen J, Goleman TB. Management of spontaneous abortion. Am Fam Physician 2005;72:1243-50.
3. Warriner IK, Shah IH. Preventing Unsafe Abortion and its Consequences: Priorities for Research and Action. New York: Guttmacher Institute; 2006.
4. World Health Organization. Definition of Unsafe Abortion. 2009.
5. Singh S. Hospital admissions resulting from unsafe abortion: Estimates from13 developing countries. Lancet 2006;368:1887-92.
6. Khaniya B, Yadav R. Comparison of use of misoprostol versus manual vacuum aspiration in the treatment of incomplete abortion. NMJ 2019;2:239-42.
7. Nwafor JI, Agwu UM, Egbuji CC, Ekwedigwe KC. Misoprostol versus manual vacuum aspiration for treatment of first-trimester incomplete miscarriage in a low-resource setting: A randomized controlled trial. Niger J Clin Pract 2020;23:638-46.
8. Ani VC, Enebe JT, Dim CC, Dim NR, Ozumba BC. Sublingual misoprostol versus manual vacuum aspiration for treatment of incomplete abortion in Nigeria: A randomized control study. Pan Afr Med J 2022;41:90. doi: 10.11604/pamj.2022.41.90.29364.
9. Ghosh J, Papadopoulou A, Devall AJ, Jeffery HC, Beeson LE, Do V, *et al*. Methods for managing miscarriage: A network meta-analysis. Cochrane Database Syst Rev 2021;6:CD012602. doi: 10.1002/14651858.CD012602.pub2.
10. Das R, Rout RR, Tiwari RV, Tiwari HD, Ravuri P, Kommuri S, *et al*. Evaluation of per vaginal bleeding with different drugs in successful pregnancy in patients with recurrent pregnancy loss: An original research. J Pharm Bioall Sci 2022;14:S193-5.