Efficacy, Safety and Cost-Effectiveness of Misoprostol, Combined Mifepristone and Misoprostol and MVA in Menstrual Regulation and Post Abortion Care

*Begum MM,[1] Sultana F,[2] Tasmin FS,[3] Sultana NM[4]

To replace conventional D&Cby MVA, MR by combined Mifepristone & Misoprostol and PAC by Misoprostol this prospective randomized study was done in Obstetrics & Gynecology outpatient department of Rangpur medical college hospital. Over a period of two year from April 2015 to April 2017, a total of four hundred twenty five women presented with live pregnancy or spontaneous miscarriage with gestational age < 12 weeks with no sign of septic abortion and no history of pregnancy with fibroid uterus were included in the study.Of the 425 patients, 92 (21.6%) were came for menstrual regulation, 269 (63.3%) were for treatment of incomplete abortion, 59 (13.9%) were cases of missed abortion, 05 (1.2%) were molar pregnancy. Among the 425 patients 187 (44.0%) cases were treated by sublingual misoprostol, 83 (19.5%) patients choice MRM (Menstrual regulation by medication) with combined mifepristone & misoprostol and 155 (36.5%) patients received treatment by MVA. Patients choose MVA for termination of pregnancy or MR in 9.7% cases, for incomplete abortion in 80.0% cases, for missed abortion in 7.1% cases and for molar pregnancy in 3.2% cases. Patients received misoprostol for incomplete abortion in 74.3% cases and for missed abortion in 25.7% cases. Overall success rate of misoprostol was 95.2%, of combined mifepristone & misoprostol was 94.0% and that of MVA was 98.7%. MRM (Menstrual regulation with medication), Misoprostol for PAC and Vacuum aspiration are preferred methods of uterine evacuation in the first trimester because they have been proven safer than sharp curettage. MVA is safe, effective, cheaper, less time consuming and requires shorter hospital stay. It does not require general anaesthesia and complication is also less than dilatation and curettage. So it can be easily accessible to the woman of both rural and urban societies belonging to any socioeconomic strata especially where high tech equipments and power supply are not available.

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Introduction

Globally, about 210 million women become pregnant every year. Of these pregnancies, 75 million end in stillbirth, or abortion (either spontaneous or induced). In 2008, an estimated 21.6 million unsafe abortions were performed worldwide almost all being done in the developing countries.[1] WHO ranks unsafe abortion as one of the major causes of maternal mortality, since it accounted for 13 percent of all maternal deaths. WHO estimates that 47,000 women died due to unsafe abortion in 2008.[1] Besides claiming many women's lives every year, unsafe abortion also leads to high rates of morbidity, including life-long disability.

1. **Dr. Mst. Moonmoon Begum, Resident Surgeon, Obstetrics and Gynecology, Rangpur Medical College Hospital. munmun.ahmed@yahoo.com*
2. *Professor Ferdousi Sultana, Head of the Department, Obstetrics and Gynecology, Rangpur Medical College Hospital.*
3. *Dr. Shahi Farzana Tasmin, Associate Professor, Obstetrics and Gynecology, Rangpur Medical College Hospital.*
4. *Dr. Most. Nasreen Sultana, Medical Officer, Model Family Planning Clinic, Rangpur Medical College Hospital.*

**For correspondence*

A recent study shows that the prevalence of MR/abortion in Bangladesh is 108 per 1,000 of married women of reproductive age.[2] The study also estimated the total number of MR/abortions to be 508,591 annually based on facility data.

The recent Bangladesh Maternal Mortality and Health Care Survey (BMMS 2010) show a decline in abortion-related maternal deaths (from 5 percent of MMR in 2001 to 1 percent of MMR in 2010). This might be due to increased use of safe menstrual regulation (MR) services or more widespread use of contraceptives.

Uterine evacuation may be accomplished in the first trimester by medications, vacuum aspiration or sharp curettage. A recent statement by the International Federation of Gynecologists and Obstetricians (FIGO) supported the use of vacuum aspiration or medications over sharp curettage for uterine evacuation.

Menstrual Regulation with Medication (MRM) using combined mifepristone and misoprostol is a safe, effective and acceptable option for MR. Millions of women throughout the world have chosen MRM and found it to be a highly acceptable option. In 2013 MRM was approved in Bangladesh by the National Technical Committee (NTC) of DGFP for up to 63 days (9 weeks) amenorrhea. MRM with misoprostol only is not mentioned in the NTC approval.

MVA is a safe, effective technique for uterine evacuation. Both the WHO and FIGO recommend MVA as the method of choice for uterine evacuation in cases of incomplete abortion and induced abortion in early pregnancy.[3,4]

The use of misoprostol for the management of incomplete and missed abortion in women with a uterine size less than 12 weeks pregnancy was approved by the Directorate General of Family Planning after December 2010.[5,6] The use of misoprostol is also included in the "post abortion care guidelines and technical standards" of the Directorate General of Family Planning. The Directorate General of Health Services authorized the use of misoprostol in post abortion care approved training by OGSB (2011). The OGSB developed guidelines and a protocol "Misoprostol in Post Abortion Care", which is now a part of post abortion training in Bangladesh.[5]

Misoprostol for post abortion care has high success rates of about 95% to 99%, depending on the regimen used and the study.[7] Misoprostol is becoming increasingly recognized as a low-cost and easy-to-use means of uterine evacuation.[6] Simple technology that can be used in a range of settings, by a range of providers, that can stand alone where MVA is not feasible or be complementary to MVA in existing PAC services.

It has been clinically studied in settings as diverse as the US, UK and in low resource countries such as Burkina Faso, Mozambique and Tanzania to treat incomplete abortion. A feasibility study in Nigeria showed its acceptability to women and providers among a largely Muslim population in northern Nigeria.[8]

This study was done to find out replacement of conventional D&Cby MVA, MR by combined Mifepristone & Misoprostol and PAC by Misoprostol.

Methods

This hospital based prospective study was conducted in Rangpur medical college hospital in outpatient department of obstetrics and gynecology started from April 2015 and

ongoing. Total 425 women were treated for MR and PAC services from April 2015 to April 2017. This project is funded by Ipas Bangladesh in collaboration with Govt. of Bangladesh. Informed written consent was obtained from each woman and relevant obstetric and gynecological history was obtained, per vaginal examination was performed to determined gestational age or uterine height and recorded in MR-PAC logbook supplied by Ipas Bangladesh and Ministry of health and family wale fare. All the logistics for MVA and MRM were supplied by Ipas, Bangladesh.

After fulfilling the criteria patients who wanted menstrual regulation by medication, Tab. Mifepriston 200 mg was swallowed by provider and patient was instructed to take remaining 4 tablets of misoprostol 800 mcg sublingually or buccally after 24 hours at home. Patients of incomplete abortion who wanted treatment by medication were given Tab. Misoprostol 400 mcg sublingually and patients of missed abortions were given Tab. Misoprostol 600 mcg sublingually. Pain management was given by ibuprofen or naproxen. Patients was asked for follow-up after 2 weeks or before if any complications raised.

Patients for MVA were at first prepared by giving Cap. Doxycycline 100 mg, Tab. Metronidazole 400 mg, Tab. Ibuprofen 400 mg, Cap.Omeprazole 20 mg, 30 minutes before the procedure. After evacuation of the bladder, patient was placed in lithotomy position, cervix was exposed by Cusco's speculum, and then antiseptic wash of cervix and vagina was given. Pain management was given by paracervical block with 1% lidnocaine .Then vacuum aspiration was done by MVA Plus syringe and cannula supplied by Ipas. After completion of the procedure patients were discharged after half an hour. Patients were councelled for contraceptive method and given accordingly. Patients were asked for follow-up after 2 weeks or before if any complications raised.

Inclusion criteria: Menstrual regulation ≤ 12 weeks pregnancy, incomplete abortion, missed abortion, blighted ovum, molar pregnancy (<12 weeks).

Exclusion criteria: Septic abortion, pregnancy >12 weeks, molar pregnancy >12 weeks, moderate to severely anaemic patients, suspected ectopic pregnancy.

Mifepristone and misoprostol regimen for MRM up to 9 weeks LMP

LMP	Mifepristone dose	Misoprostol dose, route and timing
Up to 9 weeks	200 mg orally	After 24-48 hours, 800 mcg buccally or Sublingually for one dose.

Regimens of Misoprostol in Incomplete and Missed Abortion*

Regimens of Misoprostol in Incomplete Abortion			
Gestation	Dose	Route	Timing
<12 weeks	600mcg	Oral	600mcg at once
Uterine size	400mcg	Sublingual	400mcg for 30 minutes
Regimens of Misoprostol in Missed Abortion and Blighted Ovum			
<12 weeks	800mcg	Vaginal	800mcg at posterior fornix
uterine size maximum 3	600mcg	Sublingual	600mcg for 30 minutes 3 hourly doses if required

Ipas, VSI, Misoprostol use in Post Abortion Care: A Service Delivery Toolkit. Chapel Hill, Ipas, 2011; 47-48.[8]

Results

Of the 425 patients, 92 (21.6%) were came for menstrual regulation, 269 (63.3%) were for treatment of incomplete abortion, 59 (13.9%) were cases of missed abortion, 05 (1.2%) were molar pregnancy (Table I).

Among the 425 patients 187 (44.0%) cases were treated by sublingual misoprostol, 83 (19.5%) patients choice MRM (Menstrual regulation by medication) with combined mifepristone & misoprostol and 155 (36.5%) patients received treatment by MVA (Table I).

Table I: Distribution of patient by indications for MR & PAC services (n=425)

Patients	Frequency	%
MR or TOP	92	21.6
Incomplete abortion	269	63.3
Missed abortion	59	13.9
Molar pregnancy	05	1.2
Total	425	100

Table II: Distribution of patients by method of treatment received (n=425)

Treatment regimen	Frequency	%
Misoprostol	187	44.0
Mifepristone & misoprostol	83	19.5
MVA	155	36.5
Total	425	100

Patients choose MVA for termination of pregnancy or MR in 9.7% cases, for incomplete abortion in 80.0% cases, for missed abortion in 7.1% cases and for molar pregnancy in 3.2% cases (Table III). Patients received misoprostol for incomplete abortion in 74.3% cases and for missed abortion in 25.7% cases (Table IV).

Table III: Distribution of patients by indications of MVA (n=155)

Indications	Frequency	%
MR or termination of pregnancy	15	9.7
Incomplete abortion	124	80.0
Missed abortion	11	7.1
Molar pregnancy	05	3.2
Total	155	100

Table IV: Distribution of patients by use of misoprostol (n=187)

Use of misoprostol in	Frequency	%
Incomplete abortion	139	74.3
Missed abortion	48	25.7
Total	187	100

Most of the patients were within the age of 21 to 30 years (59.0%), 8.0% were within 35 to 40 years and 2.4% were above the age of 40 years (Table V). In 45.2% cases gestational age or height of the uterus was 5-6 weeks size, in 37.9% cases uterine height was 7-8 weeks size, in11.3% cases uterine height was 9-10 weeks size and in 5.6% cases uterine height was 11-12 weeks size (Table VI).

Table V: Distribution of patients by age (n=425)

Age group (Year)	Frequency	%
16-20	58	13.7
21-25	126	29.6
26-30	125	29.4
31-35	72	16.9
36-40	34	16.9
>40	10	8.0
Total	425	100

Table VI: Distribution of patients by gestational age or height of the uterus (n=425)

Height of the uterus	Frequency	%
5-6 weeks	192	45.2
7-8 weeks	161	37.9
9-10 weeks	48	11.3
11-12 weeks	24	5.6
Total	425	100

Overall success rate of misoprostol was 95.2%, of combined mifepristone & misoprostol was 94.0% and that of MVA was 98.7% (Table VII). There were no complications of all these three methods in 96% cases, excessive bleeding occurred only in 0.2% cases and procedures incomplete in

3.8% cases (Table VIII). Most of the patients received OCP (74.1%), 2.4% received implant and only 0.5% clients received IUD, 8.0% clients received no method (Table IX).

Table VII: Outcome of MR or PAC by medication or MVA (n=425)

Methods	Success Rate	Failure Rate
Misoprostol (187)	178(95.2%)	09 (4.8%)
Mifepristone+Misoprostol (83)	78(94.0%)	05 (6.0%)
MVA (155)	153 (98.7%)	02 (1.3%)

Table VIII: Complications of MR or PAC by medication or MVA (n=425)

Complications	Number	%
Incomplete MR or abortion	16	3.8
Excessive bleeding	01	0.2
Severe pain in lower abdomen	00	0.0
Sepsis	00	0.0
No complication	408	96

Table IX: Contraceptive methods received after MR or PAC by medication or MVA (n=425)

Methods	Number	%
Condom	21	4.9
OCP	315	74.1
DMPA	43	10.1
IUD	02	0.5
Implants	10	2.4
Tubal Ligation	00	0.0
No method	34	8.0
Total	425	100

Discussion

In Bangladesh, maternal mortality due to abortion complications has fallen significantly from 13% in 2001 to less than 1% in 2010.[9-10] However, the number of abortions still remains considerably high, ranging from 523803 to 769269, with an estimated 280 000 women having been treated for complications of either spontaneous or induced abortion in 2010.[11-12] This imposes a preventable burden on the health system.[11]

In 2008, the International Federation of Gynecology and Obstetrics (FIGO) launched the FIGO Initiative for the Prevention of Unsafe abortions and its Consequences, the goal of which was to reduce the morbidity and mortality resulting from unsafe abortions and to reduce the burden of unsafe abortion on women and the public health system.[12-13]

In our study, incomplete abortion accounts for 63.3% cases, and that of MR, missed abortion and molar pregnancy 21.6%, 13.9% & 1.2% respectively (Table I). Among the patients of MR, 83 (90.2%) choose MRM and 9 (9.8%) choose MVA. This indicates clients were more comfortable with MRM as it is simple, non-invasive, natural, confidential and cost-effective when compared with other methods. MRM is highly acceptable to women in a variety of settings, including where resources are limited. Studies consistently show that 85 to 95 percent of women are satisfied or highly satisfied with the method. MVA is also well accepted by women─as in most cases it requires lower level of pain management than sharp curettage and patient can leave hospital within half an hour.

Patients of incomplete and missed abortion choose misoprostol in 57.0% cases and MVA in 43.0% cases for methods of uterine evacuation. This also indicates patients were preferring medication than invasive procedure for uterine evacuation. In studies reviewing the acceptability of the method, more than 90% of women have report being satisfied or very satisfied with misoprostol for their treatment.[13-15] In an introduction study for misoprostol for post abortion care in Nigeria, participating healthcare providers, including doctors, midwives and nurses, reported their satisfaction with and enthusiasm for this method.[16]

The conventional D&C or sharp curettage is replaced by MVA as it is simple, easy, less-invasive, cost effective and outdoor procedure. In our study, 36.5% patients choose MVA for uterine evacuation method (Table II).

Most of the patients were within the age of 21 to 30 years (59.0%), 8.0% were within 35 to 40 years and 2.4% were above the age of 40 years (Table V). It indicates MR and PAC are problem of reproductive age and low rate of user of long acting reversible contraceptives (LARCs) and permanent method. Most of the pregnancies are unwanted as a result of incorrect use of short acting reversible contraceptives (condom, OCP or DMPA) or unaware of using contraceptives in lactational amenorrhea period or try to induced abortion when got pregnant.

Overall success rate of misoprostol was 95.2%, of combined mifepristone & misoprostol was 94.0% and that of MVA was 98.7% (Table VII).

There were no complications of all these three methods for uterine evacuation in 96% cases, excessive bleeding occurred only in 1 (0.2%) cases and procedures incomplete in 16 (3.8%) cases (Table VIII). MVA results in few complications, especially when performed before or at 12 weeks the LMP. Specific safety benefits of MVA, compared to conventional D&C, include significantly reduced risk of infection, reduced risk of cervical injury or uterine perforation, reduced amount of cervical dilatation required, decreased blood loss, shortened hospital stay and reduced need for anesthesia.

Most of the patients received OCP (74.1%), 2.4% received implant and only 0.5% clients received IUD, 8.0% clients received no method (Table IX). Acceptance of long acting reversible contraceptives (LARCs) is also low. So, emphasis should be given to enhance the rate of acceptance of LARCs.

Data from several studies show that, in many settings, recognizing services by reclassifying PAC treatment as an outpatient care procedure substantially reduces the resources used for PAC along with the cost and average length of woman's stay in health facilities.

Conclusion

MRM (Menstrual regulation with medication), Misoprostol for PAC and Vacuum aspiration are preferred methods of uterine evacuation in the first trimester because they have been proven safer than sharp curettage. MVA is safe, effective, cheaper, less time consuming and requires shorter hospital stay. It does not require general anaesthesia and complication is also less than dilatation and curettage. So it can be easily accessible to the woman of both rural and urban societies belonging to any socioeconomic strata especially where high tech equipments and power supply are not available.

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