

Comparison of Sublingual Misoprostol and Manual Vacuum Aspiration for the Treatment of Incomplete Abortion in First Trimester in Terms of Frequency of Decreased Haemoglobin Levels

Saima Khurshid Ahmed, Rubina Ashraf , Lubna Ejaz Khaloon

Department of Gynaecology and Obstetrics, Holy Family Hospital and Rawalpindi Medical University, Rawalpindi

Abstract

Background: To compare efficacy of manual vacuum aspiration with sublingual misoprostol for the treatment of incomplete abortion in terms of frequency of blood loss and decreased haemoglobin.

Methods: In this randomized controlled trial, patients with incomplete abortion, open cervical os, vaginal bleeding, history of vaginal bleeding during this pregnancy and uterine size of less than or equal to 12wks menstrual period were included. Consenting women were randomized to either Group A who received a single dose of 600 microgram of sublingual misoprostol or Group B who underwent manual vacuum aspiration for evacuation of retained products of conception. Both groups comprised of 150 patients each. Pre and post (after 48 hours) treatment haemoglobin levels were measured.

Results: Mean fall in haemoglobin level <1g/dl from baseline level was seen in misoprostol group while a mean fall of <0.5g/dl from baseline level was observed in MVA group ($p < 0.001$, 95% CI, $t = 1.64$, $\eta^2 = 0.006$). A significant association was found with haemoglobin level, parity and age, with $p = 0.001$, $p = 0.05$, $p = 0.02$ respectively

Conclusion: The efficacy of manual vacuum aspiration (MVA) is indicated by lower level of blood loss (Hb < 0.5g/dl from baseline) as compared to 600µg sublingual misoprostol. MVA is associated with less complications than misoprostol.

Key Words: Manual vacuum aspiration, Misoprostol, Haemoglobin level, Gestational age

Introduction

First trimester incomplete abortion is an important contributing factor of maternal mortality and morbidity.^{1 2} It is estimated that 80% of abortions are

associated with first trimester and there is reduction in abortion rate with increasing gestational age.³

Pakistan is a developing country with limited resources in health sector. Pakistan has slow fertility rate decline as compared to other developing countries.⁴ According to a recent survey, approximately 2.2 million abortions occur in Pakistan, signifying an annual abortion rate of 50 per 1,000 pregnancies.⁵

Incomplete abortion in first trimester could be managed through medical and surgical interventions. Most common medical intervention used in Pakistan is misoprostol. This has been found to be safe, effective and acceptable among women who are not willing for invasive procedures.⁶ The most common surgical procedure is manual vacuum aspiration (MVA). The success rate of MVA is 91.5 to 100% but it is associated with complications like infections, uterine perforations and cervical lacerations.⁷

Weeks et al. reported that misoprostol had less complications associated with incomplete abortion treatment as compared to MVA.⁸ Misoprostol group reported lower level of pain but greater amount of blood loss as compared to MVA group. Rates of acceptability were found to be similar in misoprostol and MVA group while satisfaction rate was 94.2% in misoprostol and 94.7% in manual vacuum aspiration.⁹ Incomplete abortion is associated with various gynecological complications in Pakistan. Limited data is available regarding comparison of misoprostol and MVA efficacy in terms of blood loss during incomplete abortion.^{10 11} So it becomes very important to understand the efficacy of both treatments in order to develop guidelines regarding maternal health.

Patients and Methods

A randomized controlled trial (RCT) with 1:1 ratio was conducted in Department of Obstetrics and

Gynaecology Unit-I, Holy Family Hospital (HFH), Rawalpindi, from June 2013 to December 2013. A sample size of 300 patients was obtained through WHO calculator with 95% confidence interval, 5% level of significance and 80% power of study. Patients with incomplete abortion, open cervical os, vaginal bleeding, history of vaginal bleeding during on-going pregnancy and uterine size of less than or equal to 12 weeks menstrual period were included in study. Exclusion criteria were known allergy to misoprostol or other prostaglandins, contraindication to prostaglandin therapy (asthma, hypertension, glaucoma) and suspected ectopic pregnancy. Pelvic infection or sepsis, haemodynamically unstable patients, those with previous scar uterus, anaemia of <9G/dl, and history of surgical evacuation in previous miscarriages were also not included. Approval was taken from Institutional Research Forum / Ethics Committee of Rawalpindi Medical University. Consenting women were randomized to either Group A who received a single dose of 600 microgram of sublingual misoprostol or Group B who underwent MVA for evacuation of retained products of conception. Pre and post (after 48 hours) treatment haemoglobin levels were measured. An independent t-test was performed to observe the results before and after intervention. Chi-square test was used to see the association between different variables.

Results

Both groups comprised of 150 patients each. In Group A (Misoprostol), mean age of patients was 27.82 years ± 4.16 SD, mean parity 1.67 ± 1.44 SD and mean gestational age 11.08 weeks ± 2.37 SD. In Group B (MVA), mean age of patients was 27.15 years ± 4.82 Standard Deviation (SD), mean parity 1.46 ± 1.47 SD and mean gestational age was 11.21 weeks ± 1.94 SD (Table 1). In Group A, 60 patients were in 20-30 year age group. In Group B, 60 patients were found in 20-30 year age group and 60 in age group 31-40 years (Table 1). Mean fall in haemoglobin level <1G/dl from baseline level was reported in misoprostol group while a mean fall of <0.5G/dl from baseline level was reported in MVA group (p<0.001, 95% CI, t=1.64, eta squared=0.006). A significant association was found with haemoglobin level, parity, age with p=0.001, p=0.05, p=0.02 respectively (Table 2). In Group A, 90(60%) patients had gestational age <11 weeks while 60(40%) had gestational age >11 weeks. In group B, 60(40%) patients had gestational age <11 weeks while 90(60%) had gestational age >11 weeks. The

association was found to be statistically insignificant (($\chi^2=5.152$, df=1, p=0.272).

Table 1 : Age Distribution in both interventional groups

Age distribution (Years)	Group A (Sublingual Misoprostol)		Group B (Manual vacuum aspiration)	
	No	Percentage	No	Percentage
20-30	60	40%	60	40%
31-40	50	33%	60	40%
>40	40	27%	30	20%
Total	150	100%	150	100%

Table 2: Associations between two interventional groups and independent variables

Independent variables	Group A (Misoprostol) (n=150)	Group B (MVA)* (n=150)	Chi square value	Significance
Haemoglobin level			$\chi^2=8.39$ 0	0.004
<1 g/dl from baseline	83 (55%)	67(45%)		
>1g/dl from baseline	67(45%)	83(55%)		
Parity			$\chi^2=18.2$ 75	0.000
1	99(66%)	51(34%)		
>1	51(34%)	99(66%)		
Age groups			$\chi^2=9.699$	0.002
20-30 years	60(40%)	60(40%)		
31-40 years	50(33%)	60(40%)		
>40 years	40(27%)	30(20%)		

*MVA= Manual Vacuum Aspiration

Discussion

First trimester miscarriage is one of one most common complications of pregnancy occurring in 10-15% of clinically recognized pregnancies.^{12 13} In present study a total of 300 patients underwent interventions with a ratio of 1:1 between both groups. Sochet et al. reported their mean age in misoprostol group was 28.1±7.2 SD while in MVA group mean age was 28.7±7.1SD.^{14 15} In our study mean fall in hemoglobin level <1g/dl from baseline level was reported in misoprostol group while a mean fall of <0.5g/dl from baseline level was reported in MVA group. Sexana et al. reported that MVA group had shown lower side effects and higher pain scores as compared to misoprostol.^{14 16} Oral misoprostol was reported as more acceptable and well suited in limited resource health sectors. Women in misoprostol group were more willing to re use the method next time and were satisfied with the entire procedure.^{17 18}

Fateen et al. and Madden et al reported that misoprostol group is associated with less complications as compared to MVA.^{10 19} Other studies have reported that for uncomplicated incomplete abortion in first trimester MVA and misoprostol are equally effective, safe and acceptable to the patients.²⁰ Any procedure can be used according to the patient's preference and available resources.^{22 23} Hou et al. reported that mean change in hemoglobin level among patients of both groups MVA and misoprostol was similar ($p < 0.01$). While heavy bleeding was rarely reported.²⁴ Another study reported that 400µg sublingual misoprostol is more effective and safe in areas where surgical treatment is unavailable.²⁵

Conclusion

- Efficacy of Manual vacuum aspiration (MVA) is indicated by lower level of blood loss (Hb < 0.5g/dl from baseline) as compared to 600µg sublingual misoprostol.
- MVA is associated with less complications than misoprostol. In developing countries like Pakistan where maternal mortality and morbidity is an important issue, MVA would be a safe and effective technique for uncomplicated abortion in first trimester.

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