



Per Rectal use of Misoprostol give the better result than oral route among the female of Bangladesh

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Abstract

To test that rectal misoprostol was more effective for active management of third stage of labor over the oral misoprostol, this prospective study was conducted among the 96 patients, who got admitted into the OBGY units of Dhaka Medical College Hospital for normal vaginal delivery. The primary objective was to find out whether there was any dissimilarity present between these two routes of misoprostol in case of blood loss in third stage of labor. The blood loss was measured by pre- and post-delivery hemoglobin level by using skella paper. The pre-delivery haemoglobin levels were 65.13% ($\pm 5.07\%$) vs 65.68% ($\pm 6.46\%$) in both per rectal and oral route of misoprostol groups respectively. On the other hand, those were 61.62% ($\pm 3.34\%$) and 56.35% ($\pm 5.07\%$) correspondingly. Oral misoprostol was associated with significantly more blood loss than rectal ($P = 0.016$). Rectal misoprostol is more effective in the management of third stage of labor. Lesser dose and other routes could be explored in the future.

Keywords: Haemoglobin, Third stage of labor, Rectal route, Oral route.

Introduction

Third stage of labour is a period during which both the patient and the obstetrician maybe relieved with the safe arrival of a healthy baby and hence into a false sense of security that all is safe and well. The third stage is perhaps the most dangerous part of the labour for mother, the main risk being postpartum haemorrhage (PPH).¹ PPH is a nightmare for obstetrician and the leading cause of maternal death around the world. To give birth to a healthy child is the most awaited event in a woman's life. Although incidence of

haemorrhage related maternal death in developed countries have declined.

Drugs commonly used for prophylaxis against postpartum haemorrhage include oxytocine, ergometine or misoprostal. Potential problems for the use of oxytocine and ergometrine in developing countries include the need of protection from light as well as it requires refrigeration because oxytocic agents are not stable at ambient temperature. This requires special storage temperature, as well as there is requirement of needle and syringe for administration.

The majority (91%) of the delivery in our country takes place at home and trained health personal does not attend many of them. Someone is needed to inject this drug to the patients: such personals are not available particularly in the rural areas. But mother can be able to administer oral or per rectally without any skilled birth attendance.

Postpartum haemorrhage is a major cause of maternal death, particularly in developing countries and in most cases it is due to atonic uterus. Uterotonic drugs can reduce 80% of PPH. Presently misoprostol is the only thermo stable uterotonic agent potentially available which would be economically beneficial for developing countries where refrigeration of the drug poses a problem.

Postpartum haemorrhage mostly due to atony of the uterus remains an important cause of maternal morbidity and mortality worldwide. Therefore, prevention and treatment of PPH with uterotonics such as prostaglandin is an important tool in third stage management. Misoprostal is a cheap, theromstable, prostaglandin E1 derivative. It is a potent uterotonic. It is available in tablet form and can be administered orally, vaginally, rectally or sublingually, with different pharmacokinetic profiles. The oral and sublingual results are the fastest onset of action and strongest initial uterotonic effect. Rectally, there is a prolonged uterine contraction after a slow onset of action. Absorption of misoprostal is extremely rapid and being detected in circulation within two minutes of its introduction.² Its effects on post partum uterus has been shown be rapid.³ It does not require special storage and has a shelf life of several years and economically beneficial for developing countries.

In this study oral vs. rectal administration of misoprostal will be studied as for the prevention of third stage haemorrhage which is available to mid wives and rurally located physician to prevent maternal morbidity and mortality.

Objectives

General Objective

To evaluate the difference between oral and per rectal use of misoprostol in the prevention of third stage bleeding

Specific Objectives

- 1) To find out the percentage of uses of oral and per-rectal misoprostol among the patients.
- 2) To find out the difference between the efficacy of misoprostol oral and per rectal use for prevention of third stage bleeding.

Methods

Place and period of the study

This study has been conducted among the patients who got admitted into the Gynae and Obstetric department of Dhaka Medical College Hospital (DMCH) for their delivery purposes. This was calculated over a period of three months extending from November 2010 to January 2011.

Study design and participants

This study was carried out among the patients who got admission into the Gynae and Obst. Department of DMCH for the purpose of vaginal delivery. It was a prospective study, which evaluate the difference between oral and per-rectal misoprostol use in the prevention of third stage bleeding.

Total number of admitted patient with normal vaginal delivery during the study period was the population of this study (who fulfilled the inclusion and exclusion criteria) and each of the patients was a study unit.

Inclusion Criteria

- a) Women at term with singleton pregnancy
- b) Up to the birth order of pregnancy

Exclusion Criteria

- a) Are those that considered risk factors for PPH:
 - i. Grand multiparity
 - ii. Multiple pregnancy
 - iii. IUD
 - iv. Placenta praevia

- v. Polyhydramnios
 - vi. Pre-eclampsia, eclampsia
 - vii. Women with previous history of PPH
 - viii. Coagulation abnormalities
- b) Caesarean delivery
- c) Others:
- i. Known hypersensitivity to prostaglandin
 - ii. Hb% less than 8gm/dl

Data Analysis

Collected data were edited during and after collection, coded, classified, tabulated, and checked further for any missing information. The data were analyzed using Statistical Package for the Social Sciences (SPSS) software.

Results

The haemoglobin of the patients was measured before and after delivery and use of misoprostol by scalla paper.

The mean haemoglobin percentage before per rectal use of misoprostol was 65.13 gm% with the standard deviation 5.07gm %. The highest percentage of haemoglobin was 70 percentages and lowest percentage was 60. On the other hand, the mean haemoglobin percentage in the patient after delivery and use of per rectal misoprostol tablets was 61.62% with standard deviation 3.34%. The highest percentage of haemoglobin

was 70gm% and lowest was 60 gm%. It was also observed that the mean reducing of haemoglobin percentage of this group of patients was 3.27 gm% with standard deviation 4.41gm%. The range of reducing the haemoglobin percentage of the patient, while after the use of Misoprostol and delivery, was 0.00 gm% to 10.0gm%.

The mean haemoglobin percentage before per oral use of misoprostol tablet was 65.68 gm% with the standard deviation 6.46 gm %. The highest percentage of haemoglobin was 80 gm percentage and lowest percentage was 60 gm percent. On the other hand, the mean haemoglobin percentage in the patient after delivery and use of oral misoprostol tablets was 56.35 gm% with standard deviation 5.07 gm%. It was also observed that the mean reducing of haemoglobin percentage of this group of patients was 8.98 gm% with standard deviation 7.81 gm%.

Table 1 shows the relationship between different routes of Misoprostol use and ages of the characteristics Group t -test was done to detect any significant difference in the presence of routes of misoprostol among the different ages of the patients. The mean ages of the patient with per rectal use of misoprostol had no significant difference than that of the oral misoprostol user group ($p>.05$).

Table 1. Relationship between age of the patient and route of Misoprostol use

Name of characteristics	Route of Misoprostol use	No	Mean	Std. deviation	t-value	df	P-value
Age of the patient	Rectal	37	24.46	3.66	.88	94	0.38
	Oral	59	23.74	3.97			

Table 2 describes the per rectal Misoprostol user used to income more than that of the oral group patient when students t test was carried out to see

whether there was any relationship present in between two groups ($p<.000$).

Table 2 Relationship between different routes of Misoprostol and income of patients

Name of characteristics	Route of Misoprostol use	No	Mean	Sid. deviation	t-value	df	P-value
Income of the patient	Rectal	37	9705.41	4034.22	4.15	94	0.000
	Oral	59	7118.64	2055.14			

Table 3 depicts to see the influence parity over the use of Misoprostol tablets, student t-test was carried out and found no statistical difference

between the mean numbers of the parity among the different route of the Misoprostol users ($p > .05$)

Table 3. Relationship between different routes of Misoprostol use and parity of the patient

Name of characteristics	Route of Misoprostol use	No	Mean	Std. deviation	t-value	df	p- value
No of parity	Rectal	37	1.11	.317	0.156	94	0.876
	Oral	59	1.12	.338			

Table 4 shows to find out the statistical differences between the haemoglobin percentages of the two groups of the Misoprostol users (Per rectal and Oral groups) before delivery and usage of Misoprostol tablet, the independent t-test was

carried out. The result oft-test was found no statistical difference in between the percentages of haemoglobin of two groups ($p > .05$) before delivery and Misoprostol use.

Table 4. Relationship between different routes of Misoprostol use and Haemoglobin level before delivery

Name of characteristics	Route of Misoprostol use	No	Mean	Std. deviation	t-value	df	p- value
Hb% before the delivery	Rectal	37	65.13	5.07	0.434	94	0.665
	Oral	59	65.69	6.46			

Table 5 describes to measure the influence of Misoprostol tablets over the blood loss (measured by haemoglobin percentage) of the two groups of the patients (per rectal and oral users), student t-test was performed. The t-test revealed that the mean blood loss (as measured by haemoglobin

percentage) was significantly higher in per oral user group than that of per rectal users ($p < .001$). That meant that per rectal use of Misoprostol could able to prevent more blood loss than oral use of Misoprostol tablet.

Table 5. Relationship between different routes of Misoprostol use and difference in levels of haemoglobin percentage before and after delivery

Name of characteristics	Route of Misoprostol use	No	Mean	Std. deviation	t-value	df	p- value
Difference in levels of Hb% before and after delivery	Rectal	37	3.27	4.43	4.05	94	0.000
	Oral	59	8.93	7.81			

Discussion

It was already proved that tablet Misoprostol helped to reduce active bleeding in the third stage of labor. The researcher reported here the results of a cross sectional study to find out the extent of two routes of tablet Misoprostol usage in reduction of bleeding in third stage of labor in this population. Although limitations included potential selection bias inherent in cross sectional studies and no exclusions of other confounder that might influence in the reduction of blood loss, the researcher relied mainly on questionnaire response and level of haemoglobin percentages which were not standardized.

The researcher did find only one literature to compare the present study. So the following discussion was done mainly on the data inherit in this study that might be area specific.

The mean haemoglobin percentage of the patient, before per rectal use of misoprostol, was 65.13 % with the standard deviation 5.07 %. Meanwhile, the mean haemoglobin percentage of the same group, after delivery and use of per rectal misoprostol tablets, was 61.62% with standard deviation 3.34%. It was also observed that the mean reducing of haemoglobin percentage of this per rectal users was 3.27 gm % with standard deviation 4.41 gm%.

Besides, the mean haemoglobin percentage of the per oral users of misoprostol tablet was 65.68 gm% with the standard deviation 6.46 % while the mean haemoglobin percentage in this group, after delivery and use of oral misoprostol tablets, was 56.35% with standard deviation 5.07%. Meanwhile, it was also observed that the mean reducing of haemoglobin percentage of this group of patients was 8.98 gm% with standard deviation 7.81 gm%.

It was found that no statistical difference in between the percentages of haemoglobin of two groups before delivery and usage of tablet Misoprostol ($p > .05$). On the other hand, there was significant statistical difference observed in the haemoglobin percentage of two user groups after delivery and use of tablet Misoprostol ($p < .05$)

It was revealed in the statistical test that the mean blood loss of the patients was significantly higher in per oral user group than that of per rectal users ($p < .001$) that meant the per rectal use of Misoprostol could able to prevent more blood loss than per oral use of Misoprostol tablet in third stage of labor. This had the similarity with the study done by Mansouri et al.⁴

So therefore it could be simplified, through this study that per rectal use of Misoprostol use had superiority over the per oral use of that drug in control of excess blood loss in third stage of labor, thus able to manage post partum haemorrhage which is still a major cause of maternal mortality (>30% of MMR).⁵

Conclusion

This study concludes that the per rectal route of Misoprostol tablet usage can able to prevent more blood loss in the third stage of labor in comparison with oral route of Misoprostol usage.

The mean levels of haemoglobin before the use of tablet Misoprostol in both groups of patients were 65.13% ($\pm 5.07\%$) and 65.69% ($\pm 4.46\%$). On the hand after delivery, these were 61.62% ($\pm 3.3\%$) and 56.35% ($\pm 4.46\%$) in per rectal and oral users groups of the patients.

Furthermore, the mean loss of blood (as measured by haemoglobin%) in third stage of labor in per rectal users was 3.27% ($\pm 4.41\%$) than that in oral group was 8.98% ($\pm 7.81\%$) which was statistically significant ($p < .05$)

So, therefore, researcher urged to use per rectal in comparison with the oral use of Misoprostol tablet in prevention of blood loss in third stage of labor.

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