Comparison between the Efficacy of Oral vs Per-Rectal Use of Misoprostol in Prevention of Third Stage Bleeding

Dr. Farhana Kabir1, Dr. Shamima Ferdous Chowdhury2, Dr. Nayer Islam3

1Lecturer, Dept. of Pharmacology, Gazi Medical College, Sonadanga, Khulna, Bangladesh
2Lecturer, Dept. of Pharmacology, Dhaka Central International Medical College, Dhaka, Bangladesh
3Lecturer, Dept. of Pharmacology, Gazi Medical College, Sonadanga, Khulna, Bangladesh

Abstract

Objective: To evaluate the efficacy of Oral Vs Per-rectal Use of Misoprostol in Prevention of Third Stage Bleeding.

Method: this observational prospective study was done at Tertiary medical college and hospital from March 2017- March 2018. Total 100 patients who got admitted into the Gynaec and Obstetric department of tertiary medical college and hospital, for their delivery purposes were evaluated for study. Where the patients divided into two groups: group-A: orally used misoprostol; n= 51, group-2: pre rectally used misoprostol; n=49. Result: in the study, it was found that maximum patients belonged to 20-24 years group (51.4%). The next highest number of the patients was in 25-29 years group (29.7%). 56% patients use misoprostol orally where only 44% use Misoprostol rectally. 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. Conclusion: from our study we can conclude that, 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: Misoprostol, Third Stage Bleeding, postpartum haemorrhage (PPH).

INTRODUCTION

Third stage of labour is defined as the duration from birth of the baby until the complete expulsion of the placenta and membrane [1]. It 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 normal case can be, within a minute be abnormal and successful delivery can be turned swiftly into a disaster unless prompt action is taken. Serious maternal morbidity and sometimes mortality can occur. The third stage is perhaps the most dangerous part of the labour for mother, the main risk being postpartum haemorrhage (PPH) [2]. 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.

PPH with uterotonics such as prostaglandinis an important tool in third stage management. Misoprostol is a cheap, thermable, 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 misoprostol is extremely rapid and being detected in circulation within two minutes of its introduction [3]. Its effects on postpartum uterus has been shown be rapid [4]. It does not require special storage and has a shelf life of several years and economically beneficial for developing countries. Several recent studies have been done reporting the use of oral and rectal misoprostol in third stage of labour for prevention of PPH.

So, in this study, our main goal is to evaluate the efficacy of Oral Vs Per-rectal Use of Misoprostol in Prevention of Third.

OBJECTIVE

General Objective

• To assess the efficacy of Oral Vs Per-rectal Use of Misoprostol in Prevention of Third.
Specific Objective
- To detect distribution of the patients according to route of Misoprostol
- To identify relationship between different routes of Misoprostol use and difference in levels of haemoglobin percentage before and after delivery

METHODOLOGY

| Type of study             | Prospective observational study |
|--------------------------|---------------------------------|
| Place of study           | Tertiary medical college and hospital |
| Study period             | March 2017- March 2018          |
| Study population         | Total 100 patients who got admitted into the Gynae and Obstetric department of tertiary medical college and hospital, for their delivery purposes. Where the patients divided into two groups: group-A: orally used misoprostol; n=51, group-2: pre rectally used misoprostol; n=49. |
| Sampling technique       | Purposive                       |

METHOD

Data were collected from the patients who fulfilled the inclusion and exclusion criteria. A face-to-face Interview was carried out with help of the pre-tested semi structured interview schedule. Simultaneously the level of haemoglobin (before and after the delivery) was measured with the help of skella book from blood and thus blood loss was calculated by deduction of after labored haemoglobin level from the haemoglobin level of the patients before delivery and administration of Misoprostol tablets.

STATISTICAL ANALYSIS

After compilation of data, obtained data were checked, verified, edited and quoted and data were enter in the personal computer using the program "SPSS-PC". Entered data were then be cleaned, edited and appropriate statistical tests were done depending on the distribution of data.

RESULTS

In Table-1 shows age distribution of the patients where after categorized the age, it was found that maximum patients belonged to 20-24 years group (51.4%). The next highest number of the patients was in 25-29 years group (29.7%). The following table is given below in detail:

Table-1: Distribution of the patient by age

| Group of the age | Percent |
|-----------------|---------|
| 15-19 years     | 2.7     |
| 20-24 years     | 51.4    |
| 25-29 years     | 29.7    |
| 30-34 years     | 16.2    |
| Total           | 100.0   |

In Table-2 shows income of patients. The maximum patients used to earn in between 5001 takas to 10,000 taka (93.2%). The rest of the patients were in the group who use to earn in between 10,001 takas to 15,000 taka (6.8%). The following table is given below in detail:

Table-2: Distribution of the patients by income

| Monthly income | Percent |
|----------------|---------|
| 5001 -10000 taka | 93.2    |
| 10001 -15000 taka | 6.8    |
| Total           | 100.0   |

In Figure-1 shows distribution of the patients according to route of Misoprostol where 56% patients use misoprostol orally where only 44% use Misoprostol rectally. The following table is given below in detail:
In Figure-2 shows per rectal users of tablet Misoprostol about 90 percent of this patient group belonged to primi parous and remaining 10 percent had two para. The following figure is given below in detail:

In Figure-3 shows Per oral user of Tablet Misoprostol About percent of the patients of this group was belonged to primi para. The rest of the patients (10.0%) had two parous.

Table-3 shows relationship between different routes of Misoprostol use and Haemoglobin level before delivery. Where the result of t-test was found no statistical difference in between the percentages of haemoglobin of two groups (p>0.05) before delivery and Misoprostol use. The following table is given below in detail:
The mean income of per rectal users of tablet Misoprostol 9705.40 taka with standard deviation (±) 4034.22 taka and the range was in between 5500 taka to 20,000 taka. On the other hand, the mean income of per oral users was 7118.64 taka with standard deviation (±) 2055.14 taka and the range was in between 5500 taka to 15,000 taka. Which is supported by one study [5]. 90 percent of the patient was primi para (90% vs 80%).

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 4.41gm%.

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 that per rectal use of Misoprostol could able to prevent more blood loss than oral use of Misoprostol tablet. The following table is given below in detail:

Table-4: 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 | Mean | Std. deviation | t-value | df | p- value |
|-------------------------|--------------------------|------|----------------|---------|----|---------|
| Hb% before the delivery | Rectal                   | 65.13| 5.07           | .434    | 94 | .665    |
|                         | Oral                     | 65.69| 6.46           |         |    |         |

Table-3: Relationship between different routes of Misoprostol use and Haemoglobin level before delivery

| Name of characteristics | Route of Misoprostol use | Mean | Std. deviation | t-value | df | p- value |
|-------------------------|--------------------------|------|----------------|---------|----|---------|
| Difference in levels of Hb% before and after delivery | Rectal | 3.27 | 4.43 | 4.05 | 94 | .000 |
|                         | Oral                     | 8.93 | 7.81           |         |    |         |

**DISCUSSION**

The mean income of per rectal users of tablet Misoprostol 9705.40 taka with standard deviation (±) 4034.22 taka and the range was in between 5500 taka to 20,000 taka. On the other hand, the mean income of per oral users was 7118.64 taka with standard deviation (±) 2055.14 taka and the range was in between 5500 taka to 15,000 taka. Which is supported by one study [5]. 90 percent of the patient was primi para (90% vs 80%).

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 4.41gm%.

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)

**REFERENCES**

1. Chein PFV. Third stage of labour and abnormalities. Dewhurts Text Book of obstetrics and Gynaecology for postgraduates. Edited by D. Keith Edmonch, 6th edition, 330.
2. Postpartum hemorrhage, American college of obstetricians and Gynecologists. Education Bulletin, 1998:243.
3. World Health organization. The global picture. The cause of maternal death In: AbouZahr C, Rouston E, editors. Maternal mortality: a global Fact book. Geneva: WHO, 1991:7-11.
4. Brecht T. Effects of misoprostol on human circulation. 1987; 33: 51-59.
5. Choo WL, Chua S, Chon YS. Correlation of change in uterine activity to blood loss in the third stage of labour. Gynaecolobstet, 1998; 46:178-180
6. Collins PW. Misoprostol: Discovery, development and clinical applications, Med Res Rev 1990; 10: 149-172.
7. WHO. The prevention and management of postpartum haemorrhage. Report of a technical working group. Geneva, 1990.
