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Original Research Article

Use of Oral Misoprostol in Active Management of the Third Stage of Labour

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Abstract: ***Background***: More than half of all maternal deaths occur within 24 hrs. of delivery and most commonly occur from excessive blood loss. PPH is the most significant direct cause of maternal mortality in low resource countries, accounting for approximately 30% of maternal deaths worldwide and is one of the most preventable. This study finds out to use of oral misoprostol in active management of the third stage of labour. ***Objective*****:** To use oral misoprostol for active management of the third stage of labour. ***Method*****:** An Observational cross-sectional study was carried out Obstetrics & Gynaecology indoor Department of BSMMU, from November '2013 to April' 2014, 100 cases were included in this study. Detailed information's were obtained in each cases according to protocol. Complete history was taken either from patient or accompanying attendants. Thorough clinical examination was done. Relevant investigations report was collected. All the information's were recorded in the fixed protocol. Collected data was classified, edited, coded and entered into the computer for statistical analysis by using SPSS. ***RESULTS:*** In present study 100 cases were included, the mean age was 27.64(±4.25) years, minimum age was 20 years and maximum age was 40 years. Twenty seven percent were come from lower socio-economic class, 69% came from middle class and only 04% came from upper socio-economic class. Thirty four percent were primi para, 49% were 1-3 para and 07% were > 3 para. Mean duration of third stage of labour 7.49(±2.82) min. Six percent need additional oxytocics and 94% do not need additional drug. Pre delivery mean systolic blood pressure was 119.3 ±10.4 mm of Hg and mean diastolic blood pressure was 69.57 ± 6.23 mm of Hg. Mean Hb% level was 12.1 ± 1.3 g/dl and minimum level was 7.5 g/dl and 13.8 g/dl. 06% patients had blood loss > 500 ml. No side effects such as vomiting diarrhea. However, shivering occurred 08%, fever 07% and nausea was found 03% patients. ***Conclusion:*** Oral misoprostol is safe with fewer side effects and can be used even in hypertensive patients for prevention of PPH. It was mainly associated with fever and shivering as side effect which are easily manageable.

Keywords: PPH, AMTSL, PGF2α, Labour Pain, Vaginal Delivery.

INTRODUCTION

The number of women dying as a result of complications related to pregnancy and childbirth remains unacceptably high. Globally, about 500,000 women die annually from complications during pregnancy or child birth [1]. This is especially true in low resource country and where a high percentage of women deliver at home or outside a health facility without emergency obstetric care or a skilled birth attendant. Women in developing countries are more than 40 times more likely than women in developed countries to die in childbirth, 1 in 61 women in developing countries versus 1 in 2,800 women in developed countries [2]. Even within developing countries there is a striking differential risk of maternal death for women who have access to basic essential obstetrical care compared to these who do not.

PPH is the most significant direct cause of maternal mortality is low resource countries, accounting for approximately 30 percent of maternal death worldwide [3]. 99% of these deaths occur in developing countries in women who rarely receive prophylaxis because they give birth outside of a hospital setting. One woman dies every 4 mins from PPH, mainly in

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developing countries. Yet the risk of dying from post-partum hemorrhage remains 100 times higher in developing countries than in developed countries [4, 5].

In the developed world, PPH is a largely preventable and manageable condition. Maternal deaths from PPH are rare in high resource setting, suggesting that medical interventions for hemorrhage contribute substantially to survival, conventional treatment of PPH relies heavily on hospital-based interventions. However, PPH can lead to death within hours [6]. Simple treatment methods are needed for implementations at all levels of care. However, despite of Global efforts to ensure that women deliver with skilled birth attendants and have access to conventional uterotonics for PPH prevention, 60% of birth in developing countries occurs outside health facilities without a skilled attendant and accounting as 60% of all maternal deaths7. According to a 2013 survey by different UN organizations, the estimated maternal mortality rate in Bangladesh stood at 170 per 100,000 live births [8].

The primary purpose of active management of the third stage of labour (AMTSL) is to reduce the risk of PPH. AMTSL reduces the incidence of PPH, the quantity of blood loss and the need for blood transfusion and thus should be included in any program of intervention aimed at reducing death from PPH [9]. AMTSL included administration of a prophylactic uterotonic at or after delivery of the baby, controlled cord traction and uterine massage. This is internationally recognized as a evidence based intervention that reduces PPH caused by uterine atony by up to 60% [10]. The WHO as well as other international agencies, recommends that active management of third stage labour should be offered to all women delivering with a skilled birth attendant [11].

As uterotonics oxytocin is conventionally used but it needs protection from light, as well as refrigeration because oxytocic agents are not stable at ambient temperature this requires special storage condition as well as there is need for needle and syringe and skilled staff for administration.

The majority of the delivery in our country takes places at home and trained health personnel do not attend many of them. Someone is needed to inject this drug to the patients, such personnel are not always available particularly in the rural areas. Lack of skilled birth attendants, the high incidence of anaemia in pregnancy, non-availability of safe blood transfusion services & lack of refrigeration to store oxytocics, worsens the outcome of postpartum haemorrhage in our country.

The 18th expert committee on the selection and use of essential medicines met in March 2011 and approved the addition of misoprostol for the prevention of PPH to the WHO model list of essential medicine [12]. It reported that misoprostol 600 microgram administered orally can be used for the prevention of PPH where oxytocin is not available or cannot be safely used.

Absorption of misoprostol is extremely rapid, being detected in circulation within two minutes of its oral ingestion [13]. Its effects on the postpartum uterus have been shown to be rapid. It does not require special storage condition and has a shelf-life of several years [14]. Its safety has been established in studies over the past 10 years for the prevention and management of peptic ulcer [15]. Several recent studies have been examined the use of oral misoprostol in the third stage of labour. Potential advantages of this medication include its stability in light and at room temperature, its low cost and easy administration as well as less side effect, well absorbed orally [16].

Misoprostol as a dose of 600 microgram orally, may be the drug for prevention of atonic postpartum haemorrhage in low resource setting. Based on this suggestion this observational study was done to evaluate the effectiveness of oral misoprostol in active management of the third stage of labour and to find out its side effects, So, that oral misoprostol can be used safely in low resource setting, and at home deliveries by skilled attendant.

AIM AND OBJECTIVES

a) General:

To use oral misoprostol for active management of the third stage of labour.

b) Specific:

- To determine whether misoprostol is safe and efficacious in active management of the third stage of labour.
- To find out the side effects of oral misoprostol 600 microgram while giving for active management of the third stage of labour.

REVIEW OF LITERATURE

Walraven G *et al*., study done to assess the effectiveness of 600µg of oral misoprostol on PPH and postpartum anaemia in a low-income country home birth situation like Gambia. This study proved oral misoprostol as a promising drug in preventing life threatening PPH in this setting [20].

N. Mobeen *et al*., a study conducted to determine the safety and efficacy of misoprostol in preventing postpartum haemorrhage when administered by trained birth attendants at home deliveries. It was a double – blinded, randomized, placebo-controlled trial done in a total of 1119 women giving birth at home. The consenting women were randomized to receive 600µg oral misoprostol or placebo after delivery to determine whether misoprostol reduced the incidence of

PPH (≥500ml blood loss). The outcome measures were estimation of blood loss of ≥ 500ml after delivery and drop in haemoglobin >2g/dl from before to after delivery. The study concluded that postpartum administration of 600 µg oral misoprostol of trained TBS‟s at home deliveries reduces the rate of PPH by 24%. Given its ease of use and low cost, misoprostol could reduce the burden of PPH in community settings where universal oxytocin prophylaxis is not feasible. Continual training and still building for TBA‟s, along with monitoring and evaluation of programme effectiveness, should accompany any widespread introduction of this drug [21].

EI-Rafaey *et al*., conducted a study in 237 women undergoing vaginal delivery. All of them received 600µg of oral misoprostol immediately after delivery. The median length of third stage of labour was 5 min, 6% of women had blood loss of more than 500ml and no women had blood loss of more than 1000 ml. Vomiting and diarrhea in the first hour after delivery occurred in 8% and 3% respectively and shivering in 60% patients. The author concluded that misoprostol is effective in the prevention of postpartum hemorrhage and has few side effects [22].

Justus Hofmeyr GJ, *et al*., compared oral misoprostol 400µg with placebo in the routine management of third stage of labour showed oral misoprostol as a promising method of preventing PPH [23].

Surbek DV *et al*., study done to investigate whether orally administered misoprostol during the third stage of labour is efficient in reducing postpartum blood loss. Study showed that oral misoprostol administered in the third stage of labour reduced postpartum blood loss and is effective in reducing the incidence of postpartum hemorrhage [24].

Nagaria Tripti *et al*., a study conducted with the aim to assess and comparatively evaluate the safety and efficacy of oral misoprostol 400 µg and IV methylergometrine 0.2mg in the active management of third stage of labour. Total of 200 cases were studied which were equally divided into 2 groups of 100 cases each. The drugs were administered at the time of delivery of anterior shoulder of the fetus. The duration of third stage; amount of blood loss, side effects and complications if any were noted. The study concluded that oral misoprostol is an effective attenuative to conventional uterotonics for the active management of third stage of labour [25].

Daniel V. Suiben *et al*., a study conducted to investigate whether orally administered misoprostol during the third stage of labor is efficient in reducing postpartum blood loss. A double marked trial, during vaginal delivery women were randomly assigned to receive a single oral dose of misoprostol (600µg) or placebo in third stage of labour, immediately after cord clamping. The outcome measures were estimation of blood loss and differences in hematocrit measured before and after delivery. The study concluded that oral misoprostol administered in the third stage of labour reduced. Postpartum blood loss and might be effective in reducing the incidence of postpartum hemorrhage [24].

G. J. Hofmeyer *et al*., a study conducted to compare oral misoprostol 400µg with placebo in the routine management of the third stage of labour. A double-blind placebo-controlled trial with main outcome measures being measured blood loss ≥ 1000ml within first hour after birth and use of additional oxytocics. The study concluded that shivering is a specific side effect of misoprostol administered orally in puerperium and no serious side effects were noted. It also showed that misoprostol shows promise as a method of preventing postpartum hemorrhage. They also commented that because of the potential benefits for childbearing women, particularly those in developing countries, further research to determine its effects with greater certainty should be expedited [23].

Ng Ps Chan *et al*., studied a total of 2058 patients having a singleton pregnancy, low risk for postpartum hemorrhage and vaginal delivery. These patients were randomized to receive either 1ml of syntometrine or 600µg oral misoprostol for the management of third stage of labour. It was observed that there was no significant difference between the two groups in the mean blood loss, the incidence of postpartum hemorrhage and the fall in haemoglobin concentration. The author concluded that oral misoprostol could be used in the management of the third stage of labour especially where the use of syntometrine is contraindicated and facilitates for storage and parenteral administration of oxytocics are limited [26].

Chong YS *et al*., conducted a study in 57 women who delivered vaginally after spontaneous onset of labour. The study was conducted to investigate the effect of oral misoprostol in doses varying from 200 µg to 800µg on the postpartum uterine contractility and to establish their side effects along with intramuscular syntometrine. There was no statistical difference in the uterine activity, following all the doses of oral misoprostol, compared with intramuscular syntometrine. The mean onset of action of oral misoprostol (6.1 min) was significantly slow than that of intramuscular syntometrine (3.2 min) but their duration of action was similar. In the misoprostol group the commonest side effects were shivering (36%) and a rise in body temperature above 38°C (40%). In the syntometrine group, the most commonly observed side effect was moderate pain (9 out of ten) and a rise in the diastolic blood pressure of 200 mmHg (20%). In conclusion, the result of this study shows that oral

misoprostol has a definite uterotonic effect on the postpartum uterus [27].

Davis *et al*., conducted a clinical study including 100 cases where 0.2mg of methyl ergometrine was given intravenously at the end of second stage of labour and noted that in 81% of the cases the blood loss was not more than 100ml and exceeded 500ml in only 0.4% of the cases.28

Bhide P *et al*., conducted a comparative study of three commonly available oxytocics, namely methyl ergometrine, oxytocin and PGF2α with 30 patients each in regard to their effect on blood loss and duration of third stage of labour and incidence of occurrence of side effects. The duration of third stage was 6 min 30 seconds, 5 min and 3 min 15 sec respectively. In their observation the blood loss with PGF2 group was relatively less [29].

Patki A *et al*., conducted a study in 80 patients who were randomly assigned to either PGF2α given intramuscular at the time of delivery of anterior shoulder and intramuscular methyl ergometrine at the time of delivery of anterior shoulder. In their study they revealed that PGF2α group had 36% less blood loss and also side effects were less compared to methyl ergometrine group. They observed that grand multiparas experience 33% less blood loss than primiparas and then an episiotomy increases the blood loss by 30%. In their study they concluded that intramuscular PGF2α helps in the active management of third stage of labour to reduce postpartum blood loss and could shorter the third state duration without promoting a cascade of intervention [30].

McDonald SJ *et al*., compared intramuscular oxytocin and intramuscular syntometrine with relation to their effects in reducing the risk of PPH, when both the drugs are used as part of the active management of labour, incidence of PPH was same in both the groups. There were significantly high rates of nausea, vomiting and high blood pressure in women receiving syntometrine [31].

Karen K *et al*., conducted a systematic review including 17 studies there was an increased need for therapeutic uterotonic medication (NNH=22) among the women receiving prophylactic rectal misoprostol when compared with women receiving injectable uterotonic including intravenous ergometrine. Although prostaglandins are an effective treatment of post-partum haemorrhage, because of the balance of risks and benefits, they currently have no role in the prevention of postpartum haemorrhage [32].

Vimala N *et al*., compared the efficacy and side effects of oral misoprostol and intravenous methyl ergometrine for active management of third state of labour. 120 low risk pregnant women were randomized to receive either 2 tablets of misoprostol (200 µg/tablet) oral or 1m of methyl ergometrine 0.2 mg intravenous injection, after the delivery of the anterior shoulder of the baby. The main outcome measured were need for additional oxytocic drugs, blood loss ≥ 500ml, change in hemoglobin levels and side effects. Postpartum hemorrhage as defined by hemorrhage ≥500ml occurred in 3.1% of the women in the oral misoprostol group but none of the women in the methyl ergometrine group (p>0.005). There was a need for additional oxytocic drugs in 5% and 8.3% after methyl ergometrine and misoprostol respectively (p>0.05). In the misoprostol group, 6.6% women developed fever ≥38°C and 21.6% had shivering while in methyl ergometrine group was experienced these side effects. However, the incidence of other side effects like nausea, vomiting, headache and giddiness were similar in both groups. It was concluded that oral misoprostol appeared to be as effective as intravenous methyl ergometrine in the prevention of postpartum hemorrhage [33].

MATERIALS AND METHODS

Study Design: Observational cross-sectional study.

Place of study: Obstetrics & Gynaecology indoor Department of BSMMU, Shahbag, Dhaka.

Study Period: From November, 2013 to April 2014.

Place of study: Obstetrics and Gynaecology indoor department of BSMMU, Dhaka.

Study population: Women admitted into BSMMU Obs & Gynae department for vaginal delivery with active labour pain.

Sample Size:
To determine the sample size, the formula is used:

$$n = \frac{z^2 pq}{d^2}$$

Here,
n = Sample size
z = 1.96 (at 5% level of significance or 95% confidence level).
p = Prevalence or proportion of occurrence 50% (because it is not known)
q = 1 - p = 0.5
d= error limit (7.5%) = 0.075

So, n $= \frac{(1.96)^2 \times 0.50 \times (1-0.50)}{(0.075)^2}$

= 170.73 ≈ 170
= 170

As the study was conducted over a limited period of time for dissertation purpose and also there is budget constrain, the sample size is adjusted to 100.

Sampling method: Purposive sampling

SELECTION CRITERIA

Inclusion Criteria

a) Women admitted into Obs & Gynae department, BSMMU for vaginal delivery with active labour pain.
b) Gestational age more than 37 weeks.

Exclusion Criteria

- Grand multiparity
- Multiple pregnancy
- IUD
- Gestational age < 37 weeks
- Placenta praevia
- Pre-eclampsia, eclampsia
- Caesarean delivery

Data Collection: Findings of observation were recorded on prescribed data collection form.

Data analysis: After data collection, data editing and cleaning was done manually and prepared for data entry and analysis by using computer based software SPSS, version-17.

Ethical implication: Permission was taken from ethical review committee. All documents was preserved confidentially, written informed consent was taken from the patient.

RESULTS

Table 1: Age incidence of patients (n=100)

Age group years	Number	Percentage
20-25 years	30	30
26-30 years	52	52
31-35 years	12	12
36-40 years	06	06
Mean ±SD	27.64(±4.25)	20-40 years

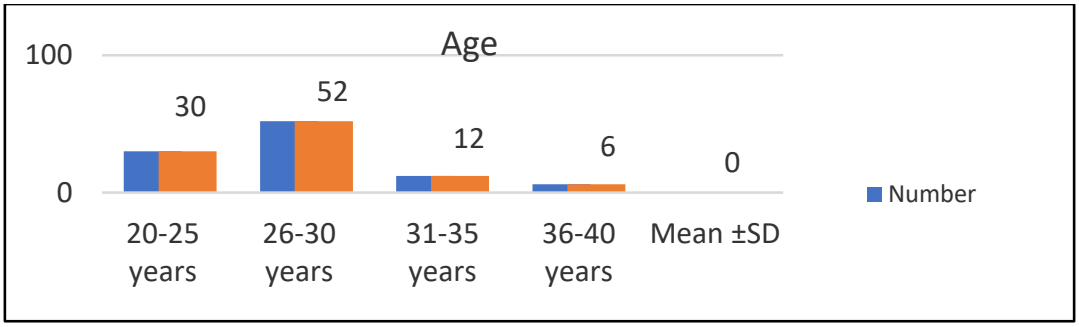

Fig-1: Age incidence of patients n=100.

Table shows majority 52% of patients in misoprostol belong to age group 26-30years. Followed by 30% were 20-25 years of age group, 12% were 31-35 years of age group and 06% 36-40 years of age group. Mean age was 27.64(±4.25) years, minimum age was 20 years and maximum age was 40 years.

Table 2: Socio- economic status of the study population (n=100)

Socio- economic status	Number	Percentage
Lower class	27	27
Middle class	69	69
Upper class	04	04

Table shows 27 % came from lower socio-economic class, 69% came from middle class and only 04% came from upper socio-economic class.

Table 3: Distribution of parity (n=100)

Parity	Number	Percentage
Primi	34	34
1-3	49	49
>3	07	07
Mean ±SD	1.48(±0.75)	1-4

Table shows 34% were primi para, 49% were 1-3 para and 07% were > 3 para.

Table 4: Duration of third stage of labour

Duration of third stage of labour (min)	Number	Percentage
Within 15 min	61	61
15-30 min	39	39
Total	100	100
Mean ±SD	7.49(±2.82)	4-27 min

Majority 61% patients had third stage duration of within 15 minutes; maximum number of 39% had duration between 15-30 minutes. Mean duration of third stage of labour 7.49(±2.82) min.

Table 5: Events in third stage of labour

	Number	Percentage
Not use of additional drug	94	94
Use of additional oxytocics	06	06
Total	100	100

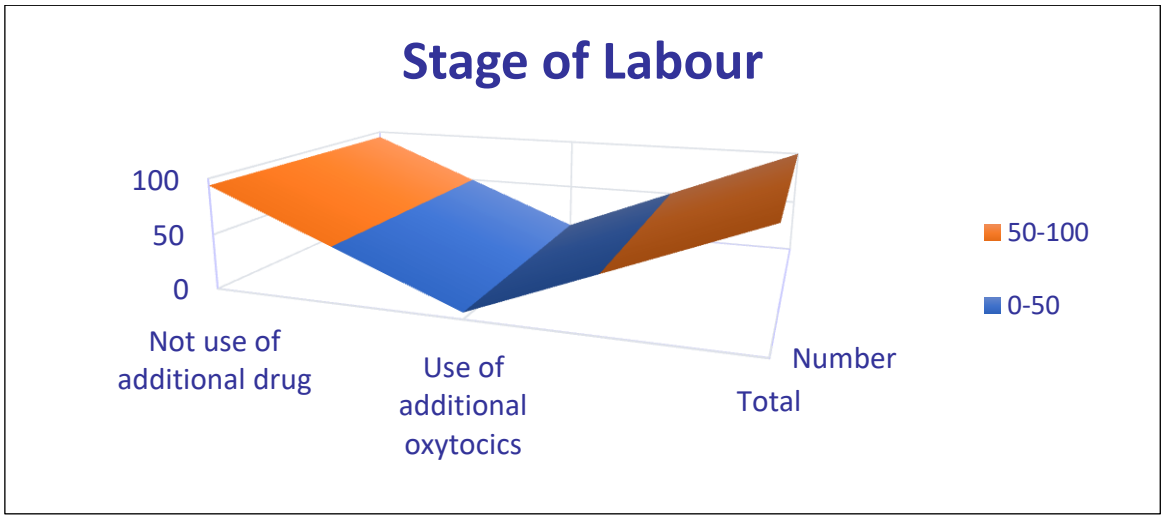

Fig-2: Events in third stage of labour

Table shows 06% use of additional oxytocics and 94% were not use of additional drug.

Table 6: Event of placenta

	Number	Percentage
Spontaneous expulsion	98	98
Retained placenta	02	02
Total	100	100

Table shows 98% were spontaneous expulsion and 02% were retained placenta.

Table 7: Delivery of placenta

Delivery of placenta	Number	Percentage
Spontaneous	98	98
Manual removal	02	02

Table shows delivery of placenta 98% were spontaneous and 02% Manual removal.

Table 8: Effect on blood pressure

	Pre-delivery Mean ±SD	Post-delivery Mean ±SD	Difference in BP Mean ±SD
Systolic BP	119.3 ±10.4	117.4±8.8	1.9 ±1.6 vs
Dystolic BP	69.57 ± 6.23	68.44±7.78	1.13 ± 1.02

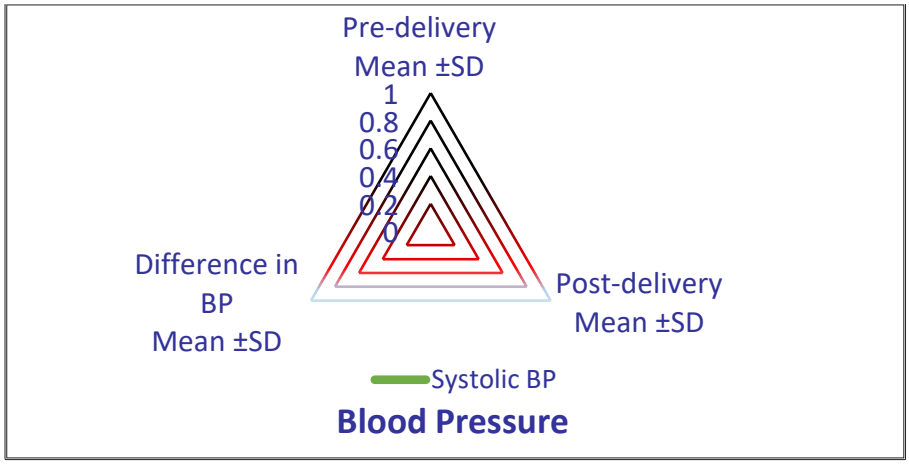

Fig-3: Effect on blood pressure

Table shows mean pre-delivery systolic blood pressure was 119.3 ±10.4 mm of Hg and mean Dystolic blood pressure was 69.57±6.23 mm of Hg. Mean post-delivery blood pressure was 117.4±8.8 and Dystolic blood pressure was 68.44±7.78. Mean difference in systolic BP were 1.9 ±1.6 and Dystolic BP were 1.13±1.02.

Table 9: Effects on Hb level

	Pre-delivery Mean ±SD	Post-delivery Mean ±SD	Difference Mean ±SD
Hb% level	12.1 ± 1.3	11.2±1.1	0.9±0.2

Table shows pre delivery mean Hb% level was 12.1±1.3 g/dl and post-delivery mean Hb% level was 11.2±1.1 g/dl. Mean difference of Hb% between pre- and post-delivery level was 0.9±0.2.

Table 10: Measured of blood loss

Blood loss	Number	Percentage
Blood loss < 500 ml	94	94%
Blood loss > 500 ml	06	06%

Table shows most of 94% patients had blood loss < 500 ml and 06% patients had blood loss > 500 ml.

Table 11: Side effects

Side effects	Number of patients	Percentage
Fever	07	07
Shivering	08	08
Nausea	03	03
Vomiting	--	--
Diarrhea	--	--

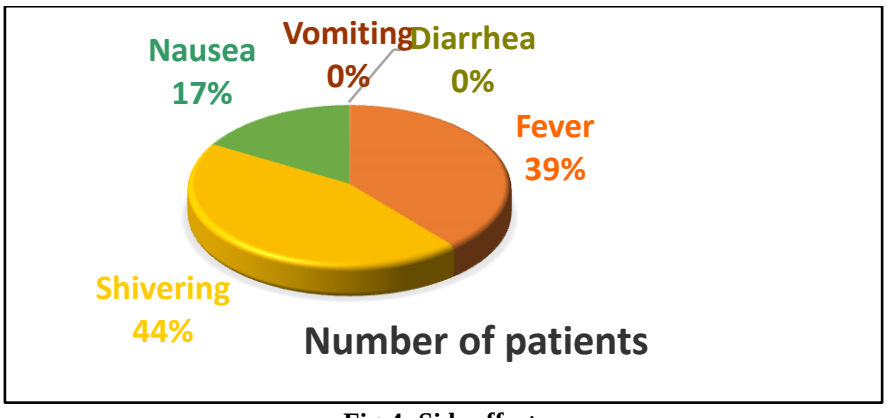

Fig-4: Side effects

There were no side effects such as vomiting and diarrhea. However, shivering occurred 08%, fever 07% and nausea was found 03% patients.

DISCUSSION

This study was carried out department of Obstetrics & Gynaecology indoor Department of BSMMU. In this study majority 52% of patients in misoprostol belong to age group 26-30years. Followed by 30% were 20-25 years of age group, 12% were 31-35 years of age group and 06% 36-40 years of age group. Mean age was 27.64(±4.25) years, minimum age was 20 years and maximum age was 40 years. In study of Afolabi E O *et al*., [34] mean age was 27.1 ± 3.4 years that is similar to in this study. In another Prata N *et al*., [35] study found 25.0 (±5.2) years. In a similar study by Nagaira Tripti *et al*., [25] the mean age 23 years.

In present study 34% were primi para, 49% were 1-3 para and 07% were > 3 para. In study of Harshita S [36] 49.5% were primigravida's and 50.5% were multigravidas. In another study Prata N *et al*., [35] found 35.4% were primigravida's and 64.6% were multigravidas. That result is comparable in this study.

In present study majority 61% patients had third stage duration of within 15 minutes, maximum number of 39% had duration between 15-30 minutes mean duration of third stage of labour 7.49(±2.82) min. In the study done by Nagaria Tripti, mean length of third stage was 10.17 [25]. In Afolabi E O *et al*., [34] study the average duration of the third stage of labour was 4.59 minutes and 4.53 minutes for the misoprostol and oxytocin group, respectively. This was also not statistically significant (p = 0.22). The findings also agree with those of several other studies comparing misoprostol with oxytocin [37, 38].

In present study mean systolic blood pressure was 119.3 ±10.4 mm of Hg and mean diastolic blood pressure was 69.57 ± 6.23 mm of Hg. Mean pre-delivery difference in Systolic BP were 1.9 ±1.6 and Diastolic BP 1.13±1.02. In study of Harshita S [36] insignificant change in blood pressure occurred in 29% of the cases. Fall in systolic blood pressure occurred in 62.5% of the patients and rise in systolic blood pressure occurred in 8.5% of the patients and 91% cases had insignificant change in the diastolic blood pressure, 8% cases had fall in the diastolic blood pressure.

In present study mean Hb% level was 12.1 ±1.3 g/dl and minimum level was 7.5 g/dl and 13.8 g/dl. 06% patients had blood loss > 500 ml. In study of Afolabi E O *et al*., [34] found pre-delivery and 48 hours post-delivery haemoglobin concentration levels were also comparable in both groups, with 11.1 g/dL and 10.7 g/dL recorded for the oxytocin group and 11.1 g/dL and 10.8 g/dL recorded for the misoprostol group. In the study by Nagaria Tripti [25] where oral misoprostol was compared with intravenous ergometrine, there was 117.28 ml mean blood loss in misoprostol group while greater amount of blood loss i.e., 124.58 ml mean blood loss was seen in intravenous ergometrine group. This prospective randomized comparative clinical trial showed that orally administered misoprostol, with its rapid onset of action, is as effective as intramuscular oxytocin in minimizing blood loss in the third stage of labour. No incidence of PPH (blood loss < 500 ml) was recorded in both groups. The average blood loss, drop in haemoglobin concentration levels and the need for additional uterotonics in the two arms of the study were not statistically significant. This is similar to the findings in previous studies [39-41].

In present study there were no side effects such as vomiting and diarrhea. However, shivering occurred 08%, fever 07% and nausea was found 03% patients. In Afolabi E O *et al*., [34] study, an analysis of the side effects of the two uterotonic agents revealed that nausea was mainly seen in the misoprostol group, and this was a statistically significant finding (p = 0.04), while the incidence of shivering was not statistically different (p = 0.13). This is in tandem with the results of other studies [42-44]. However, these undesirable side effects of misoprostol were found to be self-limiting, and shivering could be contained by simply covering the patient with blankets. The frequency of shivering decreased significantly between two and six hours, from 18% at one hour to 3% in a 2–6 hour period, and fell to almost zero 7–12 hours later [44, 45]. Unlike in other reports, elevated temperature was not recorded in this study [42, 43]. Both shivering and pyrexia occurring with misoprostol are thought to be due to the prostaglandin E effect on central thermoregulatory centers, and Lumbi anon et al have reported that although these symptoms may be of limited clinical concern, they can make the accoucheur suspicious of infection or malaria, leading to unnecessary investigations and antibiotic or anti-malaria treatment [44]. The incidence of shivering was also found to be lower in this study, similar to other studies using this dose of misoprostol as compared to studies utilizing a higher dosage [44, 46]. Misoprostol has many advantages. It is cheap, has a long shelf life and is thermostable (storable at tropical temperatures, and hence requiring no refrigeration). No special training is needed to administer it, and it has an acceptable safety profile.

LIMITATIONS

This study was not without limitation. The limitations of the studies were as follows:

- This study was conducted in only one center.
- The sample size was small and study period was short.

CONCLUSION

Misoprostol can consider for active management of third stage of labour as alternative uterotonic agent and for prevention of postpartum hemorrhage especially in areas where the appropriate storage conditions for injection ergot alkaloid and oxytocin are not possible. It has the advantage of ease of oral administration. Oral misoprostol is safe with fewer side effects and can be used even in hypertensive patients for prevention of PPH. It was mainly associated with fever and shivering as side effect which are easily manageable. Hence misoprostol is valuable to doctors in rural setting and specially to trained birth attendants who work in the periphery in the developing countries where storage facilities are not available, and its use is economical.

Recommendations: Large scale, multicentral study should be undertaken.

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