Comparative Study of Misoprostol Vs Improstaglandin in Management of 3rd Stage of Labour

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OBJECTIVE

To compare the management of third stage of labour by 400ug rectal misoprostol vs intramuscular 125 ug PGF2 and to study the side effects of the drugs.

INTRODUCTION

Postpartum haemorrhage is a leading cause of severe maternal morbidity and mortality. Causing up to 1, 25,000 maternal deaths per year and morbidity is 20 million women per year. Prophylactic use of drugs like Oxytocin, methyl-ergometrine and 15methyl PGF2a have reduced the incidence by 40%. Oxytocics like ergometrine, oxytocin and PGF2a require storage at 2-8 c and need to be protected from light, thus posing a major obstacle to their widespread usage. Misoprostol has become an important tool in the management of 3rdstage due to its strong uterotonic action. It can be administrated orally. Rectally and vaginally it does not require refrigeration and has a long shelf life at room temperature. Since vaginal route is not feasible during 3rd stage it has been used rectally. Rectally misoprostol can be easily administrated and G1 side effects can be minimized. This study has been undertaken to evaluate the efficacy of 400ug rectal misoprostol and 125ugm of 15methyl PGF2a in the management of 3rdstage of labour and also compare drugs for prevention of postpartum haemorrhage in 3rd stage of labour.

MATERIAL & METHOD

A prospective randomize study was conducted in the department of OBG S.K.M.C.H. Muzaffarpur to compare the efficacy of intramuscular PGF2a and rectum misoprotol in the management of 3rd stage of labour. 200 pregnant women with term spontaneous onset of labour were randomly divided in to 2 groups of 100 women each a group 1 and 2. Group I was administered 400ug of rectal misoprostol and group 2 was administered 125ugm of PGF2a intramuscularly. All women in the age group of 19-30 years, 37-40 weeks of gestation and gravida 1to4 with spontaneous onset of labour were included in the study. Women with multiple pregnancy, intrauterine foetal death, previous caesarean section, gestational hypertension, ante partum haemorrhage, heart diseases, bronchial asthma, renal diseases liver, disease and history of allergy to these drugs were excluded from the study. The women were subjected to a thorough general systemic examination. Blood loss during the 3rd stage of labour and in the first hour after delivery was calculated by keeping a sterile kidney tray at the vulva after delivery of foetus and the volume of blood was measured using a measured jar. Duration of 3rd stage of labour' side effects were noted. If bleeding exceeded the normal limits additional oxytocics were administered and this was also noted. Haemoglobin estimated in grams% was performed at admission and repeated 48 hours postpartum.

RESULTS

Patients were distributed as group 1 with 100 patients in whom tablets misoprostol 400ug was given per-rectally after delivery of anterior shoulder and group to of 100 women who received 125ugm of 15methyl PGF2a i.m. after delivery of anterior shoulder. 93 (46.5%) patients were in age group 23-26 years: 64 (32%) in age group of 19-12 years and 43 (21.5%) were in age group 27-30 years. Mean age of patients was 24.3 years with standard deviation of 2.9 years. Maximum patients delivered at 39-40 weeks in both groups Misoprostol group consisted of 51% multigravidae and 49% primigravidae and in PGF2a group 37% were multigravidae and 63% were primigravidae.

Table 1 : Amount of blood loss in their stage of labour

Blood loss (ml)	Misoprostol	PGF2a
50-100	09	38
100-200	37	51
201-300	35	03
301-400	10	01
401-500	02	01
500-650	07	01
Total	100	100
Mean ISD	236±119.9	160±127.5

Table 1 shows amount of blood loss in third stage was observed in both groups. Average blood loss in misoprostol group was 236.9 +- 119.9 ml and in FGF2a group it was 160+- 127.5ml so there is a significant decrease in blood loss in PGF2a group compared to misoprostol group with P Value <0.05 which is significant.

Table 2

Parity	Misoprostol	PGF2a
G1P0	250.3	162.7
G2P1	228.6	154.3
G3P2	210.3	171.1
G4P3	266.7	200
P Value	P > 0.05 NS	P > 0.05 NS

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Table 3 : Average duration of third stage of labour.

Groups	III stage labour mean duration (Mins)	SD	Significant
Misoprostol	8.3	3.23	T = 7.37
PGF2a	5.26	1.9	P < 0.05 (significant)

Table 2 shows Parity of the patient did not alter the amount of blood loss as evidenced by P Value of > which is considered not significant.

Table 3 shows average duration of third stage of labour to be shorter in PGF2agp. 526 +- 1.9 mins as compared to 8.3 +- 3.23 mins in misoprostol group, T Value was 7.37 with p value of < 0.05 Duration of third stage of labour was significantly reduced in PGF2a gropu.

Table 4 : Side effects of drugs.

Side effects	Misoprostol	PGF2a
Nausea	13 (6.5%)	26 (13%)
Vomiting	4 (2%)	7 (3.5%)
Shivering	48 (24%)	0
Pyrexia	36 (18%)	0
Diarrhoea	0	12(6%)
Abdominal Cramps	26 (13%)	37(17.5%)

Table 4 shows the incidence of side effect was higher in the misoprostol group than in PGF2a group.

DISCUSSION

The third stage of labour is indeed the unforgiving of all the stages of labour and in it lurks more unheralded treachery than in both the other stages of labour combined. A normal case within a minute can become abnormal an successful delivery can swiftly turn into a disaster if neglect. The third stage usually lasts between 5 and 15 minutes but any period up to 1hour may be considered to be within normal limits. However increasing incidence of complication were seen when the duration of third stage exceeded 30 minutes. Drugs conventionally used for PPH prophylaxis including Oxytocin, methyl-ergometrine and 15 methyl PGF2a used after delivery of the infant has shown to reduce the incidence by 40%.

Ramsey and Ramin etal stated that sustained uterine contractions observed within 3 minutes after drug administration were secondary to rectal misoprostol. Goldberg at all state that there is insufficient evidence to support the routine use of misoprostol to prevent PPH, when Oxytocin or methyl ergometrine is available, but misoprostol may lower the incidence of PPH if these drugs are not available. A Cochrane systematic review identified 5 randomized controlled trials comparing active and expectant management. Active management was found to be associated with shorter third stage duration (mean difference – 9.77 minutes) a reduced risk of PPH, reduced risk of anaemia. a decreased need for blood transfusion and a decreased need for additional utero tonic medications. Bjide et al conducted a comparative study of 3 commonly available oxytocics – methyl- ergometrine (0.2mg), oxytocin (10 units) and PGF2a (125 ugm) with 30 patients each in regard to blood loss and duration of third stage of labour, which was 6 minutes 30 seconds, 5 minutes and 3 minutes 15 seconds respectively. In their observation, blood loss with PGF2a was relatively less. Kamalajayram et al studied 100 patients of atonic PPH using IV methyl egometrine (0.2mg) and IM PGF2a at birth of anterior shoulder. They concluded that PGF2a is superior to methyl ergometrine esp. in high risk patients and that benefits of using PGF2a outweighed the cost of the drug. Vimala et al compared sublingual misoprostol 400 ug with 0.2 mg ergometrine and concluded that both are equally effective in prevention of PPH.

Misoprostol may be considered for active management of third stage as an alternative uterotonic agent and for preventing PPH in areas where appropriate storage conditions for ergometrine and oxytocin are not available. Misoprostol does not require refrigeration and can be given in hypertensive patients. However, gastrointestinal side effects like nausea, vomiting and diarrhoea were significantly higher in PGF2a group than in misoprostol group which showed incidence of pyrexia and shivering. Abdominal cramps were equally evident in both groups.

CONCLUSION

This comparative study between intramuscular PGF2a (125 ugm) and per rectal misoprostol (400 ugm) in third stage of labour done in department of OBG, S.K.M.C.H. Muzaffarpur showed lower blood loss, effective reduction in duration of third stage of labour, significantly lesser reduction in Hb level postpartum in PGF2a , but it was associated with unpleasant GI side effects. Hence a cafeteria approach is required in usage of these drugs in reducing postpartum haemorrhage and thus reducing maternal morbidity and mortality.

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