



## RECTAL MISOPROSTOL VS 15-METHYL PROSTAGLANDIN F2 $\alpha$ FOR THE PREVENTION OF POST PARTUM HEMORRHAGE

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Received 08 August 2015; Accepted 28 August 2015

### Objectives:

1. To compare the efficacy and side effects of 400 $\mu$ g of rectal misoprostol with intramuscular 125 $\mu$ g PGF2 $\alpha$  in prevention of postpartum haemorrhage.
2. To estimate amount of blood loss during the third stage and duration of third stage of labour in both groups.
3. To know and evaluate the safety of the drugs in the management of 3<sup>rd</sup> stage of labour.

### METHODOLOGY:

The present randomized study is to compare the efficacy of intramuscular PGF2 $\alpha$  and per rectal misoprostol in the management of third stage of labour to prevent Post partum hemorrhage.

The study was conducted in the Department of Obstetrics and Gynaecology at the teaching hospitals attached namely.

1. Basaveshwar general and teaching hospital
2. Sangmeshwar general and teaching hospital,

Two hundred pregnant women at term with spontaneous onset of labour were included in the study and were randomly divided into 2 groups of 100 women each group A and group B were given per rectal misoprostol (400 $\mu$ g) and intramuscular PGF2 $\alpha$ (125 $\mu$ g) respectively at that delivery of anterior shoulder of foetus.

200 cases admitted to the above hospitals who fulfilled the selection criteria were included for the study. The study was conducted from 2009 to 2011.

### Inclusion criteria:

All patients in the age group of 19-30 years, period of gestation ranging from 37-40 weeks and gravidity ranging from 1<sup>st</sup> to 4<sup>th</sup> gravid, at term with spontaneous onset of labour were included in the study and subjected to vaginal delivery

### Exclusion criteria:

Multiple pregnancy, intrauterine foetal death, previous caesarean section, pregnancy induced hypertension, antepartum haemorrhage, heart disease, bronchial asthma, renal disease, liver disease, allergy to drug.

The selected cases with inclusion criteria was divided into 2 groups

**Group A:** Misoprostol 400 $\mu$ g was inserted per rectally immediately following birth of baby (100).

**Group B:** Injection PGF2 $\alpha$  (125 $\mu$ g) intramuscular was given at the delivery of anterior shoulder (100).

Each of the patients will be allotted to one of the groups by coloured coins method (self selection — random sampling method).

### Collection of blood:

The blood loss during the third stage of labour and the immediate postpartum period (1 hour after delivery) was calculated by keeping a sterile kidney tray at the vulva after the delivery of foetus and collecting blood and volume measured by a measuring jar and 'Estimated total blood loss' was noted down. If intravenous oxytocin was used during the second stage of labour, it was stopped immediately after delivery. The need for initiation of intravenous fluids or blood transfusion was noted.

Length of third stage of labour, and side effects including nausea, vomiting, diarrhoea, shivering, and retained placenta were recorded. If uterine bleeding was more than normal additional oxytocics was given.

Hemoglobin (Hb) in gm% was done at the time of admission to the labour room and repeated 48 hours after delivery.

A pretested proforma was used to collect the relevant information (like patient's data, clinical information, investigation reports etc.) from each and every individual related from the cases.

Statistical analysis of the 2 groups was done.

### RESULTS:

Table 1: Amount of Blood Loss in 3rd Stage Of Labour

Blood loss (ml)	Misoprostol	PGF2α
50-100	9	38
101-200	37	51
201-300	35	3
301-400	10	1
401-500	2	1
501-650	7	6
Total	100	100
Mean ± SD	236.8 ± 119.9	160 ± 127.5
Unpaired t test	t= 4.36	P< 0.05,Sig

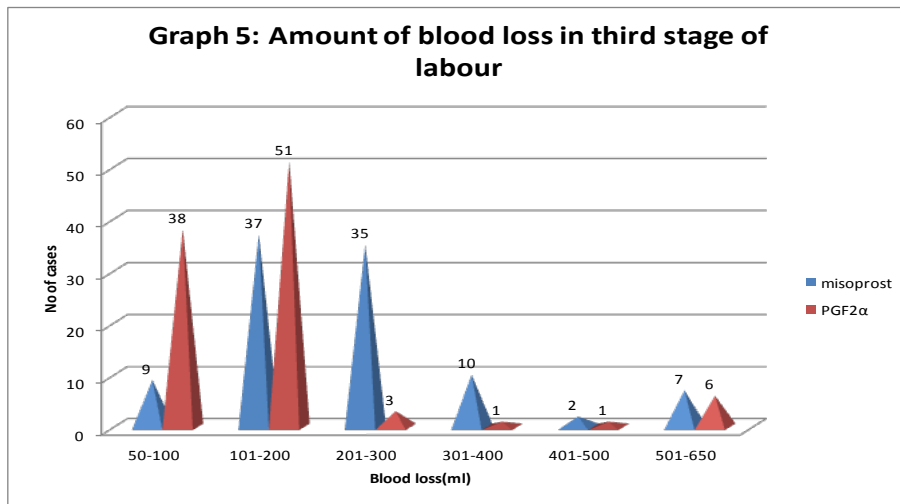


Table 2: Average fall in Hb level because of Postpartum Blood Loss

Groups	Average fall in Hb(gm/dl)	SD	Significance
Misoprostol	0.69	0.49	t= 3.40 P< 0.05,S
PGF2α	0.49	0.31	

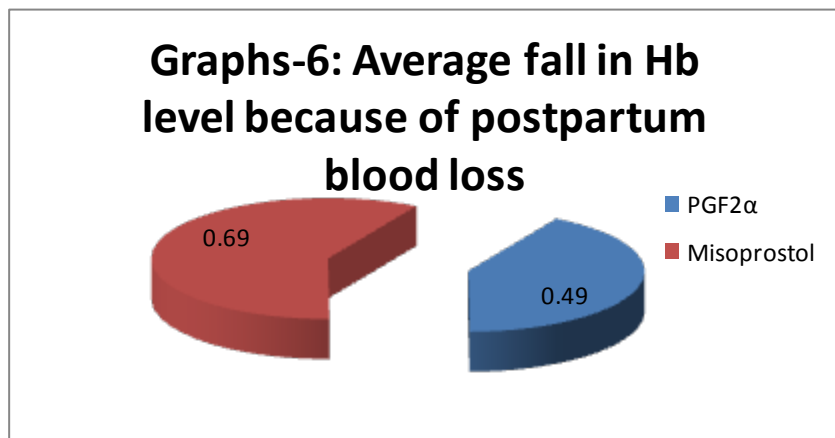


Table 3: Duration of third stage of Labour in both groups

Duration of 3rd staging labour (min)	Misoprostol	PGF2 $\alpha$
2-4	1	22
4-6	15	36
6-8	30	28
8-10	28	11
10-12	23	2
12-14	2	-
> 30	1	1
Total	100	100

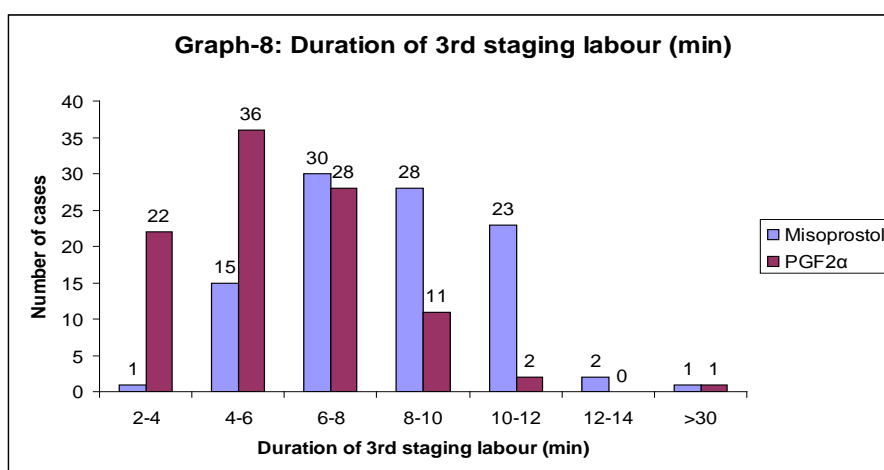
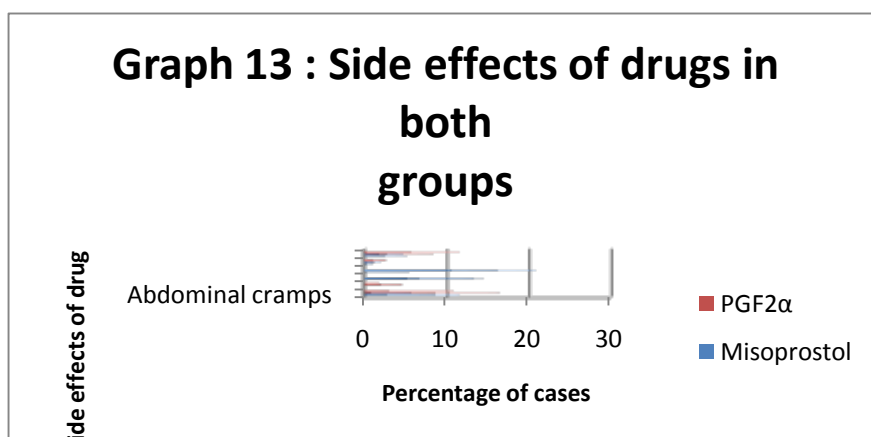


Table 4: Side Effects of Drugs in Both Groups

Side effects	Misoprostol	PGF2 $\alpha$
Nausea	13(6.5%)	26(13%)
Vomiting	4(2%)	7(3.5%)
Shivering	48(24%)	0
Pyrexia	36(18%)	0
Diarrhea	0	12(6%)
Abdominal cramps	26(13%)	35(17.5%)

Side effects were seen more in group **Misoprostol** as compared to **PGF2 $\alpha$**  group. In misoprostol group nausea was seen in 6.5% of cases, vomiting in 2% of cases, shivering in 24% of cases , pyrexia in 18% of cases and abdominal cramps in13%cases.

In PGF2 $\alpha$  group nausea was seen in 13% of cases, vomiting in 3.5% of cases and Diarrhea in12 % of cases, Abdominal cramps in17.5%cases



**DISCUSSION:**

Comparative study between intramuscular PGF2α (125µg) and per rectal misoprostol in prophylaxis of PPH done in Department of OBG in MR Medical college showed the following.

**Mean duration of third stage of labour (in mins):**

In the present study, in misoprostol group, average duration of 3rd stage of labour was found to be 8.03±3.23 mins whereas in PGF2α group it was found shorter, 5.26±1.9 mins

Table 18: Mean duration of third stage of labour (in mins)

Study	Misoprostol	PGF2α
V. Nellore et al.	8.8± 2.8	9.2± 3.2
Present study	8.03± 3.23	5.26± 1.90

In study by V. Nellore et al. when misoprostol was compared to PGF2α, there was reduction in mean length of third stage from 9.2± 3.2 mins in group in PGF2α to 8.8± 2.8mins in misoprostol group. p value 0.84.<sup>67</sup>

In misoprostol group, average duration of III stage of labour was found to be 8.03±3.23 mins whereas in PGF2α group it was found shorter, 5.26±1.9 mins, t value is 7.37 with p value of < 0.05, thereby suggesting PGF2α causes statistical significant reduction in duration of III stage of labour when compared to per rectal misoprostol.

**Mean hemoglobin concentration/Fall in Hb:**

In our study average fall in Hb level was 0.69 g/dl in misoprostol group whereas in PGF2α group it was 0.49 g/dl

In the study by V. Nellore et al, There was no significant difference between the 2 groups in mean hemoglobin concentration, whether predelivery or postpartum.<sup>67</sup>

In the present study comparison of Hb changes following delivery in both the groups are statistically significant with an average fall in Hb level 0.49gm/dl in PGF2α group and 0.69 gm/dl in misoprostol group. Intergroup comparison applying unpaired t-test shows t = 3.40, p < 0.05 which is statistically significant i.e. intramuscular PGF2α results in significantly lesser reduction in Hb when compared to per rectal misoprostol.

Therefore there is reduced fall in Hb in PGF2α group is statistically significant when compared to Misoprost.

**Mean blood loss (in ml):**

In the present study, distribution of blood loss in the two groups showed mean blood loss of 160.6 ± 127.5ml in to PGF2α group, while in misoprostol group it was 236.8 ± 119.9ml.

Table-19: Mean blood loss (in ml)

Study	Misoprostol	PGF2α
V. Nellore et al	245± 158	205± 175
Present study	236.8 ± 119.9	160.6 ± 127.5

**Side effects:**

In a similar study by V. Nellore et al . Five women in the misoprostol group experienced shivering, but none in the 15-methyl prostaglandin F<sub>2α</sub> group.( P =.06) Gastrointestinal adverse effects, such as nausea, vomiting, and diarrhea, were significantly higher in the 15-methyl prostaglandin F<sub>2α</sub> group than in the misoprostol group (11 vs. 3, P =.01s).<sup>67</sup>

In the present study incidence of side effects like nausea (6.5%) and vomitifig (2%) & diarrhea was less in misoprostol group as compared to PGF<sub>2α</sub> group. In to PGF<sub>2α</sub> group incidence of nausea was 13% and vomiting 3.5%. Shivering was seen only in misoprostol group i.e. 24%. Incidence of pyrexia was found only in misoprostol group which was 18% Abdominal cramps were seen in 13% in misoprostol group &17.5% in PGF<sub>2α</sub> group.

**CONCLUSION:**

Where maternal mortality is high and resources are limited, the introduction of low cost evidence based practices to prevent and manage post partum haemorrhage can improve maternal and infant survival Hence prophylactic aspect to reduce the incidence of complications in third stage is very important This comparative study between intramuscular PGF<sub>2α</sub>(125µg) and per rectal misoprostol in prophylaxis of PPH done in Department of OBG in MR Medical college showed that intramuscular PGF<sub>2α</sub>(125µg) when used results in lower blood loss, more effective reduction in duration of third stage of labour, significantly lesser reduction in Hb level after delivery but is associated with unpleasant side effects like nausea, vomiting,. PPH was seen in lesser number of cases as compared to misoprostol group, and risk of retained placenta was same in both the groups.

Per rectal misoprostol, inexpensive and does not need refrigeration is safe but side effects were comparatively more in misoprostol and is relatively less effective in preventing blood loss, results in higher fall of Hb level with greater number of cases requiring blood transfusion (8 cases as compared to 7 in PGF<sub>2α</sub>(125µg) group) and required additional oxytocics with a higher frequency, evidence of retained placenta was same 0.5% in both groups. Hence a cafeteria approach is required in usage of these drugs in general in reducing post partum haemorrhage and thereby maternal morbidity and mortality.

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