

# A Comparison Between Intramuscular PGF<sub>2</sub> a125 mG And Intravenous Methyl Ergometrine 0.2 Mg In The Active Management Of Third Stage Labor

R Khurshid, K Fatima, S Parveen, I shamas, R Salman

## Citation

R Khurshid, K Fatima, S Parveen, I shamas, R Salman. *A Comparison Between Intramuscular PGF<sub>2</sub> a125 mG And Intravenous Methyl Ergometrine 0.2 Mg In The Active Management Of Third Stage Labor*. The Internet Journal of Gynecology and Obstetrics. 2009 Volume 14 Number 1.

## Abstract

### OBJECTIVE(S):

To assess, evaluate and compare the safety and efficacy of intramuscular PGF<sub>2</sub> a 125 mg and intravenous methergin 0.2 mg in the active management of third stage of labour

### METHOD(S):

200 selected cases were divided in two groups of 100 each. In Group I, PGF<sub>2</sub> a 125 mg was given intramuscularly and in Group II, 0.2 mg methergin was given intravenously at the time of delivery of the anterior shoulder of the foetus. The duration of the third stage, amount of blood loss, side effects and complications, if any, were noted and analysed.

### RESULTS:

The mean duration of the third stage of labour from the injection of the oxytocic to the expulsion of the placenta was significantly shorter in Group I (4.3±1.2 minutes) as compared to that in Group II (6.3±1.4 minutes) (P = 0.000). The mean blood loss was also significantly less in the study group (63.6±10.1 ml versus 83.6±14.1 ml, P = 0.000). The only side effects were nausea and vomiting in two women in Group I.

### CONCLUSION(S):

Intramuscular PGF<sub>2</sub> a 125 mg is a better alternative to intravenous methergin 0.2 mg in the active management of third stage of labour.

## INTRODUCTION

Although postpartum hemorrhage complicates only 5-10% of deliveries but it accounts for nearly 25% of the maternal deaths and is still considered one of the leading cause of maternal mortality in developing countries. Hence active management of of third stage of labour is the most important step towards reduction of maternal mortality`

Use of an oxytocic has been recommended since long time. Methyl ergometrine given at the time of delivery of anterior shoulder has been reported to result in significant reduction in the blood loss of the third stage of labour<sup>1</sup>

Prostaglandins are the natural stimulants of the myometrial activity and have proven to be effective in induction of labour and abortion. Use of prostaglandins in the active

## A Comparison Between Intramuscular PGF<sub>2</sub> 125 mg And Intravenous Methyl Ergometrine 0.2 Mg In The Active Management Of Third Stage Labor

management of labour is an extension of their use in obstetrics, PGF<sub>2</sub>α, a synthetic derivative of prostaglandin, has an advantage that it can be given intramuscularly, is more potent and is longer acting than natural prostaglandin. The present study was undertaken to analyse the efficacy of PGF<sub>2</sub> α in the active management of third stage of labour.

### METHODS

Two hundred women with singleton pregnancy, spontaneous onset of labour at term and vertex presentation admitted in active phase of labour were included in the study. Those having hypertension, cardiac disease, renal disease, gastrointestinal disorders, respiratory disease, endocrinal problems, coagulation disorder and sensitivity to prostaglandin or methergin were excluded from the study.

They were randomly divided using random tables in two groups of 100 each. Group I received PGF<sub>2</sub>α 125mg intramuscularly and Group II received 0.2 mg of methergin intravenously at time of the delivery of the anterior shoulder. The interval between injection and expulsion of the placenta, amount of blood loss, third stage complications, side effects and need for second injection of additional drug were noted. Blood loss was estimated by blood and blood clots collected in the kidney tray and adding the difference in the weight of the drapes before use and after delivery. The data were analyzed.

### RESULTS

There were 50 primiparas and 50 multiparas in each of the two groups. The two groups were well matched in terms of gravidity, parity and age (Table 1).

The mean duration of 1<sup>st</sup> stage of labour was 8.9+1.8 and 8.4 + 1.1 hours amongst primiparas in Group I and Group II respectively. It was 5.9+ 1.2 and 6.1+1.0 hours amongst multiparas in Group I and Group II respectively. (Table 1).

The mean duration of the 2<sup>nd</sup> stage of labour was 40.3+9.3 minutes and 46.2+10.7 minutes amongst primiparas and 20.5 + 4.1 minutes and 20.4+3.7 minutes amongst multiparas in Group I and Group II respectively (Table 1).

The mean duration of 3<sup>rd</sup> stage of labour was 4.1±1.0 minutes and 6.3 ±1.3 amongst primiparas in Group I

Figure 1

Table 1. Comparison of the two groups

		Group I (Prostaglandin) n = 100	Group II Methergin n = 100
1.	Primipara	50	50
2.	Multipara	50	50
3.	Mean parity	0.71 ± 0.66	0.61 ± 0.60
4.	Mean gravidity	1.75 ± 0.87	1.67 ± 0.85
5.	Mean age (years)		
	Primiparas	27.9 ± 2.4	27.9 ± 3.5
6.	Mean duration of 1 <sup>st</sup> stage (hours)		
	Primiparas	8.9 ± 1.8	8.4 ± 1.1
7.	Mean duration of 2 <sup>nd</sup> stage (mins)		
	Primiparas	40.3 ± 9.3	46.2 ± 10.7
8.	Mean duration of 3 <sup>rd</sup> stage (mins)		
	Primiparas	4.1 ± 1.0	6.3 ± 1.3
	Multiparas	4.5 ± 1.3	6.2 ± 1.5

and Group II respectively. It was 4.5±1.3 and 6.2±1.5 amongst multiparas in Group 1 and Group II respectively. Thus mean duration of third stage was significantly less in Group I as compared to that Group II (4.3±1.2 vs 6.3±1.4 minutes; p=0.000) Table 1.

The mean amount of the blood loss was also significantly less in Group I as compared to that in Group II (63.6±10.1 vs 83.6±14.1 mL, p=0.000) Table 2.

In none of the women was the placenta retained in any of the groups. The additional dose of the drug was required in one case in the methergin group and none in prostaglandin group.

Figure 2

Table 2 - Amount of blood loss

Blood loss	Primiparas			Multiparas			Group I	Group II	P value
	Group I	Group II	P value	Group I	Group II	P value			
Mean ± SD	64.7 ± 9.3	85.2 ± 12.6	0.000 (sig)	62.4 ± 10.8	82.0 ± 15.9	0.000 (sig)	63.6 ± 10.1	83.6 ± 14.1	0.000 (sig)

## A Comparison Between Intramuscular PGF2 a125 mG And Intravenous Methyl Ergometrine 0.2 Mg In The Active Management Of Third Stage Labor

**Figure 3**

Table 3 – Comparison with other studies

	Ajaneyulu	Devi et al	Bhattacharaya	Present study
<b>I. Blood Loss (ml)</b>				
a. Prostaglandin	95.12 ± 89.9	99.8 ± 155	73.0 ± 44	63.6 ± 10.1
b. Methergin	154.9 ± 105.6	283 ± 108	145 ± 15.1	83.6 ± 14.1
<b>II. Duration of 3<sup>rd</sup> stage (in minutes)</b>				
a. Prostaglandin	3.5 ± 1.1	4.8 ± 0	4.8 ± 0.8	4.3 ± 1.2
b. Methergin	6.1 ± 2.1	10.9 ± 0.5	8.86 ± 0.6	6.3 ± 1.4

PGF: α125 µg intramuscular

Methergin 0.2 mg intravenous

The only side effects noted were nausea and vomiting in two cases in the prostaglandin group which were not severe enough to need energetic management.

### DISCUSSION

Kerkes and Domokos<sup>2</sup> recorded changes in the intraumbilical artery pressure with an open catheter and Hewlett Packard 8020 after treating the cases with PGF2 (n=6), ergometrine (n=3), physiological saline (n=4). They found a marked rise of 60 mm of Hg in the pressure and a sustained contracture response of the myometrium with PGF2 as compared to minimal response with ergometrine. They observed similar results after intra-myometrial injection of PGF2 during the caesarean section when a wave of contractions was seen starting from the site of the injection and spreading to the distal segment of the uterus. The sustained contracture superimposed with cyclical contractile uterine activity resulted in rapid separation and expulsion of the placenta and sustained contraction resulted in significant control of blood loss.

In the present study we also observed a significant reduction in the duration of the 3<sup>rd</sup> stage of labour in the PGF2 group as compared to that in methergin group. Similar observations were made by other authors as well<sup>2-4</sup> (Table 3).

The mean blood loss was 63.6±10.1 ml in the prostaglandin group as compared to 83.6±14.1 ml in the methergin group. (P=0.000). (Table 3). Similar results were obtained by various other authors as well (Table 3).

Singh and Megh<sup>5</sup> observed nearly 50% reduction in the mean blood loss using 250 µg of PGF2 in comparison to that of PGF2 with methergin. The side effects observed with prostaglandin were very minimal in the form of nausea and vomiting in two cases only. Ajaneyulu et al<sup>1</sup> and Bhattacharaya et al<sup>4</sup> noted diarrhea as the most common side effect with vomiting in only 2% of the cases receiving prostaglandin while Singh and Megh<sup>5</sup> observed vomiting as the main side effect in the prostaglandin treated group.

### CONCLUSION

PGF2 125 µg given intramuscularly is a safe and effective alternative to methergin for the active management of labour. It results in significant reduction in the blood loss which is so important in the anaemic women of our country.

### References

1. Anjaneyulu R, Devi PK, Jain S et al. Prophylactic use of 15(S)15 methyl PGF2 by intramuscular route - a controlled clinical trial. Acta Obstet Gynecol Scand 1988, 145 Suppl: S9-11
2. Kerkes L, Domkos N, The effect of prostaglandin F 2 Alpha on third stage labour. Prostaglandin 1979:18:161-6
3. Devi PK, Sunaria UD, Raghavan KS Prophylactic use of 15 (S) 15 methyl PGF2 for control of postpartum bleeding. Acta Obstet Gynecol Scand 1988: 145 Suppl: S7-8
4. Bhattacharaya P, Devi PK, Jain S et al, Prophylactic use of 15(S) 15 methyl PGF2 by intramuscular route for control of postpartum bleeding – A comparative trial with methyl ergometrine. Acta Obstet Gynecol Scand 1988: 145 Suppl: S 13-5
5. Singh PD, Megh MG, Carboprost tromethamine in the active management of third stage of labour. Ind Pract 1995:48: 103-5

**Author Information**

**Rabia Khurshid**

Senior Resident, Department of Obstetrics and Gynaecology, Sher-i-Kashmir Institute of Medical Sciences (SKIMS),

**Kaneez Fatima**

Senior Resident, Department of Obstetrics and Gynaecology, Sher-i-Kashmir Institute of Medical Sciences (SKIMS),

**Shameema Parveen**

Additional Prof, Department of Obstetrics and Gynaecology, Sher-i-Kashmir Institute of Medical Sciences (SKIMS),

**Irfan ul shamas**

Junior Resident, Department of Obstetrics and Gynaecology, Sher-i-Kashmir Institute of Medical Sciences (SKIMS),

**Raja Salman**

Junior Resident, Department of Obstetrics and Gynaecology, Sher-i-Kashmir Institute of Medical Sciences (SKIMS),