ORIGINAL ARTICLE

Comparative Study of Prostaglandin F2 α Versus Ergometrine in the Management of Post Partum Haemorrhage

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Abstract

The present study was done to compare Prostaglandin F2 α (250μg) and methylergometrine (0.25mg) in the management of postpartum haemorrhage. 100 women of postpartum haemorrhage were studied in the tertiary care teaching hospital of Govt. Medical College Srinagar. at LDH in year 2001 to 2003. They were divided in two groups. Group A women were given intravenous methylgometrine (0.25mg) and group B received intramuscular injection of prostaglandin F2 α (250 μg). Main outcome measures were duration of third stage of labor, amount of blood loss and the side effects of drugs. Two groups were comparable with regard to parity in group A, 54% were primipara and 46% multipara; in group B 66% were primipare and 34% multipara. Mean duration of third stage of labour was shortened in group B. Blood loss was comparably less in group B ($p < .001$). Side effects were noted in both the groups but more in group A. Prostaglandin F2 ∝ (250μg) is a life saving drug in atonic postpartum haemorrhage, It shortens the duration of third stage of labour, and minimizes blood loss. Prostaglandin F2 ∝ offers an advantage over methylergometrine in case of hypertension.

Key words

Postpartum Haemorrhage, atonic uterus, third stage of labour.

Introduction

Blood loss of more than 500ml during vaginal delivery (1) or more than 1000ml during caesarean section (2) is taken as postpartum haemorrhage or any bleeding from or into the genital tract after delivery of baby, which results in signs and symptoms of haemodynamic instability or a drop in postpartum haematocrit greater than 10% of prenatal value (3). Postpartum haemorrhage is a major cause of maternal morality in India (4). Active management of third stage of labour is very important in reducing the blood loss and postaglandins are known to have good therapeutic role in the management of postpartum haemorrhage (5-11).

Material and Methods

A total of 100 women in labour were included in the study after obtaining informed consent. All of them had routine antenatal investigations including hemoglobin estimation, urine analysis, blood sugar screening, kidney and liver function tests. They were divided into two groups. Group A (50 women) received (0.25mg) of methylergometrine intravenously. Group B (50 women)

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received (250mg) of prostaglandin F2 µ intramuscularly, at the delivery of anterior shoulder.

Women with cardiovascular, hepatic and renal diseases were excluded. The blood loss was measured in immediate postpartum period (2 hours) and uterine response in the form of firmness of the uterus was noticed. The level of hemoglobin after delivery was noted.

Statistical Analysis

The values were compared between the groups A and B using Student 't' test and chi-square values were used where necessary. P value of less than 0.005 was considered significant.

Result

According to parity in group A 54% were primpara 46% multipara and in the group B 66% primpara and 34%multipara. (Table-1), 52% cases delivered vaginally 22% had instrumental delivery (mostly vacuum extraction), 26% cases had operative delivery, 12 women (46.16%) received general anesthesia, 14 women (53.84%) had spinal anesthesia.

In prostaglandin group there was 30% less blood loss, than methylergometrine group. In methylergometrine group 9 cases of postpartum haemorrhage were subsequently treated with injection prostaglandin F2µ 250mg intramuscularly.

Statistically there was a highly significant difference (P < 0.001) in blood loss measured in two groups (Table-2) on an average placenta was expelled 5 minutes earlier in prostaglandin group than in methylergometrine group. (3 minute 16 seconds versus 8 minutes 5 seconds) (Table 3).

Out of 50 women, 4 were taken for hysterectomy in 30 minutes after expulsion of placenta. Of the remaining 46 women, 42 responded well and 4 women required second injection of prostaglandin F2µ.

Before delivery there was a non-significant difference (P>0.65) in hemoglobin in two groups. After 24 hours of delivery there was a significant difference (p<0.001) in hemoglobin levels (Table 4).

Side Effects

The side effects encountered in the prostaglandin group included vomiting in 12%, loose motion (30%), headache (2%) and abdominal pain (24%). In methylergometrine group 16% had vomiting, 34% headache, 30% tachycardia and 40% had rise of blood pressure (Table-5).

Table-1 Distribution of women according to parity

Parity	Methylergo-metrine	Prostaglandin	P. value
Primpara	27 (54%)	33 (66%)	
Multipara	25 (46%)	17 (34%)	Non significant

Table-2 Blood loss measured in immediate postpartum period in ml

	Group A	Group B
Median	250ml	100ml
Mean ± S.D	280ml ± 152.58	110±83:05ml
Range	110-700ml	50-410ml

(P. Value -<0.001)

Table-3 Mean time required for signs of placental separation and placental delivery

	Group-A	Group-B	P-value
Retraction of uterus (mean)	3.15 minutes	2.25 minutes	< 0.01
Crush of blood (mean)	3.45minutes	2.35 minutes	< 0.001
Delivery of placenta (mean)	8.5minutes	3.16minutes	<.001

Table-4 Haemoglobin Level

Hb%	Group A	Group-B
Pre-delivery Hb%	11.4±2.15	11.5±2.20
Post delivery Hb%	8.35±2.08	9.12±1017
P.value	P<0.001	P<0.001

Table-5 Side Effects

	Group-A	Group-B
Vomiting	16%	12%
Loose motions	-	30%
Headache	34%	2%
Tachycardia (120 beats/min)	30%	-
Rise in mean blood pressure by more than 10 mmHg	40%	-
Abdominal pain	12%	24%

Discussion

Postpartum haemorrhage is excessive bleeding after delivery (5,6,7). It can be atonic when bleeding is from implantation site or traumatic when bleeding is due to

trauma to genital tract or both. It accounts for 5% in all deliveries. It is the major cause of maternal mortality and morbidity in both developed and developing countries, but the mortality rate is higher in developing countries because of low social-economic status, lack of medical care and education. Active management of third stage of labour is important as prophylaxis of tonic postpartum haemorrhage which includes injection of oxytocics (7) at the delivery of anterior shoulder, early cord clamping and placental delivery by controlled cord traction after the signs of placental separation. Intramuscular injection of prostaglandin F2µ is a life saving drug in atonic postpartum haemorrhage (10), which does not respond to conventional method (using methylergometine). Use of prostaglandian F2 a shortens the duration of third stage of labour and minimizes blood loss (11).

Prostaglandian F2 a offers an advantage over methylergometrine in hypertensive cases. Methylergometrine is also a good drug for the management of postpartum haemorrhage but the serious side effects produced by the drug restrict its use especially in hypertensive, heart disease woman and severely anemic women.

In our study blood loss was 30% less as compared to methylergometrine group which is almost similar to 36% of Amt Patki, and co-workers (12), but less than 50%of Bhatacharaya (11) and co-workers. The duration of third stage was shortened to 3.16 minutes in women receiving prostaglandin F2 a. which is almost same (4.4 minutes of Bhattacharya (11) and 3.5 minutes of V. Kamalajayaram and Anjane Jule, but longer than 2.3 minutes of Abdul Aleem.

Postpartum haemorrhage in presence of uterine infection (chorioamnionitis) and severe abruptio placentae may not respond to this drug and hysterectomy may be the treatment of choice.

References

1. Eastman N.J williams obstetrics ed. 10, New York 1950, Appleton century- crofts company, INC, P-912.
2. Duthie SJ. Postpartum haemorrhage & cesserian section. *Obst Gynaecol* 1992 ; 99 : 364-67.
3. M.D Research Director, AP. Department of EM Mount Sinai Medical Centre up-date Jan 29. 2001.
4. Registrar General of India 1999.
5. Waters EG. Surgical Management of Postpartum Haemorrhage with particular reference to ligation of uterine arteries. *Am J Obstet. Gynecol* 1952,64:1143-48.
6. Combs CA Murphy El Laros Rk Jr. Factors associated with haemorrhage in caesarean delivery. *Obstet Gynacol* 1991 ; 77 : 77-82.
7. Comls CA Murphy EL Laros RK Jr. factors associated with haemorrhage with vaginal delivery. *Obstet Gynacol* 1991 ; 77 : 69-76.
8. Didly GA. Prostaglandin efficacy & safety. *Obstet Gynacol* 1993 ; 21-29.
9. Van Dorgen Pw Van Roosmalen J.De Buer cN *et al*. Oxytocics for the prevention of postpartum haemorrhage. *A review Pharm Weekly Sci* 1991 ; 13 : 238-43.
10. Lalitha A. Prostaglandin in intractable postpartum haemorrhage. *J Obst Gynaecol* 1988 ; 39 : 208-11.
11. Bhattacharya P, Devi PK, Jains, Kanthamani CR, Raghavan KS. Prostaglandin vs Ergomatrine: A Comparative Stydy. *J Obst and Gynae Scand* 1998 ; 145 : 13-15.
12. Amitt P, Sandeep M, Shaan D, Shirish D. Active management of IIIrd stage of labour with carbaprost. *J Obst and Gynae Ind* 1993 ; 734-37.