ACTIVE MANAGEMENT OF THIRD STAGE OF LABOR WITH CARBOPROST ($PGF_2\alpha$)

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SUMMARY

Post Partum Haemarrage is still one of the many factors for the high maternal morbidity and mortality that is prevalent in our country. Hence we at Nowrosjee Wadia Maternity Hospital decided to assess the efficacy of $PGF_2\alpha$ to decrease post partum blood loss in patients who had high risk to PPH. Accordingly 80 patients were inducated into this trial and were randomly assigned to either $PGF_2\alpha$ (250 ugms) given IM at delivery of the baby or Mathergin (0.2 mg) given IM at delivery of the baby. Our study revealed that in the $PGF_2\alpha$ group, the placenta was delivered averagely 4 mins 30 secs earlier than in the Mathergin group. Also the $PGF_2\alpha$ group had 36% less blood loss as compared to the Methergin group. Further the side-effects were markedly reduced in the $PGF_2\alpha$ group. Hence we conclude that $PGF_2\alpha$ is a better alternative to prevent PPH as compared to Mathergin, used widely in our country.

INTRODUCTION

The third stage of labor is always a time of anxiety which no obstetrician ever outlives. Days of watchful expectancy with masterly inactivity have been left miles behind. Plenty of studies are done to assess the usefulness of Ergot alkaloids and Oxytocin given by different routes during the third stage and puerperium. There are conflicting views over the efficacy of these drugs to reduce the postpartum blood loss and duration of placental separation. Hence we at Nowrosjee Wadia Maternity Hospital, Bombay, used another group of oxytocic namely 15 methyl analogue of $PGF_2\alpha$ (Carboprost) to assess its usefulness in the Active Management of third stage of Labour. Carboprost was chosen because in animal studies it was found to have a greater utero-selective action and less effect on the smooth muscles

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of intestinal tract and blood vessels. (Hess et al 1979)

MATERIALS AND METHODS

80 patients were inducted into this trial. All these patients were high risk for Post Partum Haemarrhage and were delivered vaginally. 40 patients were given 250 ugms Carboprost intramuscular and the rest 40 were given 100 (0.2 mg) Methergin intramuscular after delivery of the baby in a randomised fashion. Patients having heart disease, hepatic or renal impairments, known asthmatics or those having hypersensitivity to PG's were not included in the trial.

The timing of Gush of blood, Lengthening of Cord, Uterine Retraction were noted in both groups.

Placenta was delivered by Brandt-Andrews method of controlled traction in both groups. The blood loss was measured by keeping a receptacle to collect the blood. Both groups were monitored further for their pulse, Blood Pressure, and side effects if any.

OBSERVATIONS

Table I shows the various groups of patients included in both Groups. It was noticed that many of our High Risk patients had multiple indications for increased risk of Post Partum Haemarrhage, notable amongst them being prolonged 2nd stage, instrumental delivery, multiple gestations, medical disorders like Pregnancy induced Hypertension and Anaemia.

Table II shows the distribution by parity and episiotomy in both groups. It was observed by estimating the median blood loss for different groups of deliveries adjusted for other factors that multiparous except Grande Multiparous experience 33% less blood loss than primiparous and that an episiotomy increases the blood loss by 30%.

Table III shows the time for Retraction of Uterus, Cord Lengthening, Gush of blood and delivery of placenta. It was seen that there was a significant reduction in the mean time taken for various signs of placental separation and also the time range was significantly reduced. The

Table I

Distribution of High Risk Patient's

	Carboprost	Methergin
Prolonged 2nd Stage	12	10
Post dated	10	13
Previous H/O PPH	2	—
PIh	5	4
Forceps	8	10
Vaccum	12	7
Polyhydroamnios	4	2
Grande Multipara	2	2
Macro Somia (wt > 4 kg)	3	1
Chorioamnionitis	4	1
Anaemia	6	3
Twins	5	3
Previous LCCS	3	1

Table II

Distribution of Parity & Episiotomy in both Groups

	Carboprost	Methergin
Primiparous	28	24
Multiparous	12	16
Episiotomy	33	30

Table III

Mean Time & Range required for signs of placental separation and placental delivery in both groups

	Carboprost	Methergin
Retraction of Uterus :		
Mean	2 mins 27 secs	3 mins 15 secs
Range	25 secs to 3 mins 30 secs	45 secs to 5 mins
Gush of Blood :		
Mean	2 mins 37 secs	3 mins 45 secs
Range	30 ses to 5 mins	1 min 15 secs to 6 mins 20 secs
Lengthening of Cord :		
Mean	2 mins 45 secs	4 mins 25 secs
Range	40 secs to 5 mins 45 secs	1 min 30 secs to 7 mins 30 secs
Delivery of Placents :		
Mean	3 mins 30 secs	8 mins
Range	1 min 15 secs to 6 mins	2 mins to 9 mins 30 secs

placenta was delivered averagely 4 minutes 30 seconds earlier the Carboprost group than the Methergin group. (3 min 30 secs V/S 8 mins).

Table IV shows the blood loss in both groups. Carboprost group had 36% less blood loss than the Methergin group. We had no cases of Retained Placenta in both groups. In the Methergin group we had 3 cases of PPH which were subsequently treated with Carboprost.

Table V shows the various side-effects. In the Methergin group we had signifi cantly more side-effects than the Carboprost group. Also no patients in Carboprost group had Tacchycardia or increase in their Mean Blood Pressure as compared to

Table IV

Blood Loss seasured in the immediade post partum period in ml

	Carboprost	Methergin
Median	100	250
Mean	111	280
Range	20-410	100-700

Table V

Side Effects

	Carboprost	Methergin
Vomiting	6	8
Loose Motions	5	—
Headache	1	17
Tacchycardia (120/min)	—	15
Increase in Mean B.P. by more than 10mm mg	—	20

50% of patients in Methergin group who had increase in Mean Blood Pressure by 10 mm Hg and 37.5% who had Tacchycardia more than 120 beats/min.

DISCUSSION

The introduction of oxytocic drugs for the treatment of PPH has been regarded as "one of the enduring achievements of modern science." (Moir 1964) In India, PPH is still one of the most common causes of Maternal Mortality and Morbidity. Hence any means of reducing blood loss in the third stage without considerable side effects is welcome in labour and Postpartum care for the well being of mother and child.

Baumgartem (1983) compared uterine activity in the puerperium after the intramuscular administration of 500 ugms Carboprost or 2 I.U. Oxytocin or 0.2 mg Methergin. Carboprost acted most quickly (3.9 mins) followed by Oxytocin (4.4 mins) and Methergin (9.7 mins). Uterine activity stimulated by methergin lasted for 162 mins followed by Carboprost 102 mins and oxytocin 45 mins.

Walter Prendiville et al 1988 have reviewed nine published reports of controlled trials in which oxytocin drugs were compared and they found that the risk of PPH was reduced by about 40%. However of the nine reports, only one was of use of $PGF_2\alpha$, the rest being of oxytocin, ergometrine an their combinations.

Diana Elbourne et al 1988 reviewed various studies and have stated that oxytocin is superior to ergot alkaloids because it is less likely to predispose to delayed placental delivery and prolonged third stage and retained placenta that was found in the ergometrine group. Also Carboprost was superior to oxytocin which has higher incidence of water retention and water intoxication. Further side effects like headache, nausea, vomiting and hypertension were more common with ergots and oxytocin than with Carboprost.

Symes 1984, showed that ergot alkaloids suppressed Serum Prolactin levels and this may have an adverse effect on breast feeding.

Hence we conclude that intramuscular Carboprost helps in the Active Management of Third stage to reduce post partum blood loss and could shorten the Third stage without promoting a cascade of intervention.

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