PREVENTION OF BLOOD LOSS IN THIRD STAGE OF LABOUR BY PLACENTAL BLOOD DRAINAGE- A CLINICAL STUDY

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ABSTRACT

BACKGROUND

Placental cord drainage is a simple, safe and non-invasive method which reduces the duration and blood loss in the third stage of labour thereby preventing PPH. This method is of great use in day to day obstetric practices not requiring any extra effort, cost or equipment, so this type of practice is more relevant in rural areas.

The objectives of the study were-

1. To evaluate the effectiveness of placental blood drainage via umbilical cord in reducing duration and blood loss in third stage of labour.
2. Reducing the incidence of postpartum haemorrhage.
3. Decreasing the complications in third stage of labour and reduce maternal mortality.

MATERIALS AND METHODS

This study was carried out in 100 full term pregnant women admitted in the labour room in Gauhati medical college and hospital in the department of obstetrics and gynaecology since 1st August 2007 to 30th August 2008. Cases were divided into two. Study group and control group.

RESULTS

In control group the average duration of third stage was 7.41 minutes and in study group 5.57 minutes and p value was <0.001 which is very highly significant. The blood loss in third stage of labour was more in case of control group, the mean blood loss in control was 169.48 ml and study group was 110.38 ml after delivery of placenta. The post-partum haemorrhage was present in 2% of cases in control group while in study group it was present in 0% case.

CONCLUSION

Placental blood drainage is one of the additional components in active management of third stage of labour, which is safe, simple and non-invasive method. It reduces the duration of third stage of labour, amount of blood loss and decreases the duration of placental separation time.

KEYWORDS

PPH, Third Stage of Labour, Placental Blood Drainage, Controlled Cord Traction, Oxytocin.

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BACKGROUND

Postpartum haemorrhage is the most common and dreaded complication of third stage of labour. The commonest cause of maternal mortality is post-partum haemorrhage which accounts for about 25-30% of maternal mortality.[1] Placental cord drainage ia a simple, safe and non-invasive method which reduces the duration and blood loss in the third stage of labour thereby preventing PPH. This method is of great use in day to day obstetric practices not requiring any extra effort, cost or equipment, so this type of practice is more relevant in rural areas.

Placental cord drainage involved the clamping and cutting of the umbilical cord after delivery of the baby, afterward immediately unclamping the maternal side of the cord and allowing the blood to drain freely. This may be in conjunction with other intervention such as routine administration of oxytocin, controlled cord traction or maternal effort, which helps in early separation of placenta due to immediate placental blood release.

Moreover, this method used in women where iv fluid to be restricted and in whom methyl ergometrine is contraindicated due to pregnancy induced hypertension, CCF, pregnancy with heart disease, Rh negative blood group etc. Thus, these methods can be added as an additional component in the package of active management of third stage of labour.

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Aims and Objectives-

The study was carried out

1. To evaluate the effectiveness of placental blood drainage via umbilical cord in reducing duration and blood loss in third stage of labour.
2. Reducing the incidence of postpartum haemorrhage.
3. Decreasing the complication in third stage of labour and reduce maternal mortality.

MATERIALS AND METHODS

This study was carried out in 100 full term pregnant women admitted in the labour room in Gauhati medical college and hospital in the department of obstetrics and gynaecology since 1st August 2007 to 30th August 2008.

Selection of cases- Cases were divided into two. Study group and control group.

Inclusion criteria were as follows- 1. Full term pregnancy 2. Spontaneous onset of labour 3. Normal singleton pregnancy 4. Vertex presentation 5. Spontaneous vaginal delivery 6. No coagulation disorders.

Exclusion criteria were as follows- 1. Haemoglobin less than 7 g/dl 2. Over distended uterus (polyhydramnios, multiple pregnancy, large baby etc.) 3. Known coagulation disorder 4. Antepartum haemorrhage 5. Induced labour 6. Instrumental delivery.

Materials required for this study- 1. Stop watch 2. Special polythene bag 3. Kidney tray 4. Graduated cylinder 5. Inj. Oxytocin.

Study group- In the study group placental end of cut umbilical cord was unclamped immediately and it was cut and left open to drain blood in a graduated jar (cylinder) containing oxalate to prevent clotting of blood until the flow cease or signs of placental separation appeared i.e., whichever was earlier. Following delivery of shoulder inj. Syntocinon 10 U given IM. Placenta was delivered by controlled cord traction. The amount of maternal blood lost during the third stage of labour was collected in a special polythene bag which was designed as like as PPH bag. The duration of third stage of labour was calculated using a stopwatch.

Control group- In controlled group in whom after delivery of baby the umbilical cord was doubly clamped and cut and placenta was delivered by controlled cord traction. After delivery of anterior shoulder 10 U of syntocinon IM given. The amount of blood lost was collected in polythene bag. The duration of third stage of labour was calculated using a stopwatch. Separate pads were applied over the episiotomy site so that blood did not mix with blood that was lost during and after separation of placenta.

RESULTS AND OBSERVATION

After a detailed history taking, general physical examination, obstetric examinations were performed both in study and control group. Laboratory investigations and ultra sound of gravid uterus were performed in all cases. Those who fulfilled the inclusion criteria; informed consent was taken from them.

Altogether 100 cases were studied, out of 50 cases were in study group and remaining 50 cases were in controlled group.

In our study, out of 100 cases 53 cases were unbooked and remaining 47 cases were booked.

	No. of Cases	**Study Group**	**Control Group**
Booked cases	47	22	25
Unbooked cases	53	28	25
Total	**100**	**50**	**50**

Table 1

Majority of cases were from rural areas. Out of 100 cases 62 cases from rural area and 38 cases from urban area.

	No. of Cases	**Study Group**	**Control Group**
Rural	62	29	33
Urban	38	21	17
Total	**100**	**50**	**50**

Table 2

In majority of cases, the socio economic status was from middle classes.

	Study Group	**Control Group**
Middle class	35	40
Lower class	15	10
Total	**50**	**50**

Table 3

In our study, the mean age of subject in the two groups was comparable being 23.73 years in control group and 24.68 years in study group. The selection of study and control group was similar in that there has been no significant difference (p>0.05) between study and control group in respect of their ages, gravid and gestational age.

Variable	**Study Group**	**Control Group**	**p values**
	Mean ± S.D.	Mean ± S.D.	
Age	24.68 ± 4.54	23.73 ± 3.23	p>0.05
Gravid primi	22.25 ± 2.30	22.03 ± 2.09	p>0.05
Multi	28.63 ± 4.52	26.20 ± 2.49	p>0.05
Gestational age	39.3 ± 0.25	38.58 ± 4.43	p>0.05

Table 4

Majority of the women in both groups were primigravida. Total primigravida cases in control group were 30 cases and study group it was 30 cases and multigravida 20 and 20 cases in control and study group respectively.

	No. of Cases	Study Group	Control Group
Primi	60	30	30
Multigravida	40	20	20
Table 5			

In our study, most of the patients in both group belonged to 39 to 49 weeks of gestational age.

No. of Cases	Study Group	Control Group
40 weeks	23	27
39 weeks	19	17
38 weeks	8	6
Total	**50**	**50**
Table 6		

The 1st stage in control group was 7.56 hours and study group 7.03 hours and 2nd stage in control group was 64.12 minutes and in study group it was 59.02 minutes.

However, the difference in the duration of the third stage in the two groups was very highly statistically significant. In control group the average duration was 7.41 minutes and in study group 5.57 minutes and p value was <0.001 which is very highly significant.

Mean Duration of Stage ± S.D.	Control Group	Study Group	p value
First stage	7.56 ± 2.46 (hrs.)	7.03 ± 2.3 (hrs.)	p>0.05
Second stage	64.12 ± 37.48 (min.)	59.02 ± 22.48 (min.)	p<0.01
Third stage	7.41 ± 1.46 (min.)	5.57 ± 0.85 (min.)	p<0.001
Table 7			

In our study, the blood loss in third stage of labour was more in case of control group, the mean blood loss in control was 169.48 ml and study group was 110.38 ml after delivery of placenta. This difference was statistically significant. The p value of this study was p<0.001 which is very highly statistically significant.

	Primi gravid	Multi gravid
No. of cases	30	20
Range of blood loss	100 – 400 mL	90 – 500 mL
Mean blood loss ± S.D.	164.48 ± 63.37 mL	153.0 ± 84.01 mL
Table 8		

	Primi Gravid	Multi Gravid
No of case	31	19
Range of blood loss	70 – 170 mL	80 – 160 mL
Mean blood loss ± S.D.	110.38 ± 26.52 mL	112.92 ± 22.74 mL
Table 9		

The post-partum haemorrhage was present in 2% of cases in control group while in study group it was present in 0% case. In our study, there was no cases of retained placenta in study group and control group.

Complication	Control Group	Study Group	p value
Postpartum haemorrhage	1	0	p<0.01
Retained placenta	0	0	
Table 10			

Majority of the patient in study group and control group has duration of third stage ranging from 5 to 10 minutes and only two cases has duration of third stage of labour more than 10 minutes.

Duration of 3rd Stage (Minutes)	No. of Patients	Range of Blood Loss (ml)	Mean Blood Loss (mL)
1 – 5	7	90 – 140	117.11
5.1 – 10	42	110 – 400	150
10.1 – 15	1	500	500
Total	**50**		
Table 11. Control Group			

Duration of 3rd Stage (Minutes)	No. of Patient	Range of Blood Loss (mL)	Mean Blood Loss (mL)
1 – 5	16	90 – 160	103.92
5.1 – 10	34	110 – 170	114.02
10.1 – 15	0	0	0
Total	**50**		
Table 12. Study Group			

DISCUSSION

Giacalone et al[2] reported a randomized study comparing 239 women who had placental cord drainage with 238 women with expectant delivery of the placenta. The median value of duration of third stage of labour was 8 minutes in drainage group and 15 minutes in the control group.

In the present study, the duration of third stage of labour in both groups was less than Giacalone et al[2] report. The duration of third stage in study group was 5.57 minutes and control group it was 7.41 minutes.

Gulati et al[3] found that the duration of third stage of labour in the control group was 5.72 minutes and in the study group it was 2.94 minutes. Amounts of blood loss in the control group was 247.59 ml and in the study group it was 193.63 ml. But in the present study mean duration of third stage was 5.57 minutes in the cord drainage group compared to 7.41 minutes in the control group. Amount of blood loss in the present study was 110 ml after delivery of

placenta by controlled cord traction in the study group which was less than Gulati et al.[3]

Sharma et al[4] found mean duration of third stage of labour was 3.24 minutes and 3.2 minutes in the placental drainage group in contrast to 8.57 minutes and 6.2 minutes in controlled cord traction method in primigravida and multigravida respectively. In the present study, the mean duration of third stage was 5.57 minutes and 5.01 minutes in placental drainage group in primigravida and multigravida respectively.

Shravage J C et al[1] found the mean duration of third stage was 5.02 ± 1.71 minutes in cord drainage group compared to 7.42 ± 2.56 minutes in the control group. The average blood loss in the third stage of labour was 175.05 ± 118.15 ml in study group compared to 252.05 ± 145 ml in the control group. In the present study, the mean duration of third stage was almost same to Shravage J C et al.[1]

Soltani H et al[5] reported that cord drainage could impact the third stage of labour as the result show a significant reduction in the length of third stage of labour, but this should be interpreted with caution due to potential intervention bias. These values are same as in present study and values are statistically significant.

Botha.[6] showed in a series of women where no oxytocics were given, mean duration of third stage of labour was significantly longer when cord was clamped than with no clamping.

Reddy and Carey.[7] studied traditional management of the third stage of labour with umbilical vein injection of oxytocin. Those who received umbilical vein oxytocin had shorter third stage of labour i.e., 4.1 vs. 0.4 minutes. These values are lesser in comparison to our present study.

Thomas \et al[8] undertook a randomized study comparing women who had routine oxytocic management of third stage labour with cord drainage with a group of women without cord drainage. No difference was found either in duration of third stage of labour or in rate of retained placenta or in PPH.

Thilaganathan et al[9] compared cord drainage as a part of physiological management with oxytocic management of third stage of labour and concluded that active management resulted in reduction of length of duration of third stage of labour but does not reduce the blood loss when compared to physiological management in women at low risk of PPH.

Pierre F et al[10] concluded that the third stage was significantly higher in oxytocin injected group than in the non-oxytocin group. There was no significant difference between the two groups for retained placenta.

Cochrane database of systemic reviews studied the effect of placental cord drainage on the third stage of labour. They selected the randomized trial involving placental cord drainage as a variable within the package of intervention as part of the management of the third stage of labour and concluded cord drainage result in statistically significant reduction in the length of the third stage of labour.

CONCLUSION

Placental blood drainage is one of the additional components in active management of third stage of labour, which is safe, simple and non-invasive method. It has lesser complication, which make the obstetrician free of anxiety. It can be also used in women in whom intravenous fluids are to be restricted and methylergometrine is contraindicated.

Placental blood drainage reduces the duration of third stage of labour, amount of blood loss and decreases the duration of placental separation time. It is very difficult to come to draw concrete and reliable conclusion due to the small number of studies, limited nature and poor quality of the availability of data. So, we need further large scale randomized trials to determine impact of cord drainage on the management of third stage of labour.

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