



THE COMPARISON OF BLOOD LOSS AFTER VAGINAL DELIVERY BETWEEN PLACENTAL CORD DRAINAGE AND CORD CLAMPING BEFORE PLACENTAL DELIVERY IN ZANANA HOSPITAL, S.M.S. MEDICAL COLLEGE.

Gynecology

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ABSTRACT

Objectives: To compare blood loss after vaginal delivery between placental cord drainage and cord clamping before placental delivery.

Materials and Methods: A randomized controlled trial was done on 100 pregnant women who were admitted for vaginal delivery in Zanana Hospital during April 2017 to July 2018.

The patients were divided equally into two groups: a study group and a control group. In the study group, the placental cord was drained before placental delivery where as in the control group, the placental cord was clamped. Duration of third stage of labour and amount of blood loss in third stage were recorded.

Results: Median duration of the third stage of labor and postpartum blood loss were significantly different between two groups. Mean duration of third stage of labour in control group was 5.30 minutes and in study group was 3.50 minutes. P Value was <0.001 (t test) which is highly significant. Mean Blood loss during third stage of labour was 310.1 ml in control group and 262.0 ml in study group. P value was 0.001 The median blood loss in study group was lower than the control group (p<0.05).

Conclusion: Placental cord drainage can reduce amount of blood loss and the duration of the third stage of labor. This technique is safe, simple and noninvasive to practice for reducing amount of postpartum blood loss and no serious complications occurred.

KEYWORDS

Placental cord drainage, amount of blood loss, third stage of labor.

Introduction

Postpartum hemorrhage (PPH) is one of the most common causes of maternal death worldwide(1, 2). There are many causes of early postpartum hemorrhage, with the most common cause being uterine atony, which is caused by uterine overdistension,chorioamnionitis, tocolytic drugs, or prolonged labor.

Nowadays, the World Health Organization(WHO)(3) recommendation for the prevention of PPH is the active management of the third stage of labor, consisting of three steps: intramuscular administration of 10 units of oxytocin immediately after anterior shoulder is delivered; placenta was delivered by controlled cord traction technique; followed by uterine massage.

Furthermore, placental cord drainage in the third stage of labor involves unclamping the previously clamped and allowing the blood from the maternal side of placenta to drain freely, is one of the techniques for reducing postpartum blood loss and some complications, such as prolonged third stage, retained placenta.

According to the previous studies(4, 5, 6), showed that placental blood drainage is a noninvasive, simple and simple technique for shortening the length of the third stage labor and reducing the amount of postpartum blood loss.

The main objective is to compare blood loss after vaginal delivery between placental cord drainage and cord clamping before placental delivery in zanana Hospital, sms medical college Jaipur.

Materials and Methods

It is a randomized clinical controlled trial on 100 pregnant women admitted in labour ward at Department of Obstetrics and Gynecology, SMS Medical College Jaipur April 2017 to July 2018. Primis in the age group between 18-35 years, with term, singleton, alive pregnancy in vertex presentation with adequate liquor, average size fetus (E.F. weight 2-4kg) who were expected. Women were divided according to computer generated randomization table into 2 groups: -

- **Group-A(study):** where placental cord blood was drained (50 cases)
- **Group-B(control):** where placental cord blood was not drained

(50 cases)

Inclusion Criteria

- Primigravida
- Singleton term pregnancy
- Vertex presentation
- spontaneous vaginal delivery
- women with written and informed consent

Exclusion Criteria

- Hemoglobin less than 7 g/dL
- Over distended uterus
- Antepartum hemorrhage
- Instrumental delivery
- Coagulation disorders
- Medical disorders (chronic liver diseases, sickle cell anemia, pulmonary diseases, cardiac diseases, renal disease)
- IUD
- malpresentations

Detail history regarding age, parity, socioeconomic status, and period of gestation, duration of leaking & bleeding PV was noted. A detailed history was taken including complications of present pregnancy. General physical examination & obstetric examinations was done.

Previous Obstetric History:

Gravida, parity, number of abortions, duration of gestation, mode of delivery, 3rd stage complications, history of retained placenta, PPH and need for blood transfusion were noted.

Any significant past, family, personal, medical and surgical history was elicited.

Routine Investigations:

ABO-Rh, Hb, VDRL, TSH, LFT, RFT PBF, Urine complete microscopy was done. Blood sample was sent for cross matching.

All women were monitored carefully through the first and the second stages of labour with vital parameters and fetal heart rate. Those with

ineffective uterine contractions received augmentation with oxytocin as intravenous infusion or ARM or a combination of these as per the individual needs.

All the patients in the study group were counselled regarding the procedure of cord drainage and an informed consent was obtained. Immediately after delivery, the linen soiled with amniotic fluid was removed and the plastic calibrated bag was placed beneath the woman's buttocks for accurate blood loss.

In the study group the placental end of the cut umbilical cord was unclamped immediately after it is cut and left open for blood to drain in a vessel until the blood flow ceased. In the control group the placental end of the cut umbilical cord remained clamped. Blood lost in the third stage was measured in calibrated plastic bag which is placed under woman's buttock.

Prophylactic oxytocin- intramuscular oxytocin 10 IU mg for active management of the III stage of labour was given. After the signs for placental separation appeared, the placenta was delivered by Brandt-Andrews method of controlled cord traction in the both the groups.

Blood lost in the third stage of labour was measured by collecting the blood in a calibrated plastic bag taking care that the blood from episiotomy wound did not get mixed with the uterine loss. If there was excessive bleeding due to uterine atony, appropriate measures were instituted.

The mops used for episiotomy were separated & discarded. The duration of the third stage was calculated using a stop watch. Once the uterus was well contracted and the active bleeding had stopped, the remaining blood in the vagina was removed and a sterile sanitary pad was given.

The blood collected in the calibrated plastic bag was measured. The pulse rate, blood pressure and the state of uterus were noted immediately after delivery.

The women were kept under observation for the next two hours to watch for complications if any.

Results

One hundred pregnant women were recruited and were randomly divided into two groups, so that there were 50 participants in each group. For the baseline maternal characteristics, there were not a significant differences between the two groups in maternal age, religion, residence socioeconomic class and antenatal care. (Table 1.).

Table 1: Maternal demography.

	Control group (n=50)	Study group (n=50)	P value (<0.05= significant)
Maternal age (mean)	22.28	22.88	.398
Antenatal care			.5885
Booked cases	80%	78%	
Unbooked cases	20%	22%	
Religion			0.158
HINDU	86%	84%	
MUSLIM	14%	16%	
Residence			0.1284
URBAN	70%	72%	
RURAL	30%	28%	
Socio-economic Status			0.152
Lower	20%	18%	
Middle	80%	82%	
Upper	00%	00%	

There was a statistically significant difference in postpartum blood loss and duration of the third stage of labor.

Mean duration of third stage of labour in control group was 5.30 minutes and in study group was 3.50 minutes. P Value was <0.001 (t test) which is highly significant. (table 2)

Table 2 Distribution of Cases according to Duration of Third Stage of Labour

Duration of III stage in minute	Group A	Group B	Total			
	No.	%	No.	%	No.	%
01.0-03.0 minute	26	52	00	00	26	26
03.1-6.9 minute	24	48	46	92	70	70
07.0-10.0 minute	00	00	04	08	04	04
Total	50	100	50	100	100	100
Mean S.D.		3.50 2.39		5.30 1.39		
'p' value		0.001, Significant				

Mean Blood loss during third stage of labour was 310.1 ml in control group and 262.0 ml in study group. P value was 0.001. The median blood loss in study group was lower than the control group

($p < 0.05$) table 3). There were 00 and 05 cases of postpartum hemorrhage in the study and control groups, respectively. There were five cases in the control groups who had postpartum hemorrhage above 500 ml after completion of the third stage of labor. Among these five three had received a blood transfusion because of hypovolemic shock due to acute blood loss. PPH was not detected in the study group one patient require blood transfusion because of decreasing of hematocrit less than 30 percent after transfer to postpartum ward. There was statistically significant difference in PPH was observed between the two groups. Median duration of the third stage of labor and postpartum blood loss were significantly

different between two groups. In the both group, one case had cord rupture during placental delivery. There was one case in each group which require manual placental removal.

Table 3 Distribution Of Cases According To Amount Of Blood Loss

Blood loss in ml	Group A		Group B		Total	
	No.	%	No.	%	No.	%
0-100	2	4	-	-	2	2
101-200	12	24	05	10	17	17
201-300	16	32	24	48	40	40
301-400	18	36	13	26	31	31
401-500	2	4	3	6	5	5
Above 500	0	0	5	10	5	5
Total	50	100	50	100	100	100
Mean	262.0			310.1		
S.D.	88.6			103.3		
'p'	0.001, Significant					

Discussion

Our study showed postpartum blood loss and duration of the third stage of labor were significantly different in the study and control groups, while the general characteristics of participants were not different. On the other hand, the incidence of postpartum hemorrhage was statistically significant difference between two groups. The outcomes of this study were similar to the previous studies (7, 9, 10) which could reduce postpartum blood loss and short of duration of the third stage of labor. The mechanism of placental cord drainage is reduction of the uterine bulkiness that can make a good uterine contraction so that can reduce blood loss after delivery. Therefore, releasing blood from the umbilical cord in the maternal side is one of the techniques that can reduce duration of the third stage of labor and postpartum blood loss. Besides of PPH complications such as retained pieces of placenta, placental cord rupture, hypovolemic shock and blood transfusion were also decreased in the placental cord drainage group.

Therefore, placental cord drainage combined with the active management of the third stage of labor could reduce postpartum blood loss and improve postpartum complications. Regarding the safety of placental cord drainage, data from this study were congruent with Jebrory's study (12) that was simple, safe and noninvasive to practice, and there were no serious complications such as uterine inversion, retained placenta which was managed with manual placental removal,

or increased the incidences of PPH. On the other hand, the outcome of this study was in contrast to Leduc D et al.'s study(13) which did not recommend placental cord drainage as a routine practice in third stage of labor because there was no significant difference in PPH. However, every complication was dependent on the experience of the doctors. Although, there was statistically significant difference in postpartum hemorrhage between placental cord drainage and cord clamping groups besides this the other complications in the control group occurred more than the study group such as placental cord ruptured during placental delivery and hypovolemic shock who required blood transfusion. From these complications, the clinical benefit of placental cord drainage could reduce these serious complications.

Conclusion

Placental cord drainage could reduce postpartum blood loss and the duration of the third stage of labor. This technique was safe and simple and noninvasive to practice for reducing postpartum blood loss, and no serious complications occurred.

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