



## **Effect of placental cord blood drainage in vaginal delivery on the blood loss during third stage of labour**

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### **Abstract**

**Background:** To evaluate the effect of placental cord blood drainage in vaginal delivery on the blood loss during third stage of labour.

**Material and methods:** A total of 100 subjects were enrolled. Complete demographic and clinical details of all the subjects was obtained. The participants were low-risk pregnant women bearing a single, full-term live fetus. Following spontaneous vaginal delivery, after delayed cord clamping, a numbered envelope was opened to reveal the woman's group assignment. Immediately after the birth, all women received two ampoules of 10IU oxytocin intramuscularly as part of routine care provided. After the baby was delivered, the umbilical cord was clamped and severed. Another set of 100 controls not subjected to this procedure were enrolled as control group. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis.

**Results:** Spontaneous tearing was seen in 70 percent of the subjects of the placental cord drainage group and 76 percent of the subjects of the control group. Non-significant results were obtained while comparing the duration of third stage of labor, blood loss and mean haematocrit 48 hours postpartum among both the study groups.

**Conclusion:** Placental cord drainage had no effect in reducing duration or blood loss during the third stage of labour.

**Keywords:** Placental cord, vaginal delivery, labour

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### **INTRODUCTION**

Postpartum hemorrhage accounts for 127,000 deaths annually worldwide and its incidence is increasing in developed nations. It is the major cause of maternal mortality globally and the second cause of maternal mortality in Brazil. The active management during the third stage of labor is recommended as a preventive strategy.<sup>1</sup> Active management consists of measures to reduce the duration of the third stage of labor and the blood loss that occurs during this

stage. Uterotonics and immediate umbilical cord clamping are techniques that have been proposed. Uterine massage is no longer recommended for the prevention of postpartum haemorrhage and controlled cord traction has already been shown to be ineffective in vaginal deliveries. Current recommendations state that cord ligation should be postponed in view of the known benefits to the neonate.<sup>2-4</sup>

A different strategy for accelerating uterine emptying is placental cord drainage, which involves clamping and cutting the umbilical cord following delivery of the baby and then immediately unclamping the maternal end of the cord, allowing the blood to flow freely into a container until successful uterine emptying.<sup>5</sup> The few randomized clinical trials conducted to evaluate placental cord drainage have shown a significant reduction in the duration of the third stage of labor following drainage. A Cochrane review also revealed a reduction in the duration of the third stage of labor with placental cord drainage.<sup>6,7</sup> Nevertheless, placental cord drainage is still not used routinely in clinical practice. The purpose of the present study was, therefore, to determine the effectiveness of placental cord drainage in the third stage of labor.

## **MATERIAL AND METHODS**

The present study was conducted for evaluating effectiveness of placental cord drainage in the third stage of labor. A total of 100 subjects were enrolled. Complete demographic and clinical details of all the subjects was obtained. The participants were low-risk pregnant women bearing a single, full-term live fetus. Following spontaneous vaginal delivery, after delayed cord clamping, a numbered envelope was opened to reveal the woman's group assignment. Immediately after the birth, all women received two ampoules of 10IU oxytocin intramuscularly as part of routine care provided. After the baby was delivered, the umbilical cord was clamped and severed. The maternal end of the cord was then promptly unclamped, allowing the placenta's blood to freely drain into a container that wasn't being used to record blood loss. The chord was left clamped in the control group until the placenta was delivered. Both groups underwent the operation only after the delayed cord clamping. The amount of blood lost was determined by measuring the blood that was drawn into a plastic bag, put between the mother's buttocks right after birth, and then drawn into an appropriate stainless-steel receiver until the placenta was delivered. Another set of 100 controls not subjected to this procedure were enrolled as control group. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis.

## **RESULTS**

Mean age of the subjects of the placental cord drainage group and control group was 24.5 years and 23.9 years respectively. Median pregnancies among subjects of placental cord drainage group and control group were 2 each. Spontaneous tearing was seen in 70 percent of the subjects of the placental cord drainage group and 76 percent of the subjects of the control group. Non-significant results were obtained while comparing the duration of third stage of labor, blood loss and mean haematocrit 48 hours postpartum among both the study groups.

**Table 1:** Demographic data

Variable	Placental cord drainage	Control	P-value
Mean Age (years)	24.5	23.9	0.567
Pregnancies (median)	2	2	1
Parity (median)	0	1	0.11
BMI (Kg/m <sup>2</sup> )	27.3	27.8	0.64
Spontaneous tearing (%)	70	76	0.81

**Table 2:** Outcome

Variable	Placental cord drainage	Control	P-value
Duration of the third stage of labor (minutes)	12.3	11.7	0.74
Blood loss (ml)	268.2	241.9	0.66
Haematocrit 48 hours postpartum	34.6	33.1	0.92

## DISCUSSION

The placenta and foetal membranes are expelled towards the end of the third stage of labor, which starts right after the baby is born. It is preceded by uterine contraction and retraction to constrict the uterus and discharge the placenta with the least amount of bleeding. The third stage of labour can be controlled actively or passively, in which case the baby's umbilical cord is left attached until the placenta has been delivered and the blood in the placental compartment drains into the infant. After a baby is born, the umbilical cord is clamped and cut, and the maternal side of the cord is immediately unclamped to allow the blood to freely drain into a container. This may or may not be combined with other treatments like routine oxytocic medication administration (to compress the womb), controlled cord traction (providing tension to the cord while exerting counterpressure to the womb to deliver the placenta), or maternal effort.<sup>8-10</sup>

Mean age of the subjects of the placental cord drainage group and control group was 24.5 years and 23.9 years respectively. Median pregnancies among subjects of placental cord drainage group and control group were 2 each. Spontaneous tearing was seen in 70 percent of the subjects of the placental cord drainage group and 76 percent of the subjects of the control group. Non-significant results were obtained while comparing the duration of third stage of labor, blood loss and mean haematocrit 48 hours postpartum among both the study groups. Wu HLet al evaluated the existing evidence for the effectiveness of placental cord drainage in the third stage of labour. PubMed, Embase, the Cochrane Library, Web of Science, Google Scholar and 50 journals were searched up to the 4th of June, 2017. Randomized controlled trials comparing placental cord drainage with no cord drainage in the third stage of labour during vaginal delivery were included. Nine studies with 2653 participants were included. Compared with clamping the umbilical cord, umbilical cord drainage during the third stage of labour shortened the third-stage duration by 2.28 minutes (95% confidence interval (CI), -3.22 to -1.33), but did not reduce the amount of blood loss (-31.99 mL, -86.08 to 22.09). For women with normal vaginal deliveries, the incidence of postpartum haemorrhage was

reduced by 3%. Placental cord drainage is a simple and non-invasive procedure that should be considered after delayed cord clamping.<sup>10</sup> Our results were in concordance with the results obtained by Soltani, H et al, who searched the Cochrane Pregnancy and Childbirth Group's Trials Register. Randomised controlled trials comparing placental cord draining with no placental cord drainage as part of the management of the third stage of labour. Two review authors independently assessed the quality of trials and extracted data. This was then verified by the third review author who then entered the agreed outcomes to the review. Three studies involving 1257 women met our inclusion criteria. Cord drainage reduced the length of the third stage of labour (mean difference (MD) - 2.85 minutes, 95% confidence interval (CI) - 4.04 to - 1.66; three trials, 1257 women (heterogeneity:  $T^2 = 0.87$ ;  $Chi^2P=17.19$ ,  $I^2 = 88\%$ )) and reduced the average amount of blood loss (MD - 77.00 ml, 95% CI - 113.73 to - 40.27; one trial, 200 women). No incidence of retained placenta at 30 minutes after birth was observed in the included studies, therefore, it was not possible to compare this outcome.<sup>11</sup>

## **CONCLUSION**

In the current research, placental cord drainage had no impact on the duration of the third stage of labour or on postpartum blood loss.

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