Effect of placental cord blood drainage on duration of third stage of labour

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\textbf{ABSTRACT}

\textbf{Introduction:} Third stage of labour start after delivery of baby and continues till delivery of placental and membranes. Post-partum hemorrhage is most common complication of this stage.

\textbf{Objectives:} To compare the mean duration of third stage of labour in patients undergoing spontaneous vaginal delivery with and without placental cord blood drainage.

\textbf{Materials and Methods:} This randomized control trial was carried out in three tertiary care hospitals of Punjab, Department of Obstetrics and Gynecology, Allied Hospital, Faisalabad, Lady Aitcheson Hospital Lahore and Lady Willington Hospital Lahore. From 1\textsuperscript{st} July 2018 to 30\textsuperscript{th} December 2018, 188 cases (94 in each group) were selected using non probability consecutive sampling. Total 188 patients were enrolled in the study after taking informed consent and allocated into control and case group by lottery method. In control group cord was clamped from both sides while in case group cord was unclamped from other side and duration of third stage was noted for both groups. Ethical approval was taken from hospital ethical committee.

\textbf{Results:} The mean age was 29.06 ± 4.9 years with minimum age of 21 years and maximum age of 45 years. More patients belong to younger age group (20 years to 35 years) i.e. 119 while 69 belonged to elder age group i.e. 36 year to 50 years i.e. 63.2% and 36.7% respectively. Mean duration of third stage of labour in case group was 8.5±2.9 minutes and in control group 10.8±5.4 minutes. More distribution of patients in younger age group 20 -35 years and less in 36 to 50 years i.e. 67% and 33% respectively.

\textbf{Conclusion:} This study concluded that unclamping placenta from mother side significantly reduces the third stage of labour.

\textbf{Introduction}

Postpartum hemorrhage accounts for 127,000 deaths annually worldwide (1) and its incidence is increasing in developed nations (2). It is the major cause of maternal mortality globally (3, 4). The active management during the third stage of labor is recommended as a preventative strategy. Active management consists of measures to reduce the duration of the third stage of labor and the blood loss that occurs during this stage (5). Uterotonics and immediate umbilical cord clamping are techniques that have been proposed. Uterine massage is no longer recommended for the prevention of postpartum hemorrhage and controlled cord traction has already been shown to be ineffective in vaginal deliveries (6). Current recommendations state that cord ligation should be postponed in view of the known benefits to the neonate (6).

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 (7). 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 (8, 9). A Cochrane review also revealed a reduction in the duration of the third stage of labor with placental cord drainage (7). 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. The objective of this study is to compare the mean duration of third stage of labour in patients undergoing spontaneous vaginal delivery with and without placental cord blood drainage.

\textbf{Materials and Methods}

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Frequency of parity in sample patients was parity 1 were 26%, parity 2 were 17%, parity 3 were 24%, parity 4 were 23%, parity 5 were 6.9% and parity 6 were 2.6%. Duration of third stage of labour was 8.5 ± 2.9 minutes in case group while 10.8 ± 5.4 minutes. Data was cross tabulated for duration of labour and age, in younger age group duration was 9.6 ± 4.2 minutes while in elder age group patients of case group have mean duration of 9.9 ± 4.9 minutes. T value was 0.500 and p value was 0.617.

### Table 1: Primary maternal outcomes

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<tr>
<th>Primary maternal outcomes</th>
<th>Placental cord drainage mean SD</th>
<th>Control group mean SD</th>
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<tr>
<td>Duration of the third stage of labor (minutes)</td>
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<td>10.8 ± 5.4</td>
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<td>Blood loss (ml)</td>
<td>241 ± 50.5</td>
<td>199 ± 44.9</td>
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<td>Hematocrit 24–48 h postpartum</td>
<td>31.3 ± 3.4</td>
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Similarly cross tabulation was done for duration of third stage of labour and parity in parity ≤3 mean duration of third stage of labour was 9.9 ± 4.7 minutes and in parity > 3 mean duration was 9.3 ± 3.9 minutes. T test was 0.862 and p value was 0.390. Cross tabulation for duration of gestational age and duration of third stage of labour was also done, in ≤38 week of gestation mean duration was 9 ± 3.5 minutes and in <38 week of gestation mean duration of labour was 10 ± 4.8 minutes. T test was 1.435 and p value was 0.153.

### Table 2: Cross tabulation for duration of labour

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<th>Age Group</th>
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Discussion

The most important point in pregnancy is child birth or labour especially in third stage of labour which can complicate the normal process. Delivery of placenta is important and serves as end point of labour. Placental cord drainage involves the clamping and cutting of the umbilical cord after delivery of the baby but, afterwards, immediately unclamping the maternal side of the cord and allowing the blood to drain freely. This may be in conjunction with other interventions such as routine administration of oxytocin, controlled cord traction or maternal effort. The numbers of studies in this review were limited, but cord drainage seems to significantly reduce the length of third stage of labour (10).

The mean age of patients in our study was 33.87±5.5 years, more patients in younger age group and mean gestation age was 38.86 weeks. These results were similar with international studies. In international study mean gestation age was 39.8 week and mean age was 28 years. (11). An international study was carried out at Babylon University in 2010 and mean age varied between 26 to 29 years (12). Mean gestational age in another study was 38.2 weeks and mean age was 23 years. Around 88% of control group and 87% of study group of women belong to younger age group i.e. between 21 – 30 yrs. [13] In another study similar results were concluded, mean gestational age was 38.7 weeks in study group and 38.5 weeks in control group (14). These endorse the results of our study. The parity of patients was para 1 to para 6 and majority of patients were primigravida i.e. 24.5% which is similar to other studies i.e. para 1 to 6 (11). In another study, there were more primigravida in both control and study groups, when compared with multi gravid (13).

Mean duration of third stage of labour was 8.5 in case group and 10.8 in control group. There was significant difference in duration of third stage of labour between two groups. This matches the results of international studies in which mean duration in case group was 8 min and 15 minutes in control group, (11) while in another study mean difference between two groups was 5 minutes (15).

While in one international study no significant difference was found in duration of labour between two groups (16) while in another study the third stage of labor was significantly shorter in the cord drainage group than in the control group (3.5 ± 1.9 vs. 7.7 ± 3.4 minutes, respectively; p < 0.001) (17). A study was conducted in India in which two hundred pregnant patients with 37 or more weeks of gestation, with single live fetus in cephalic presentation, who underwent a spontaneous vaginal delivery, were included in the study. The baseline statistics in both the group were comparable. The duration of third stage of labour was 210.5 s in the study group and 302.5 s in the control group. The ‘p’ value was statistically significant (p ≤ 0.0001) (18). Data was cross tabulated for age, gestational age and parity. No significant p value was found.

Conclusion

Placental cord blood drainage reduces the duration of third stage of labour. Placental blood drainage does not need any extra cost, equipment or effort and it is a simple, non-invasive safe method that can be practiced even by midwives in rural settings as a part of management of third stage of labour in reducing the duration of third stage.

Conflict of Interest: This study has no conflict of interest to declare by any author.

Disclosure: None

Human and Animal Rights: No rights violated.

References


