ORIGINAL ARTICLE

BLOOD LOSS IN MANUAL EXTRACTION OF PLACENTA VERSUS SPONTANEOUS DELIVERY DURING ELECTIVE CESAREAN SECTION

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ABSTRACT

Background: Excessive bleeding is one of the major threats to women at childbirth. Blood loss during cesarean section is usually underestimated. The objective of this study was to compare the effects of manual extraction of placenta versus spontaneous delivery on blood loss during elective cesarean section.

Material & Methods: This comparative cross-sectional study was conducted in Department of Gynecology and Obstetrics, Military Hospital Rawalpindi from December 2009 to June 2010. Eighty-four patients were divided in two groups. In Group A placenta was delivered spontaneously by umbilical cord traction method and in Group B it was extracted manually. The hemoglobin concentration was estimated before cesarean section and 24 hours post-operatively. A drop in hemoglobin concentration of more than 2 g/dl was considered as significant blood loss. The significant blood loss of the two groups was compared using Chi-square test.

Results: The mean age in Group A was 24.5±1.92 years and in Group B 23.95±2.06 years. The mean drop in hemoglobin in Group A was 1.25±0.52 g/dl and in group B (1.86±0.66) g/dl. In Group A five (11.9%) patients had significant drop in hemoglobin and in Group B it was in 12 (28.57%) patients (p=0.02).

Conclusion: Manual removal of placenta during cesarean section is associated with more blood loss as compared to spontaneous removal by umbilical cord traction.

KEYWORDS: Cesarean section; Placenta; Blood loss; Hemoglobin.

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INTRODUCTION

Delivery of the baby by abdominal and uterine incision is known as Caesarean section (C-section). It is increasingly used as safe delivery for fetal and maternal reasons.[1] The overall rate of caesarean delivery has risen worldwide. In United States caesarean birth rate has increased from 5.5% to 15.2% during eight year interval.[2] However, C-section is associated with more blood loss than normal spontaneous vaginal delivery.[3] On average one litre of blood is lost during C-section. Various techniques have been tried to reduce this blood loss. Such techniques include finger splitting versus scissor cutting of incision, in situ stitching verses exteriorization and stitching of uterus and finally spontaneous or manual removal of the placenta.[3-5] The method of delivery of placenta may contribute to an increase or decrease in the morbidity of C-section.[6] In spontaneous delivery, placenta is delivered spontaneously by applying gentle traction on umbilical cord after the delivery of baby. There is significant heterogenicity for the duration of surgery, blood loss, and hematological outcomes in spontaneous delivery of placenta. In spontaneous delivery less blood loss, less decrease in hematocrit levels post-operatively and short hospital stay is observed as compared to manual extraction. Various studies have suggested that method of delivery of placenta plays a key role in determining the blood loss during C-section.[6-8] Research has shown that spontaneous delivery of placenta is associated with less blood loss than manual extraction.[9-11]

The objective of this study was to compare the effects of manual extraction of placenta versus spontaneous delivery on blood loss during elective C-section.

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MATERIAL AND METHODS

This comparative cross-sectional study was conducted in the Department of Gynecology and Obstetrics, Military Hospital Rawalpindi from December 2009 to June 2010.

The study was commenced after the approval of the Hospital Ethical Committee. The involved subjects were informed and consented. Eighty-four consecutive patients were divided in two groups. In Group A placenta was delivered spontaneously by umbilical cord traction method and in Group B it was extracted manually. It included full-term primigravida with normal placental localization scheduled for elective C-section under spinal anesthesia and falling in American Society of Anesthesiology (ASA) physical status I and II. Exclusion criteria included placenta previa, placenta accrete, placental abruption, previous uterine scar due to any reason, pregnancy with fibroid, multiple pregnancy, bleeding disorder, and patients using anticoagulants.

All the patients were admitted night before the date of surgery and prepared. Pre-operatively patients were monitored regularly for any signs of emergency C-section. Standard fetal monitoring including fetal movements, fetal heart sounds and fetal heart rate were carried out to diagnose fetal distress in all the patients.

C-sections were performed by consultant gynecologist under spinal anesthesia. The significant blood loss was assessed by measuring drop in hemoglobin concentration of more than 2 g/dl, 24 hours post-operatively, in comparison with pre-operative hemoglobin concentration. All patients underwent lower uterine segment C-section; and received one gram of intravenous cephradine, followed by oral cephradine 500 mg 8 hourly for 5 days.

The data was recorded using SPSS version 12.0. Descriptive statistics such as mean and standard deviation were calculated for age and drop in hemoglobin while frequencies of significant blood loss were calculated. The frequency of patients in two groups with significant blood loss was compared using Chi-square test. P-value less than 0.05 was considered statistically significant.

RESULTS

The mean age in Group A was 24.5±1.92 years (Range 21-29) and in Group B 23.95±2.06 years (Range 20-29). (Fig. 1)

The mean drop in hemoglobin in Group A was 1.05±0.52 and in group B 1.865±0.66. In Group A 5 (11.9%) patients had significant drop in hemoglobin i.e. >2 g/dl. In Group B 12 (28.57%) patients had significant drop in hemoglobin. The significant blood loss recorded on the basis of hemoglobin concentration of the two groups were compared using chi square test and p value was found to be 0.02. (Table 1). There was no fetal morbidity and untoward outcome during the C-sections.

Table 1: Blood loss in manual extraction of placenta versus spontaneous delivery during elective cesarean section

	Group A n (%)	Group B n (%)	p-value
Number of patients with significant drop in Hb%	5 (11.9%)	12 (28.57%)	0.02

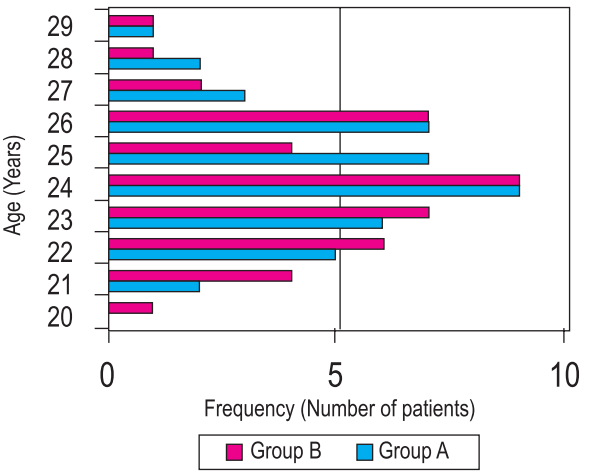

Figure 1: Age of patients of undergoing C-section.

DISCUSSION

In our study it was concluded that spontaneous delivery of placenta during caesarean section reduces significant blood loss.

Some previous trials showed a difference in estimated blood loss, in one trial a difference of 2.5 g/dl between pre and postoperative hemoglobin was taken to be significant criteria for blood loss,[12] in another study one g/dl difference in hemoglobin was taken to be significant,[11] in some other studies hematocrit values were compared pre and postoperatively[6,13,14] and in some trials volumetric and gravimetric methods of blood loss assessment were used.[15-17] There was also a difference of time interval between the two hemoglobin measurements. In some studies postoperative hemoglobin was measured 72 hours postoperatively.[17] In our study a difference of 2 g/dl hemoglobin pre and postoperatively (after 24 hours) was taken to be significant criteria for blood loss. A statistically significant difference in pre and post-operative hemoglobin percentage was found in the two groups. Some trials also took the number of blood transfusions and use of additional oxytocin into consideration.[17] In some studies only infective morbidity was studied in the two groups without giving prophylactic antibiotics[18,19] and in one study effect of uterine wiping was noted on post-operative infection rate.[20] In our study group prophylactic antibiotics were administered to all the patients in both the groups, as that is the routine practice in our hospital

so effect of placental removal method on infective morbidity was not studied. Some studies have also included the outcome of the rate of feto-maternal transfusions in the two groups. It was proven that manual method of removing the placenta increases feto-maternal blood transfusion rate.[12] In our study this parameter was not included.

The results of our study were comparable to most of studies in demonstrating that manual removal of placenta is associated with more blood loss when compared with spontaneous removal of placenta by cord traction method. 12 patients out of 42 in the Group B in whom placenta was removed manually had a drop of hemoglobin of 2 g/dl or more. Therefore there was a frequency of 28.57% of significant blood loss in Group B. The trial by Waqar et al[17] had a frequency of 19.4% of significant blood loss on the basis of drop of hemoglobin of 2 g/dl. Although in the same trial the significant blood loss on the basis of more than 1000 ml blood loss was found to be 26.8%.

As discussed earlier different trials set different criteria for defining significant blood loss, the end result was the same, that is manual removal of placenta was associated with significant blood loss. Dehbashi et al[11] had a frequency of 50% of significant blood loss on the basis of post-operative drop of hemoglobin of one g/dl or more.

On the other hand Group A which comprised of spontaneous removal of placenta had low frequency of significant blood loss in our trial like other studies. In our study the significant blood loss was found to be in 5 patients out of 42 in whom placenta was removed spontaneously giving a frequency of 11.9% which was low than the result for the other group that is 28.57%. The study by Waqar et al[17] has a frequency of 7.69% of significant blood loss on the basis of the drop of hemoglobin. While on the basis of more than 1000 ml blood loss this study revealed a frequency of 12.82% of significant cases. Dehbashi et al[11] had a frequency of 26% of significant blood loss.

The significant blood loss recorded on the basis of haemoglobin concentration of the two groups was compared using chi square test and p-value was found to be significant ($p=0.02$). Therefore our results were significant in proving that manual removal of placenta is associated with more blood loss.

There were some limitations of our study. The sample size was less as compared to some of the other studies.[6,11,17]

We also judged the significant blood loss on the basis of drop in hemoglobin while some studies included 2 or more criteria for assessing the significant blood loss. In addition to it some trials also compared the incidence of infections, duration of surgery, hospital stay and some other factors between manual and spontaneous removal of placenta. This gave a more insight into the effects of two methods of removal of placenta.

Since, we didn't include the patients who were given blood transfusions in our study. This was done to avoid any untoward maternal effects of blood loss or anemia. This may have affected the results by excluding few cases in which the blood loss was severe.

Therefore there is a need for further studies to be conducted in our local population with inclusion of more patients in the study. Furthermore other factors like post-operative infection, duration of hospital stay may also be studied.

CONCLUSION

Delivery of placenta with cord traction at caesarean section has more advantages compared to manual removal. Manual removal of placenta is associated with more blood loss as compared to spontaneous removal of placenta by umbilical cord traction.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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