

# Hemoglobin Drop Postoperatively and Blood Transfusion Necessity in Cesarean Section

Bushra Mehmood, Tanzila Rafiq and Khalid Majeed

## ABSTRACT

**Objective:** To assess the blood transfusion for Cesarean Section and blood drop postoperatively and haematocrit as well as to associate those parameters with the term between uterine incision and repair.

**Study Design:** Prospective observational study

**Place and Duration of Study:** This study was conducted at the Department of Obstetrics & Gynaecology, Shahida Islam Medical College Lodhran from September 2016 to August 2018.

**Materials and Methods:** A total of 121-females who experienced elective & emergency C-section were included. Hemoglobin post-cesarean drop and haematocrit and their connection with span of uterine manipulation were determined. %T (transfusion probability), Ti (transfusion index) and C/T ratio (crossmatch to transfusion) were additionally determined.

**Results:** 38% O positive blood group was found most frequently.  $1.52 \pm 1.27$  gm/dl average drop in hemoglobin in post cesarean and  $5.49 \pm 4.1\%$  haematocrit drop. Hemoglobin drop postoperatively and haematocrit had feeble and positive linear connection with period between uterine cut and fix. 1 was the C/T Ratio (crossmatch to transfusion ratio), 100% transfusion probability and 2 was the Ti (transfusion index).

**Conclusion:** Blood routine crossmatching is not necessary for C-Section. In emergency circumstances / conditions only blood grouping should be done with availability confirmation.

**Key Words:** Hemoglobin Drop, Cesarean Section, Blood Transfusion, C/T Ratio, Haematocrit.

**Citation of articles:** Mehmood B, Rafiq T, Majeed K. Hemoglobin Drop Postoperatively and Blood Transfusion Necessity in C-Section. Med Forum 2019;30(2):89-91.

## INTRODUCTION

In obstetric practice, obstetric hemorrhage is a most important leading cause of maternal mortality.<sup>1</sup> In developing countries, obstetric hemorrhage is a significant supporter of maternal mortality.<sup>2</sup> In obstetric practice, c-section identified as a general sign for blood transfusion since it includes danger of major intraoperative blood loss.<sup>3</sup> Diverse figures shifting from under 500-ml to in excess of 1000-ml have been cited as evaluated blood loss related with cesarean segment. For this surgery, in blood ordering practices a wide variation is also there. Throughout the most recent couple of years there has been developing concern for cost, safety and amplex of blood use.<sup>4</sup> Proof based health related programmes and policies intending to decrease maternal mortality require solid and substantial information.<sup>2</sup>

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Received: October, 2018

Accepted: November, 2018

Printed: February, 2019

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The point of this investigation is to empower enhancements in patients experience on blood use because of a fruitful review cycle.

Assess the blood ordering practice and transfusion for the purpose of c-sections is the main objective of this investigation, to see hemoglobin drop postoperatively and haematocrit and to connect the post-operative drop in those parameters with the term between uterine cut and fix.

## MATERIALS AND METHODS

Non randomized purposive sample of one hundred and twenty one (121) females who experienced elective & emergency c-section at obstetric department of Shahida Islam Medical Collage, Lohran were enrolled in this investigation during the period from September 2016 to August 2018 after obtaining formal approval from the hospital. In this present investigation those females were included who have normal haemostasis profile. Those females were excluded from study that has abnormal bleeding profile and females were also excluded who were on anti-coagulant therapy. Parameters included female age, c-section type (emergency or elective), incision uterus time and repair of uterus to determine time span in between, hemoglobin pre-operatively & haematocrit, time of bleeding as well as clotting time to exclude female with reading abnormally, group of blood, number of arranged blood units and for female pre-operative crossmatched and intra-operative transfuse units as well

as postoperatively. Blood arranged only refer for blood grouping and hold order to blood bank. At forty eight hours post-cesarean haematocrit and post-operative hemoglobin was done. SPSS latest version was used to analyze the collected data. C/T ratio (crossmatch to transfusion ratio), %T (transfusion probability) and Ti (transfusion index) were also calculated as shown in table-1.

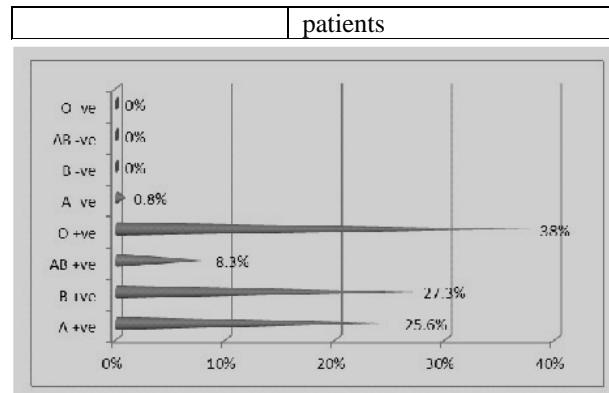
**RESULTS**

24.54 ± 4.27 was the mean age of the patients ranging from sixteen years to forty three years in this present study. 72.2% females out of all experienced emergency c-section whereas electively experienced was 27.3% females. O positive blood group was most frequently found (38%), followed by (27.3%) B positive, (25.6%) A positive, (8.3%) AB positive & (0.8%) A negative as shown in Figure 1.

12.23±1.13 gm/dl was the average hemoglobin postoperatively ranging from 8.6 gm/dl to 15.6 gm/dl. 39.36±3.98 percent average haematocrit preoperatively ranging from 28% to 52%. For female (8.6 gm/dl) lowest hemoglobin, arranged 4 blood units in which preoperatively 2 units were crossmatched. Intra-operatively 1 unit was transfused amongst crossmatched and 1 unit was transfused post-operatively. After receiving two units of blood transfusion the post-operative hemoglobin was again 8.6 gm/dl for this female. Non crossmatched two units were arranged for remaining all. 10.01±6.76 minutes average time between uterus incision and fix. 10.74±1.49 gm/dl was the average hemoglobin post-operatively and 33.97±4.51 percent was haematocrit. 1.52±1.27 gm/dl was the average hemoglobin drop and 5.49±4.1 percent was haematocrit drop. 6.6 gm/dl was the maximum dropped hemoglobin (20% haematocrit) and 0 gm/dl minimum (0% haematocrit). Hemoglobin drop post-operatively had feeble and positive linear association with span between cut and repair (r = 0.056) of uterus. The similar association (r = 0.083) was also shown by the haematocrit drop post-operatively. 1.58±1.36 gm/dl was the average hemoglobin drop at emergency surgery (5.53±4.54 percent haematocrit) whereas 1.36±0.96 gm/dl at elective surgery (5.36±2.63 percent haematocrit). 1 was the crossmatch to transfusion ratio, 100% transfusion probability and 2 was transfusion index (Ti).

**Table No.1: Blood utilization indicators**

C/T Ratio Crossmatch to transfusion	Crossmatched number of units
	Transfused number of units
%T Transfusion Probability	Transfused number of patients x 100
	Crossmatched number of patients
Ti Transfusion Index	Transfused number of units
	Crossmatched number of



**Figure No. 1: Blood group frequency**

**DISCUSSION**

Significant risk factors for blood transfusion were c-section indications and blood loss quantity during surgery. In majority of the patient’s blood transfusion can be anticipated due to acute hemorrhage on the basis of antenatal risk factors.<sup>5</sup> But during this surgery exact assessment of blood loss is difficult due to blood dispersion as well as blood being mix with amniotic fluid. Anesthesiologists frequently depend on clinical estimation of blood misfortune alone to direct the blood transfusion in the preoperative period in light of the fact that different techniques for estimation either may not be useful or accessible at all the occasions.<sup>6</sup>

In spite of the fact that the frequency of serious transfusion responses and diseases is presently low, as of late it has turned out to be obvious that there is an immunological cost to be paid for blood transfusion items which prompts expanded morbidity.<sup>7-10</sup> Furthermore, blood is a limited asset / resource with a restricted time span of usability and is related with extensive preparing costs. Therefore, usage of this finite resource needs basic survey to recognize overuse areas and in this manner decrease hazard to patients and clinic costs. Endeavors ought to be made to lessen the transfusion of blood without expanding maternal mortality and morbidity.<sup>5,6</sup> Past studies works additionally recommend taking out crossmatching for c-section without significant hazard factors.<sup>11,12</sup>

Presently the transfusion risk in relationship with c-section is low. However, placenta previa, pre-eclampsia, haemorrhage, pre-operative maternal anemia and hemolysis, elevated liver enzyme levels & platelet levels (HELLP) syndrome are altogether connected with transfusion risk.<sup>11,13</sup>

It has been demonstrated that a female can withstand post haemorrhagic haematocrit dimension of twenty percent. When hemoglobin comes to 7 gm/dl to 10 mg/dl and active bleeding or related comorbidities than blood transfusion might be suitable.<sup>4</sup> In our examination likewise, just blood transfusion offered was to a female giving ante-partum discharge whose hemoglobin was 8.6 gm/dl pre-operatively. To the

remaining three females, transfusion was not given whose hemoglobin was less than 10 mg/dl preoperatively.

2.5 ratio of crossmatch to transfusion is considered significant for utilization of blood. Correspondingly 30% transfusion probability is considered significant blood utilization indication.<sup>14</sup> In our investigation estimates were 1 and 100 percent individually. Among 121 females, for a female only two units were crossmatched and those two were used.

In a female post-cesarean level of hemoglobin relies on different factors such as during surgery amount of blood misfortune, during pregnancy iron store in body, lactation & BMI (body mass index). Sudden hemorrhage may happen with any control of the profoundly vascular term uterus. We endeavored to discover connection between uterine manipulation duration and hemoglobin drop post-operatively as well as haematocrit where both demonstrated feeble connection. In a study conducted by Faponle et al additionally discovered comparative outcome that the span of surgery did not affect transfusion of blood.<sup>15</sup> Different investigations demonstrated that breastfeeding was related with a decline risk of post-partum anemia though high pre pregnancy body mass index builds the risk.<sup>16,17</sup>

## CONCLUSION

For cesarean section there is no need of routine crossmatching of blood. In case of emergency situation only blood grouping with affirmation of accessibility should be done. Anyway, this careful review is based on short period and suggestion can not be summed up.

### Author's Contribution:

Concept & Design of Study: Bushra Mehmood  
 Drafting: Tanzila Rafiq  
 Data Analysis: Khalid Majeed  
 Revisiting Critically: Bushra Mehmood,  
 Tanzila Rafiq  
 Final Approval of version: Bushra Mehmood

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

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