



## Comparison of Various Factors Affecting Incidence of Blood Transfusion During Primary Cesarean Section in Primigravida and Multigravida

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## ABSTRACT

**Background:** Comparing various factors affecting the incidence of BT during PCS in primigravida and multigravida.

**Method:** This was a prospective study. Data regarding various factors affecting BT were collected from all patients who had PCS and results were compared between primigravida and multigravida using chi square test of significance.

**RESULT:** Multigravida had a higher incidence (15.27%) of BT compared to primigravida (2.94%). In primigravida antepartum eclampsia (28.57%) and failed progress (28.57%) were the most common indications. In multigravida, antepartum hemorrhage (76.2%) accounted for the same. Primigravida did not require more than 2 units of blood whereas 11.9% multigravida needed 3 or more units of BT.

**CONCLUSION:** In primigravida, a proper antenatal monitoring would reduce the incidence of anemia and antepartum eclampsia. Active management of labor with partograph should be done. In multigravida, apart from these, antepartum hemorrhage is to be well managed perioperatively.

## KEYWORDS

PCS (primary cesarean section), BT (blood transfusion)

## INTRODUCTION

Hemorrhage is the leading cause of maternal mortality in India (1). Blood transfusion is increasingly becoming an important part of obstetrics management. But the increasingly important issues in blood transfusion are adverse events associated with transfusion, including potential infection and potential transmission of prions, rising costs and the possible future problems of availability (2). The objective of this study is to define various risk factors for blood transfusion with the hope that it would help in patient awareness, perioperative planning as well as reducing the rates of transfusion.

## METHOD

This was a prospective study carried out in Umaid Hospital, Department of obstetrics and gynecology, attached to Dr.S.N. Medical College, Jodhpur from 1<sup>st</sup> march 2013 to 31<sup>st</sup> may 2013. All patients who had primary cesarean section during this period were calculated and those who had blood transfusion were considered as cases. Thorough history was taken and complete examination done. Records were taken regarding the booking status of patient and regarding whether patient resided at rural or urban area. Vitals were recorded and patients were closely monitored in labor room for fetal heart rate and progress of labor. Complete blood count report was obtained preoperatively and indication for cesarean section was noted before operation along with the nature of operation being emergency or elective. Any intraoperative or postoperative complication were observed and noted till the discharge of the patient from the hospital. Number of units of blood transfused was noted. Calculations were made separately for primigravida and multigravida and expressed in percentage and results were compared. For calculating percentage of various factors, total number of cases who had blood transfusion was taken as denominator. Statistical analysis was done by chi square test of significance and P value < 0.05 was considered significant.

## RESULT

Total 475 primigravida and 275 multigravida had primary cesarean section during the study period. As shown in table 1, Multigravida had a higher incidence (15.27%) of blood transfusion compared to primigravida (2.94%) (P value <0.001).

This reveals that multigravida is the primary target to be focused upon in order to reduce the rates of blood transfusion.

As revealed in table 2, in primigravida antepartum eclampsia (28.57%) and failed progress (28.57%) were the most common indications of cesarean section associated with blood transfusion. In multigravida, antepartum hemorrhage (76.2%) accounted for the same. Obstructed labor accounted for another important indication in both groups, though comparable in both groups. Thus, primigravida needs reduction in antepartum eclampsia as well as active labor management. In multigravida, antepartum hemorrhage comes out to be a real threat.

As depicted in table 3, various factors when compared between both groups, did not show significant difference. Thus, in both groups anemia was an important cause of blood transfusion. Almost all transfusions were done in emergency cesarean sections. Women not receiving antenatal care were more prone to have blood transfusion than booked women. Most common complication requiring blood transfusion was postpartum hemorrhage. In primigravida, 7.14% cases needed 2 units of blood whereas 21.43 % of multigravida needed 2 units. Also in primigravida, no case required more than 2 units of blood whereas in multigravida 11.9% cases needed 3 or more units of blood transfusions. This reveals that though various factors increasing the risk of blood transfusion are associated equally with both the groups but multigravida are affected more gravely than primigravida.

Table 4 shows that maximum transfusions were done in second gravida (30.95%) followed by fifth or more gravida (26.19%). Thus, a higher gravid status increases the risk of transfusion and is a condition to be avoided.

## DISCUSSION

In the present study, incidence of blood transfusion during primary cesarean section is significantly higher in multigravida (15.27%) than primigravida (2.94%). The incidence in primigravida is comparable to the study by Rouse et al wherein the incidence was 2.6% (3). Though the incidence in multigravida in the present study is higher than that in the study by

Rouse et al which had an incidence of 4.5% in multigravida (3). Kolawole A.O.D study in 2011 had an incidence of 14% of blood transfusion in primigravida undergoing cesarean section (4). Blood transfusion was given to 9.04% of multigravida in the study by Reddy et al (5). Study by A.A. Sobande et al had an incidence of 1% in primigravida and 4.3% in multigravida (6). Thus, though the incidence varies from population to population, the incidence is higher in multigravida than primigravida at all places. Therefore being a multigravida in itself is a risk factor for blood transfusion and should be managed carefully.

In the present study, the incidence of blood transfusion in primigravida was maximum in cases operated for antepartum eclampsia (28.57%) and failed progress (28.57%) followed by obstructed labor (21.43%). Fetal distress which was the most common indication of cesarean section, accounted for 14.29% of cases and rest 7.14% cases were due to malpresentation, primarily breech presentation. In multigravida, transfusion was mainly due to antepartum hemorrhage (76.2%) followed by obstructed labor (9.52%). Other indications in multigravida were failed progress, fetal distress, premature rupture of membranes and malpresentation. As per Rouse et al, hypertensive disorder increases the risk of blood transfusion during primary cesarean section and so do antepartum hemorrhage (3). Eyalade et al study also depicts antepartum hemorrhage to be associated with increased risk of blood transfusion (7). As per the study by Imberti et al, three conditions greatly increase the risk of bleeding and blood transfusion: placenta previa, abruptio placenta and coagulation disorders (8). Thus, in multigravida, a careful perioperative planning for management of antepartum hemorrhage is needed to reduce the rates of transfusion. In primigravida, good antenatal checkups would reduce the incidence of eclampsia and in turn blood transfusion. Active management of labor and early recognition of failure to progress satisfactorily by using partograph will reduce the incidence of obstructed labor as well as cesarean sections due to failed progress.

Also, present study reveals that although anemia, emergency operations, unbooked status and postpartum hemorrhage increases the risk of blood transfusion; but these factors are comparable in groups, primigravida and multigravida. Incidence of blood transfusion is equally prevalent in rural and urban population in both groups on further comparing the number of units of blood transfused to each group, 7.14% of primigravida had 2 or more units of blood transfusion whereas 33.33% of multigravida had 2 or more units transfused. This shows that though various risk factors prevail in both the groups in a comparable manner, but affect multigravida in a grave manner.

Amongst multigravida, second gravid constitutes 30.95% cases and fifth or more gravid makes 26.19%. In Rouse et al study, 37.83% transfusion were in second para whereas 9.90% were para 5 or more (3). Thus in present study, grand multigravida increased the risk of transfusion. It is a condition to be prevented.

Advantage of the present study is that being a prospective study, there was no case selection bias. The present study compares the various risk factors for blood transfusion during primary cesarean section on primigravida and multigravida. Hence to reduce the incidence of blood transfusion, besides general measure, the present study reveals what special measures are required in specific group.

Disadvantage of this study is that it is a single centre based trial. Another weakness is that few of the factors like effect of type of anesthesia have not been included.

**CONCLUSION**

Overall, the risk of blood transfusion is higher in multigravida. Maternal anemia, unbooked status, and women in labor are the risk factors in primigravida. A proper antenatal monitoring would reduce the incidence of anemia and antepartum

eclampsia. Use of partograph for active management of labor would not only help in early detection of the failure of progress but also reduce its incidence. In multigravida, apart from these, antepartum hemorrhage is to be well managed perioperatively. Grandmultipara is a situation to be avoided. There is need of improving the health status of women in reproductive age group and better implementation of family planning services.

**TABLES**

**Table 1**  
**Total cases of blood transfusion in primigravida and multigravida undergoing primary cesarean section**

Total cases	Primigravida	Multigravida	Significant P value
In number	14	42	<0.001
In percent	2.94	15.27	

**Table 2**  
**Comparison of Primigravida and Multigravida undergoing blood transfusion for various indications of primary cesarean section**

Indication of Primary cesarean section	Percentage of cases in Primigravida (n = 14)	Percentage of cases in Multigravida (n = 42)	Significant P value
Antepartum eclampsia	28.57	0	<0.001
Failed Progress	28.57	4.76	<0.02
Obstructed labor	21.43	9.52	
Fetal distress	14.29	4.76	
Malpresentation	7.14	2.38	
Abruptio placenta	0	52.38	<0.001
Placenta previa	0	23.82	<0.05
Premature rupture of membranes	0	2.38	

**Table 3**  
**Comparison of various risk factors affecting blood transfusion in Primigravida and Multigravida**

Factor	Percentage of cases in Primigravida (n = 14)	Percentage of cases in Multigravida (n = 42)	Significant P value
Anemia on admission	57.14	54.76	
Emergency cesarean	92.86	100	
Postpartum hemorrhage	42.86	38.09	
No antenatal checkup	71.43	66.67	
Rural population	50	47.62	
Transfusion of two units of packed red cells	7.14	21.43	
Transfusion of three or more units of packed red cells	0	11.90	

**Table 4**  
**Distribution of cases according to gravida status in Multigravida**

Gravida	Percentage of cases (n = 42)
Second	30.95
Third	21.43
Fourth	21.43
>Fourth	26.19

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