Journal of Research in Medical and Dental Science
2022, Volume 10, Issue 1, Page No: 281-284

Available Online at: www.jrmds.in
eISSN No.: pISSN No.2347-2545

Adverse Pregnancy Outcomes Associated with Preterm Caesarean Delivery

Wahida Memon[1], Sanober Qazi[2], Nazish Naqvi[3*], Meena Bai[4], Madhu Bala[5], Nazia Memon[6]

[1]Medical Officer, Department of Health, Tandoallahyar, Pakistan

[2]Department of Gynaecology and Obstetrics, Civil Hospital, Thatta, Pakistan

[3]Department of Gynaecology and Obstetrics, SESSI Kotri Hospital, Pakistan

[4]Resident Medical Officer Gynaecology and Obstetrics, Civil Hospital, Dow University of Health Sciences, Karachi, Pakistan

[5]Department of Gynaecology and Obstetrics, Muhammad Medical and Dental College, Mirpurkhas, Pakistan

[6]Registrar Gynaecology and Obstetrics, Civil Hospital, Hyderabad, Pakistan

ABSTRACT

Purpose: Cesarean delivery at a preterm age of gestation has been associated with maternal complications such as infection and bleeding. Though, earlier reports are contradictory and there is no harmony on this issue. Our goal was to explain the adverse effect of premature caesarean section by drawing attention to the maternal bleeding.

Place and Duration: In the Obstetrics and Gynaecology department of civil hospital Tandoallahyar Pakistan from 2018 to March 2021.

Study design: This retrospective analysis was done to compare the incidence of adverse maternal sequelae between term emergency Cesarean delivery and preterm emergency Cesarean delivery. This analysis encompassed 520 premature cases and 629 full term birth cases. The incidence of abnormal bleeding, definite as 1500 ml or above as the primary outcome, the secondary outcome was definite as the postoperative antibiotic administration rate and rate of blood transfusion as were analyzed. For confounding variables, Logistic regression analysis was done like primiparity, age of birth, obesity, placental abnormalities, history of uterine surgery, hypertension during pregnancy, impaired glucose tolerance, GA during surgery and premature rupture of membranes. As a secondary analysis, we compared the negative outcomes between classical Cesarean delivery, upper segment incision and inverted T incision in early emergency Cesarean delivery to examine the effects of the incision method.

Results: Premature caesarean section was characterized by an expressively high ratio of abnormal bleeding, transfusions and antibiotic use compared to term caesarean section. The classical incision was associated with a greater frequency of blood transfusions and antibiotic need among females with preterm delivery.

Conclusion: Premature caesarean section upsurges the maternal bleeding. This must be considered specifically in the context of premature preterm birth.

Key words: Cesarean delivery, Early preterm delivery, Blood transfusion, Adverse maternal events, Antibiotic management

HOW TO CITE THIS ARTICLE: Wahida Memon, Sanober Qazi, Nazish Naqvi, Meena Bai, Madhu Bala, Nazia Memon, Adverse Pregnancy Outcomes Associated with Preterm Caesarean Delivery, J Res Med Dent Sci, 2022, 10(1): 281-284

Corresponding author: Nazish Naqvi
e-mail ✉: niaz_h@hotmail.com
Received: 01/12/2021
Accepted: 31/12/2021

INTRODUCTION

When premature delivery is unavoidable, several reports have shown that caesarean section does not improve neonatal outcomes when caesarean section is indicated only in the case of premature delivery [1-2]. However, its rate is 57% as it provides a theoretical benefit to the child [3]. Though, there are limited studies on maternal complications related to early Cesarean delivery, and the negative effects on the mother are not yet fully understood [4-5].

It has been found that caesarean section at premature gestational age may increase the incidence of several

maternal problems [6]. There have been reports of a noteworthy rise in the incidence of postoperative pain, blood loss, sepsis, blood transfusions in females have Cesarean delivery at 25–34 weeks and increase incidence of uterine incision dehiscence in the subsequent pregnancy as compared to those with inferior segment Cesarean delivery [7]. In the meantime, Cesarean delivery comparison between the 24th and 36th weeks between lower segment Cesarean section and classical Cesarean section did not exhibit any substantial variance in terms of transfusion rate, postoperative bleeding, intestinal obstruction, infection, or temporary maternal problems till discharge [8-9]. Therefore, there is disagreement about the effect of an early Cesarean section on the mother.

This retrospective analysis was done to compare the incidence of adverse maternal sequelae between term emergency Cesarean delivery and preterm emergency Cesarean delivery.

MATERIALS AND METHODS

This is a retrospective study held in the Obstetrics and Gynaecology department of civil hospital Tandoallahyar Pakistan from 2018 to March 2021. The control group comprised of females who gave birth on time by emergency caesarean section. Females with uncontrolled complications such as coagulation disorders or uncontrolled epilepsy were not included, as well as females with severe complications of cardiac, renal, or respiratory function. For confounding variables, Logistic regression analysis was done like primiparity, age of birth, obesity, placental abnormalities, history of uterine surgery, hypertension during pregnancy, impaired glucose tolerance, GA during surgery and premature rupture of membranes. As a secondary analysis, we compared the negative outcomes between classical Cesarean delivery, upper segment incision and inverted T incision in early emergency Cesarean delivery to examine the effects of the incision method. Transfusions include platelets, FFPs, RBCS but not included autotransfusions. The attending physician decides whether to use blood products, considering total blood loss, vital signs and the degree of postoperative anemia. As per treating surgeons order, Antimicrobials were directed postoperatively.

The Confounding factors are definite as follows. Obesity has been definite as a BMI ≥ 30. Uterine surgery involved myomectomy and Cesarean section. Placental abnormalities involved the placenta previa, less than 2 cm from the internal orifice to the placental margins distinct as the low-lying placenta. Glucose intolerance was demarcated as gestational diabetes, diagnosis predating pregnancy or confirmed diabetes detected during gravidness. Hypertension in pregnancy includes 140 mmHg systolic blood pressure or 90 mg or more diastolic blood pressure after twenty weeks of pregnancy. Females with essential hypertension before pregnancy were also involved.

Data is presented as standard deviation, frequency (percentage) or mean (expected value). JMP Pro12 (Cary, NC 27513) is used for the statistical analysis. The Pearson $\chi 2$ test and one-way analysis of variance were used to compare the related results and respective backgrounds. The statistically significant level variance was defined as p less than 0.05. For confounding variables, Logistic regression analysis applied. The 95%confidence interval (CI) and odds ratio (OR) were also estimated.

RESULTS

During the study period, 1139 preterm delivery of singletons by emergency cesarean delivery were included in the study: 629 full term cases and 520 preterm births. Table 1 exhibits the backgrounds of both groups. 33 years was the median age for both preterm and full-term deliveries.

Table 1: Patient background.

	Preterm births	Full-term births	P value
	(n=520)	(n=629)	
Age (years)	32.9 ± 0.17	33.0 ± 0.16	0.75
Primiparity	266	452	<0.001*
BMI at delivery > 30	56	82	0.17
Abnormal placental position	41	7	<0.001*
Abnormal glucose tolerance	40	61	0.1
Hypertension during pregnancy	168	75	<0.001*
Prior history of uterine surgery	15	112	0.018*
Premature rupture of membranes	121	224	<0.001*
General anesthesia	113	74	<0.001*

Confounding factors with obvious differences; uterine surgery history, primiparity, hypertension in pregnancy, placental abnormalities, general anaesthesia, and premature rupture of membranes. Before correcting for errors, significantly greater blood loss was found at >1500 ml and a suggestively higher rate of transfusion in 50 and 47 respectively, as compared to full-term births in 30 and 19 females, However, the usage of antimicrobial

medicines during this period did not display a substantial variance between preterm delivery 130 and term birth 145 (Table 2). Surprisingly adjusted logistic regression analysis exhibited that the OR of the transfusion rate, analysis exhibited that the OR of the transfusion rate, usage of antimicrobials and preterm blood loss> 1500 ml were higher significantly in premature deliveries: 1.7, 1.1 and 1.7 compared to term births (Table 2).

Table 2: Logistic regression analysis for incidence of transfusion, incidence of usage of antimicrobial drugs and blood loss >1500 mL.

	Preterm Births (n=520)		Term Births (n=629)	P Value
	Freq.	Odds ratio (CI)	Freq.	Odds ratio
Blood loss >1500 mL	50	1.7 (1.25–2.83)	30	0.0016*
Use of antibiotics	130	1.1 (1.03–1.65)	145	0.0165*
Blood transfusion	47	1.7 (1.16–3.05)	19	0.0074*

DISCUSSION

The study shows that an early emergency caesarean section carries a high jeopardy of infection and bleeding in a pre-term delivery than term emergency caesarean section. In particular, the blood loss rate of 1,500 ml or more, the rate of transfusions, and the use of postoperative antibacterial agents were higher in preterm than in full-time deliveries [11-12]. The study of various methods of uterine incision, especially in early emergency caesarean sections, showed that classical incisions were characterized by a higher transfusion rate and a higher post-operative usage of antibacterial medications compared to low segment incisions. First, the described increases in transfusions and bleeding are reliable with earlier reports [13]. Reddy et al. stated that the risk of preterm caesarean bleeding increased compared to vaginal preterm delivery: bleeding of 1500 ml or above, hysterectomy or transfusion due to bleeding. Lao et al. They testified that early caesarean section was associated with uterine weakness and increased blood loss due to early vessel growth. A Combs et al. He reported that premature birth alone increases the risk of bleeding [14,15].

Second, in studies limited to early emergency caesarean section, this study showed that classical caesarean section requires more post-operative transfusions and antimicrobial medications as compared to incision at lower segment. Inconsistent data have been obtained from previous studies on incision complications. Halperin et al. They linked 165 classic incisions and 164 inferior segments and found no difference in the bleeding at 1000 ml or the frequency of transfusions among the 2 groups. The comparison of people who underwent cesarean section within a few weeks with a similar history of 31 classic and 31 lower incisions, and found that in a classical section, bleeding exceeded 1,000 ml and expressively reduces postoperative HB levels. There were no transfusions in either group. Patterson et al. reported that inverted T incisions and classical incisions have a higher percentage of postoperative transfusions and infections than lower segment incisions, including preterm deliveries and deliveries. Yogesh et al reported that comparing 102 lower segment incisions with 78 classical caesarean sections at 6 weeks, there was no variance in esteemed loss of blood, but the transfusion rate was higher with classical sections [16,17]. They also found no differences in the usage of antimicrobials in the postoperative period. In Patterson et al a study, Cases with or inverted T and classic T incisions are much common in preterm deliveries and support the results of this study. It also exhibited comparable outcomes for mean blood loss, but more transfusion rate constant with the current study. Comparing hemoglobin levels before and after surgery suggests that while there is no variance in loss of blood following premature C. section [18,19]. Between classic Cesarean section and lower section incision at 23-27 weeks; There was no difference in the frequency of ICU admissions and blood transfusions. They suggested the point was that the lower segment did not recede at weeks 23 to 27, and the risk of incision in the lower and lower segments was relatively equal [20,21].

This study has two limitations. First, the indications for urgent caesarean section are not discussed. Therefore, situations in which an early Cesarean section is indicated may include factors causing excessive bleeding. Second, because post-operative antibacterial are administered at the discretion of the treating physician, criteria for use may not reflect the actual infection risk. Though, this study included a comparatively big sample, counting preterm deliveries at 22 weeks, and found that early caesarean section carries an increased risk, even after considering the underlying factors that cause excessive bleeding. Excessive bleeding in the mother compared with caesarean section in full-term deliveries.

CONCLUSION

Taken together, this study shows that preterm Cesarean section is associated with increased bleeding and higher transfusion rates than in term deliveries by Cesarean section. A particularly classic incision increases this risk. These side effects should be assessed especially in the context of preterm birth.

REFERENCES

1. Bandoli G, Singh N, Strouse J, et al. Mediation of adverse pregnancy outcomes in autoimmune

conditions by pregnancy complications: a mediation analysis of autoimmune conditions and adverse pregnancy outcomes. Arthritis Care Rese 2020; 72:256-64.

2. Mitselou N, Hallberg J, Stephansson O, et al. Adverse pregnancy outcomes and risk of later allergic rhinitis—Nationwide Swedish cohort study. Pediatr Allergy Immunol 2020; 31:471-9.
3. Kısa B, Kansu-Celik H, Candar T, et al. Severe 25-OH vitamin D deficiency as a reason for adverse pregnancy outcomes. J Maternal Fetal Neonatal Med 2020; 33:2422-6.
4. Yi KW, Cho GJ, Park K, et al. Endometriosis is associated with adverse pregnancy outcomes: A national population-based study. Reproductive Sci 2020; 1-6.
5. Lewandowska M, Sajdak S, Więckowska B, et al. The Influence of maternal BMI on adverse pregnancy outcomes in older women. Nutrients 2020; 12:2838.
6. Hassan MF, Rund N, El-Tohamy O, et al. Does aerobic vaginitis have adverse pregnancy outcomes? prospective observational study. Infectious Dis Obstetr Gynecol 2020; 2020.
7. Ahmadzia HK, Khorrami N, Carter JA, et al. Impact of human immunodeficiency virus, malaria, and tuberculosis on adverse pregnancy outcomes in the United States. J Perinatol 2020; 40:240-7.
8. Ante Z, Luu TM, Healy-Profitós J, et al. Pregnancy outcomes in women with anorexia nervosa. Int J Eating Disorders 2020; 53:673-82.
9. Cao J, Zhang B, Liu Y, et al. Maternal age and adverse pregnancy outcomes: A population-based register study in Wuhan, China, 2011-2016.
10. Muyayalo KP, Huang DH, Zhao SJ, et al. COVID-19 and Treg/Th17 imbalance: Potential relationship to pregnancy outcomes. Am J Reproductive Immunol 2020; 84:e13304.
11. Dubey P, Reddy S, Manuel S, et al. Maternal and neonatal characteristics and outcomes among COVID-19 infected women: An updated systematic review and meta-analysis. Eur J Obstetr Gynecol Reproductive Biol 2020.
12. Sun YY, Juan J, Xu QQ, et al. Increasing insulin resistance predicts adverse pregnancy outcomes in women with gestational diabetes mellitus. J Diabetes 2020; 12:438-46.
13. Di Mascio D, Khalil A, Saccone G, et al. Outcome of coronavirus spectrum infections (SARS, MERS, COVID-19) during pregnancy: a systematic review and meta-analysis. Am J Obstetr Gynecol 2020; 2:100107.
14. Pergialiotis V, Bellos I, Fanaki M, et al. The impact of residual oligohydramnios following preterm premature rupture of membranes on adverse pregnancy outcomes: a meta-analysis. Am J Obstetr Gynecol 2020; 222:628-30.
15. Joubert B, García-Serra A, Planagumà J, et al. Pregnancy outcomes in anti-NMDA receptor encephalitis: case series. Neurol Neuroimmunol Neuroinflamm 2020; 7.
16. Gu W, Lin J, Hou YY, et al. Effects of low-dose aspirin on the prevention of preeclampsia and pregnancy outcomes: A randomized controlled trial from Shanghai, China. Eur J Obstetr Gynecol Reproductive Biol 2020.
17. Masturzo B, Franzè V, Germano C, et al. Risk of adverse pregnancy outcomes by pre-pregnancy body mass index among italian population: A retrospective population-based cohort study on 27,807 deliveries. Arch Gynecol Obstetr 2019; 299:983-91.
18. Zhang T, Zhou W, Tan Q, et al. Socioeconomic status of pregnancy outcomes in Chongqing, Southwest China.
19. Mirzamoradi M, Aslanpour M, Bakhtiari MB, et al. Evaluation of pregnancy outcomes in Iranian women with uterine myomas. Novelty Biomed 2020; 8:142-5.
20. Zhang C, Yang Y, Chen R, et al. Aberrant expression of oxidative stress related proteins affects the pregnancy outcome of gestational diabetes mellitus patients. Am J Translational Res 2019; 11:269.