

ORIGINAL RESEARCH

Retrospective Analysis of Anesthetic Management in Cesarean Section of Pregnant Women with Placental Anomaly: An Institutional Based Study

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ABSTRACT

Background: The present study was conducted for evaluating anesthetic management in cesarean section of pregnant women with placental anomaly.

Materials & Methods: Records of a total of 100 patients who underwent cesarean section were enrolled. Complete demographic and clinical details of all the subjects was obtained from record files. Only those patient's data were enrolled among which confirmed diagnosis of placental location and invasion anomaly was present. All the patients were divided into two study groups as follows: Group A: Included patients with placenta previa (PP), and Group B: patients with placenta accreta (PA). The level of emergency of the operation, anesthetic method and interventional procedures was recorded separated in a Performa.

Results: Data of 100 patients were divided into two study groups as follows: Group A: Included patients with placenta previa (PP), and Group B: patients with placenta accreta (PA); with 50 patients in each group. Significantly higher operative time and lower gestational age was seen among subjects of group B in comparison to group A. Most of the subjects of group B underwent C section under general anesthesia. Time for mechanical ventilation, duration of ICU stays and blood loss was significantly higher among subjects of group B.

Conclusion: There might be a need for numerous anesthetic interventions in subjects with placental anomalies, primarily placenta accreta (PA).

Key words: Cesarean, Pregnant, Placental.

INTRODUCTION

The placenta attaches to the uterine wall and allows metabolic exchange between the fetus and the mother. The placenta has both embryonic and maternal components. The embryonic portion comes from the outermost embryonic membrane. The maternal portion develops from the decidua basalis of the uterus. The placental membrane separates the embryonic blood from maternal blood but is thin enough to allow diffusion and transport of nutrients and waste. A normal placenta is round or oval-shaped and about 22 cm in diameter. It is 2 cm to 2.5 cm thick and weighs about a pound.¹⁻³

Placental abnormalities with respect to location and anatomy in pregnancy include low-lying placentas, placenta previa and abnormally invasive placentas. These conditions form a risk of antepartum, intrapartum and postpartum hemorrhage. In addition, they can affect placental functions and interfere with maternal or fetal well-being. The etiology of these abnormalities is not well understood and their incidence is increasing, predominantly caused by the rising cesarean section rate. Other factors that affect the incidence are prior uterine surgeries or curettage, maternal age and multiparity. In addition, the incidence of a low-lying placenta and placenta previa is increased due to endometriosis, smoking, previous placenta previa and assisted reproductive technology.³⁻⁵

The optimum time for planned delivery for a patient with placenta accreta is around 34-35 weeks following corticosteroid injection. The successful management of placenta accreta includes a multidisciplinary care team approach relying heavily on the prenatal diagnosis of this entity and preparing for surgical management.^{6,7} Hence; the present study was conducted for evaluating anesthetic management in cesarean section of pregnant women with placental anomaly.

MATERIALS & METHODS

The present study was conducted for evaluating anesthetic management in cesarean section of pregnant women with placental anomaly at Mahatma Gandhi Institute of Medical Sciences, Sewagram, Wardha, Maharashtra, India. From the archival data, records of a total of 100 patients who underwent cesarean section were enrolled. Complete demographic and clinical details of all the subjects was obtained from record files. Only those patient's data were enrolled among which confirmed diagnosis of placental location and invasion anomaly was present. All the patients were divided into two study groups as follows: Group A: Included patients with placenta previa (PP), and Group B: patients with placenta accreta (PA). The level of emergency of the operation, anesthetic method and interventional procedures was recorded separated in a Performa. All the results were recorded in Microsoft excel sheet and were analyzed using SPSS software.

RESULTS

Data of 100 patients were divided into two study groups as follows: Group A: Included patients with placenta previa (PP), and Group B: patients with placenta accreta (PA); with 50 patients in each group. Mean age of the patients of group A and group B was 31.8 years and 32.1 years respectively. Mean BMI of the patients of group A and group B was 27.6 Kg/m² and 28.3 Kg/m² respectively. Mean gestational age of subjects of group A and group B was 35.9 weeks and 32.7 weeks respectively. Mean operative time among subjects of group A and group B was 61.6 minutes and 82.1 minutes respectively. Significantly higher operative time and lower gestational age was seen among subjects of group B in comparison to group A. Most of the subjects of group B underwent C section under general anesthesia. Time for mechanical ventilation, duration of ICU stays and blood loss was significantly higher among subjects of group B.

Table 1: Demographic details

Variable	Group A (n=50)	Group B (n=50)	p-value
Mean age (years)	31.8	32.1	0.84
Mean BMI (Kg/m ²)	27.6	28.3	0.75
Gestational age (weeks)	35.9	32.7	0.01*
Operative time (minutes)	61.6	82.1	0.00*

*: Significant

Table 2: Type of anesthesia

Type of anesthesia	Group A N (%)	Group B N (%)	p-value
General	35 (70%)	48 (96%)	0.001*
Spinal	15 (30%)	2 (4%)	

*: Significant

Table 3: Biochemical variables

Biochemical variables	Group A	Group B	p-value
Preoperative HB (g/dL)	12.1	11.8	0.34
Postoperative Hb (g/dL)	11.4	11.1	0.71
Postoperative pH	7.69	7.51	0.59
Mechanical ventilation (hour)	5.9	51.7	0.00*
Duration of ICU stay (days)	2.9	4.1	0.00*
Blood loss (ml)	862.8	1971.2	0.01*

*: Significant

DISCUSSION

The placenta is the first organ to form during mammalian embryogenesis. As the vascular interface between maternal and fetal circulation systems, the placenta plays a crucial role in nutrient, gas, immune, and toxic substances transfers or barriers between mothers and fetuses. Hence, placental development and function are essential for developing mammalian embryos in the uterine environment. However, if the placental development or function is impaired, or the capacity to adapt to adverse environmental exposures is exceeded, intrauterine fetal development and long-term health in childhood and even adulthood may be compromised. Altered fetal growth and placental abnormalities are the strongest and most prevalent known risk factors for stillbirth. However, most pregnancies with placental abnormalities or fetal growth aberrations do not result in stillbirth. An understanding of these interrelationships may contribute to a better understanding of stillbirth mechanisms.⁶⁻⁹ Hence; the present study was conducted for evaluating anesthetic management in cesarean section of pregnant women with placental anomaly.

Data of 100 patients were divided into two study groups as follows: Group A: Included patients with placenta previa (PP), and Group B: patients with placenta accreta (PA); with 50 patients in each group. Significantly higher operative time and lower gestational age was seen among subjects of group B in comparison to group A. The risk of abnormal invasive placentation is higher when the caesarean with placenta previa is occurred. Regional anesthesia for cesarean delivery in women with placenta previa is safe. Delivery should take place at an institution with adequate blood banking facilities. The incidence of placenta accreta is rising, primarily because of the rise in cesarean delivery rates. This condition can be associated with massive blood loss at delivery. Prenatal diagnosis by imaging, followed by

planning of peripartum management by a multidisciplinary team, may help reduce morbidity and mortality. Women known to have placenta accreta should be delivered by cesarean, and no attempt should be made to separate the placenta at the time of delivery. The majority of women with significant degrees of placenta accreta will require a hysterectomy (Oyelese Y et al).¹⁰ An elective cesarean delivery and planned puerperal hysterectomy is the traditional approach to the management of placenta accreta with a hysterectomy rate of 98% according to one retrospective cohort study. Nowadays, with recent advances in endovascular procedures, uterine sparing management can be offered to selected patients. During this 'conservative' approach, the placenta may be left in place followed by selective uterine artery embolization or inflation of angioballoons. Resorption of the retained poorly perfused placenta can be augmented by concurrent treatment with methotrexate.¹⁰⁻¹²

Most of the subjects of group B underwent C section under general anesthesia. Time for mechanical ventilation, duration of ICU stays and blood loss was significantly higher among subjects of group B. In another study conducted by Binici O et al, authors evaluated intraoperative anesthetic management, postoperative follow-up, clinical features, and fetal wellbeing in patients undergoing cesarean section due to placental invasion anomalies in a tertiary health center. The study evaluated a total of 92 patients that underwent cesarean section due to placental invasion anomalies, including 49 patients with placenta previa, 42 patients with placenta percreta, and one patient with placenta accreta. Of the 92 patients, 59 (64.1%) patients underwent general anesthesia, 31 (33.7%) underwent spinal anesthesia, and two (2.2%) underwent spinal anesthesia followed by general anesthesia. Hysterectomy was performed in four patients, including three patients who underwent general anesthesia and one patient who started with spinal anesthesia and subsequently switched to general anesthesia prior to a hysterectomy. The Apgar scores at min 1 and min 5 after the induction of anesthesia were significantly lower in patients who underwent general anesthesia as compared to those who underwent spinal anesthesia. The duration of surgery and intraoperative blood loss were significantly higher in patients with placenta percreta as compared to other patients.¹³

CONCLUSION

There might be a need for numerous anesthetic interventions in subjects with placental anomalies, primarily placenta accreta (PA).

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