

AN APPRAISAL OF ANAESTHETIC TECHNIQUE OF PARTURIENTS WITH PLACENTA PREVIA THAT UNDERWENT CAESAREAN SECTION IN A TERTIARY INSISTUTION NORTH-CENTRAL NIGERIA

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ABSTRACT

Background: Placenta praevia is one of the major causes of massive obstetric haemorrhage and can result in increased maternal, foetal, neonatal morbidity and mortality. The choice of Anaesthesia for its caesarean section is still controversial.

Methods: A retrospective review of the medical records of patients with placenta praevia, who underwent caesarean section from January 2016 to December 2017 at the University of Ilorin Teaching Hospital (UITH) was accessed.

Result: A total of 1294 Caesarean section was done over the reviewed year, out of which 47 (3.6%) patients had caesarean section for placenta praevia. The mean age of the patients was 31.22 ± 5.12 (SD), and most of the parturients were ASA II 29 (61.7%). Most of the surgeries were done has emergency 41 (87.2%). There were more anteriorly placed placenta 32 (68%) than posterior location 15 (32%). The commonest placenta grade was III 25 (56.8%). Majority of the cases 30 (63.8%) were done under spinal anaesthesia among which 26 were Grade II and III, while 4 cases were Grade IV. There was no significant difference between anaesthetic techniques and blood loss, $p = 0.320$. Only one case, done under general anaesthesia (GA) eventually had a caesarean hysterectomy. Patients with spinal anaesthesia had better neonatal outcome ≥ 7 compared with those done under GA and it was statistically significant $p = 0.000$.

Conclusion: Spinal anaesthesia was the predominant anaesthetic technique used in this series, therefore caesarean section for parturient placenta previa can be successfully be done under spinal anaesthesia.

Keywords: Anaesthesia; Caesarean section; Placenta praevia.

INTRODUCTION

Placenta previa occurs when the placenta grows in the lower uterine segment over or near the internal cervical osseous, it is an obstetric complication which usually occurs in the second trimester of pregnancy.^{1,2} The incidence of placenta previa in the developed is between 0.29% and 1.24%.³ In Nigeria an incidence of 0.24% of the total deliveries in an unselected obstetric population was reported from Ibadan, 0.02% from Lagos, 0.96% from Benin and 1.6% from Ilorin.^{4,5} Placenta previa, is the most common cause of obstetric haemorrhage and can result in maternal and fetal morbidity and mortality.⁶ As a result, many anaesthetists prefer the use of general anaesthesia to regional anaesthesia due to the risk of excessive bleeding and shock that may ensue.⁷ Surveys also show a wide variation in practice among anaesthetist with the majority (>80%) now willing to consider regional anaesthesia for placenta previa depending on the position of the placenta, the urgency of the situation and the extent of any continuing antenatal blood loss.⁸ Therefore the ideal anaesthetic technique for a parturient with placenta previa for caesarean delivery still remains controversial and a dilemma for the attending anaesthetist.⁹ We, therefore, saw

the need to do a retrospective analysis of the patients that had caesarean section due to placenta previa in order to analyse the various anaesthetic techniques used and their eventual outcomes.

MATERIALS AND METHOD

This was a retrospective review of all parturients with placenta previa who underwent caesarean deliveries between 1st January 2016 and 31st December 2017 from the anaesthetic chart, anaesthetic theatre records and medical records of the University of Ilorin Teaching Hospital (UIH). Patient's demographic data, parity, gestational age, nature of caesarean section was either elective or emergency which was defined as absence or presence of labor, ASA physical status, location of the placenta, the grade of the placenta, anaesthetic technique used, estimated blood loss, cadre of the anaesthetist, cadre of surgeon, the time of the day surgery was performed (normal hours or abnormal hours) and abnormal hours was defined as any surgery done between 4pm and 8am, maternal duration of hospital stay, maternal and fetal outcomes were recorded. Data were analysed and presented as frequencies, percentages and categorical data was analysed using Chi-square and Fisher's exact test as appropriate using statistical package for social sciences (SPSS software version 22). A p-value of < 0.05 was considered statistically significant.

RESULTS

A total of 1294 Caesarean section was performed over the reviewed year, out of which 47 (3.6%) patients had caesarean section for placenta praevia. Table 1 shows the socio-demographic characteristics and reproductive variables of parturients that had caesarean section due to placenta praevia. Most of the parturients were below 35 years 35 (74.5%) and 12 (25.5%) ≥ 35 years. The mean age was 31.22 ± 5.12 . Only 1 (2.1%) of the parturient was a primigravida while 32 (68.1%) and 14 (29.8%) were multigravida and grand multigravida respectively. Only 10 (21.3%) has

had previous caesarean section. Most of the parturients were ASA II 29 (61.7%) and 41 (87.2%) of the caesarean section was done as an emergency. Majority of the parturients 43 (91.5%) presented with a history of antepartum bleeding out of which 17 (39.5%) had general anaesthesia while 26 (60.5%) had spinal anaesthesia, all the 4 (100) parturients that did not present with antepartum bleeding had spinal anaesthesia. Most of the surgery and anaesthesia were performed by the senior registrar, surgery 43 (91.5%) and anaesthesia 37 (78.7%) respectively. The surgeries were mostly done at abnormal hours 27 (57.5%).

Table 2 shows that spinal anaesthesia 30 (63.8%) was the most frequently used anaesthetic technique while GA was only 17 (36.2%). Most of the placenta was located anteriorly 32 (68%) than posteriorly 15 (32%).

Table 3 shows that spinal anaesthesia 30 (63.8%) was used for various grades of placenta praevia from grade II to IV for which the highest was 16 (53.4%) for grade III placenta praevia. However, there was no statistical significance between the different anaesthetic techniques used and the grade of placenta praevia $p=0.603$. There was also no statistical significance between the various anaesthetic techniques used and intra operative blood loss $p=0.320$.

Table 4 shows that there was no statistical significance in the parturients that needed vasopressor and the technique of anaesthesia used, $p=0.447$. However, transfusion occurred more in the parturients that had general anaesthesia and it was statistically significant $p=0.032$.

Table 5 shows that all the 30 (100%) parturients that had their caesarean section performed under spinal anaesthesia had a better neonatal outcome Apgar score of ≥ 7 in 5 minutes when compared to those performed under general anaesthesia and it was statistically significant $p=0.000$.

Two (4.2%) stillbirths were recorded and both parturients had their caesarean section performed under general anaesthesia and one parturient whose caesarean delivery was also performed under general anaesthesia eventually

had caesarean hysterectomy. No maternal death was recorded.

Table 1: Socio-demographics reproductive variables and placenta praevia. n=47

Variables	Number (n)	Percentage (%)
Age		
<35years	35	74.5
=35years	12	25.5
Gestational age		
<36weeks	24	51.1
=36weeks	23	48.9
Gravidity		
Primigravida	1	2.1
Multigravida	32	68.1
Grandmultigravida	14	29.8
Nature of surgery		
Elective	6	12.8
Emergency	41	87.2
ASA classification		
ASA I	1	2.1
ASA II	29	61.7
ASA III	15	31.9
ASA IV	2	4.3
Time of day of surgery		
Normal hours	20	42.5
Abnormal hours	27	57.5
Previous caesarean section		
Yes	10	21.3
No	37	78.7
Cadre of Anaesthetist		
Consultant	2	4.3
Senior registrar	37	78.7
Registrar	8	17.0
Cadre of surgeon		
Consultant	4	8.5
Senior registrar	43	91.5
Antepartum bleeding		
Yes	43	91.5
No	4	8.5
Units of blood transfused		
=3 units	12	25.5
<3units	28	59.6
No transfusion	7	14.9

Table 2: Showing the various anaesthetic technique of anaesthesia used and the various position of the placenta.

Variables	Frequency (N)	Percentage (%)
Anaesthetic technique		
General anaesthesia	17	36.2
Spinal anaesthesia	30	63.8
Total	47	100
Position of placenta		
Anterior	32	68
Posterior	15	32
Total	47	100

Table 3: Relationship between the various anaesthetic techniques used for different grades of placenta praevia and the estimated blood loss.

Variables		Grade of placenta				
Anaesthetic technique	I	II	III	IV	Total	p-value
GA	0	4	9	4	17	0.603
Spinal	0	10	16	4	30	
Total	0	14	25	8	47	
Estimated blood Loss						
Anaesthetic technique	<500ml	501-1000ml	1001-1500ml	1501-2000ml	>2000ml	p-value
GA	1	11	2	1	2	0.320
Spinal	1	16	10	0	3	
Total	2	27	12	1	5	

GA= General anaesthesia

Table 4: Relationship between the anaesthetic techniques and the use of vasopressors in the parturient and number of units of blood transfused in the parturient.

Variables	Anaesthetic techniques (%)			
Vasopressor	GA	Spinal	Total (%)	p-value
Yes	6 (30%)	14 (70%)	20(100)	0.447
No	11(40.7%)	16(59.3%)	27(100)	
Total	17	30	47	
Number of units of blood transfused				
Anaesthetic techniques	< 3units	= 3units	No transfusion	p-value
GA	7	10	0	0.032*
RA	5	18	7	
Total	12	28	7	

GA= General anaesthesia, RA = Regional anaesthesia * statistically significant

Table 5: Anaesthetic technique in relation to the Apgar score in 1 and 5 minutes.

Variable	Apgar score in 1 minute		Total	p-value
	<7	=7		
Anaesthetic techniques				
GA	15(88.2)	2(11.8)	17	0.000*
Spinal	13(43.3)	17(56.7)	30	
Total	28	19	47	
Apgar score in 5 minute				
Anaesthetic techniques	(%)	=7		
	<7			
GA	10 (58.8)	7 (41.2)	17	0.000*
Spinal	0 (0)	30 (100)	30	
Total	10	37	47	

GA = General anaesthesia, * statistically significant

DISCUSSION

Regional (spinal anaesthesia) was our anaesthetic method of preference in patients with placenta previa for caesarean delivery. In this study, 63.8% of our caesarean section for placenta previa was performed under spinal anaesthesia and was still the choice of anaesthesia in some cases of major placenta previa (type III and IV). This finding is similar to a previous study by Parekh et al⁸ who reported that 60% of their patients with placenta previa had regional anaesthesia and that spinal anaesthesia accounted for 45%. Imarengiaye et al and McShane et al also reported a lower rate of 38.8% and 25% respectively usage of regional anaesthesia for parturients with placenta previa who had caesarean delivery.^{10,11} The problem associated with the use of regional anaesthesia generally for parturients with placenta previa to be delivered via caesarean section is that it is believed that the sympathetic blockade caused by regional anaesthesia can make it difficult or impossible to control arterial pressure, resulting from severe haemorrhage and that general anaesthesia is preferable in the light of possible increased blood loss.¹² Some authors have also said the general anaesthesia for women with placenta previa has been shown to increase estimated blood loss (EBL), risk of transfusion and lower postoperative hemoglobin concentration.¹³ However, from our study we found no statistical significance between the estimated blood loss (EBL) in parturients with placenta previa that had undergone caesarean section with either spinal anaesthesia or general anaesthesia $p=0.320$. This is similar to the finding of Imarengiaye et al¹⁰ who also found no significant difference in the EBL between patients who received general anaesthesia or spinal anaesthesia. We, however, discovered that parturients that had their caesarean section performed under general anaesthesia all had blood transfusion while seven of the parturients that had their caesarean section under spinal were not transfused at all and it was statistically significant. $P=0.032$. A randomized study by Hong JY¹⁴ et al also

reported that when comparing neuraxial anaesthesia (epidural anaesthesia) and general anaesthesia for caesarean delivery for placenta previa, EBL was similar for both groups, but the general anaesthesia group had lower immediate postoperative hematocrit and that blood transfusion was lower in the neuraxial group. The authors concluded that epidural anaesthesia is superior to general anaesthesia in the elective caesarean section for placenta previa with regard to maternal hemodynamics and blood loss.

Furthermore out of the 20 patients that required vasopressors 14 (70%) had their caesarean section performed under spinal anaesthesia it was however not statistically significant $p=0.447$. Therefore a well-conducted spinal anaesthesia with proper use of fluids and vasopressors should maintain adequate circulatory volume.

In our study, Apgar score was used to assess the neonatal outcome, and the Apgar scores of the spinal group were better both at the 1st minutes and the 5th minutes and it was statistically significant $p=0.000$. It was also noted by the 5th minutes all the neonates that had spinal anaesthesia as the technique of delivery had an Apgar score of ≥ 7 . Imarengiaye et al¹⁰ also reported a lower Apgar score in neonates of parturients with placenta previa that had general anaesthesia for caesarean delivery. While Markely et al¹⁵ concluded that regarding neonatal outcomes, the incidence of neonatal depression was decreased or similar, but not increased when neuraxial anaesthesia was utilized as compared to general anaesthesia.^{16, 17}

Generally data vary on the effect of anaesthetic techniques on the neonatal Apgar score. Gordon et al¹⁸ reported that for both emergency and elective caesarean sections more neonates in the general anaesthesia group significantly required more active resuscitation. The implication of their study is that lower Apgar score is associated with general anaesthesia which was clearly demonstrated in our study. However, it is essential to state that placenta previa itself is associated with lower Apgar scores and poorer neonatal outcomes when

compared with neonates among non-placenta Previa births.^{19,20}

LIMITATIONS

Our limitations were that it was a retrospective study and we had problems in retrieving some data's. This was not surprising because medical record keeping is a major problem in developing countries.²¹

CONCLUSION

In conclusion, regional anaesthesia (spinal) and general anaesthesia were the two anaesthetic choices for caesarean section in parturients with placenta previa in this study. Spinal anaesthesia was, however the predominant anaesthetic technique used in this series, therefore caesarean section for parturient placenta previa can be performed successfully under spinal anaesthesia. Finally, we need to explore the use of epidural anaesthesia for especially for parturients with placenta previa coming for elective caesarean section so that we can compare their outcome with other anaesthetic techniques.

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