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EFFECT OF CAESAREAN SECTION ON THE PERINATAL OUTCOME IN SINGLETON BREECH DELIVERIES IN IBADAN

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ABSTRACT

Objective: The aim of the study was to ascertain whether or not abdominal delivery is associated with less perinatal mortality and morbidity than vaginal delivery in singleton fetuses with breech presentation.

Materials and Method: Data from patients with singleton breech fetuses in a teaching hospital in the south-western part of Nigeria over the ten year period between 1st January, 1990 and 31st December 1999 were analysed. Perinatal mortality and morbidity data in those having vaginal deliveries were compared with those having caesarean section.

Results: Seven hundred and forty nine singleton breech fetuses were delivered in the study period, giving an incidence of 5.7%.

There was no significant difference in the mean age of the two groups. Caesarean section was associated with lower perinatal mortality in nullipara, patient who did not register for antenatal care, and in preterm and term deliveries. Fetuses with birth weights greater than 3.5kg at birth had lower perinatal mortality rates when delivered abdominally. No measurable difference in the frequency of asphyxia was detected between the two modes of delivery.

Conclusion: Caesarean section is associated with lower perinatal mortality in the study population. Formulation and strict adherence to delivery protocol concerning breech presentation is advised.

INTRODUCTION

The controversy on the optimum mode of delivery for fetuses with breech presentation has been ongoing[1,2,3]. This has led to several protocols being drawn up to determine which patients would benefit from Caesarean section. This situation is further complicated by the global drive to reduce caesarean section rates[4].

Most studies have identified caesarean section as the safest mode of delivery in many cases of fetuses with breech presentation[1,2,3,5,6], though a few with careful selection criteria have been able to demonstrate equally good results following vaginal delivery[4]. In the latter studies both short term and long term neonatal outcome variables are said not to be different[7,8]. The protocols used in selecting patients for vaginal breech delivery are based on the type of breech presentation, maternal age and parity, estimated fetal weight, attitude of the fetus, and clinical and/or radiological pelvimetry finding[4,9]. These protocols are based on nonexperimental retrospective analysis of cases. They have been criticized as having many pitfalls[3]. In the developed countries however, there is more frequent recourse to caesarean section in term singleton fetuses with breech presentation. This approach has been based on the findings of better perinatal mortality and morbidity rates by various studies and the fear of litigation, when the outcome of vaginal breech delivery is suboptimal.

This study aims to provide data on the perinatal morbidity and mortality in singleton fetuses with breech presentation delivered at our centre, comparing those delivered vaginally with those delivered by caesarean section.

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MATERIALS AND METHODS

This is a 10-year retrospective study from 1st January 1990 to 31st December 1999 conducted at the University College Hospital, Ibadan in the South Western part of Nigeria. A policy of allowing vaginal delivery in many cases is especially favoured due to the patient's aversion for operative delivery and the generally smaller weights of babies in this environment.

A total of 724 singleton breech fetuses were delivered in this period among 12702 total deliveries giving a rate of 5.7%. After excluding patients with inadequate records, prepartum intrauterine deaths and congenital abnormalities, 524 of these cases were fully studied. Data was collected from the labour ward records, lying-in ward case records and in some cases, the casefiles of those admitted to the Special Care Baby Unit (SCBU). For the purpose of this study a perinatal death is that of the fetus occuring after the 28th week of gestation in utero or within seven days of life. A preterm delivery is that which occurs before the thirty-seventh completed weeks of pregnancy. There are no facilities for continous electronic monitoring of the fetal heart or for blood gases analysis at our centre.

Data collected on maternal age, parity, mode of delivery, fetal birth weight, Apgar scores and perinatal morbidity and mortality were coded, entered and analysed using the EPI-INFO version 6 software.

Analysis by Chi-squared test and Student's t test for discrete and continous variables respectively.

RESULTS

Among the 524 subjects, 257 (49%) were delivered by caesarean section while 267 (51%) had vaginal deliveries. The caesarean sections were not performed solely for breech presentation routinely. The mean maternal age for the caesarean section group was 29.3 (sd+/-5.2) years while that for the vaginal delivery group was 29.4 (sd+/-5.7) years, the p value was > 0.05. Table 1 shows the distribution of the various age categories in both groups.

Table 1: **Distribution of Maternal age by mode of delivery**

Maternal age	Caesarean delivery	Vaginal delivery	Total
11-20	14 (40%)	21 (60%)	35 (100%)
21-30	140 (52%)	131 (48%)	171(100%)
31-40	102 (49%)	107 (51%)	209(100%)
>40	1 (11%)	8 (89%)	9 (100%)
Total	**257**	**267**	**524**

Table 2 compares the perinatal outcome between nulliparous and multiparous patients after stratification into caesarean and vaginal modes of delivery. The perinatal mortality rate (PNMR) was significantly higher among nulliparas (214/1000) when compared with the multiparas (187/1000), the p value being < 0.05. However among the nulliparas, the perinatal mortality rate was significantly lower in the caesarean section group (27/1000) when compared with the vaginally delivered (187/1000), with P value < 0.05.

Table 2: **Perinatal Outcomes by mode of delivery and parity**

Perinatal Outcome	Nullipara	Multipara	Total
Live births			
Caesarean delivery	*90(39%)	+140(61%)	230(100%)
Vaginal delivery	*53(27%)	+142(73%)	195(100%)
Perinatal death			
Caesarean delivery	*5(19%)	+22(81%)	27(100%)
Vaginal delivery	*34(47%)	+38(53%)	72(100%)
Total	**182(35%)**	**342(65%)**	**524(100%)**

P value < 0.05
+P value > 0.05

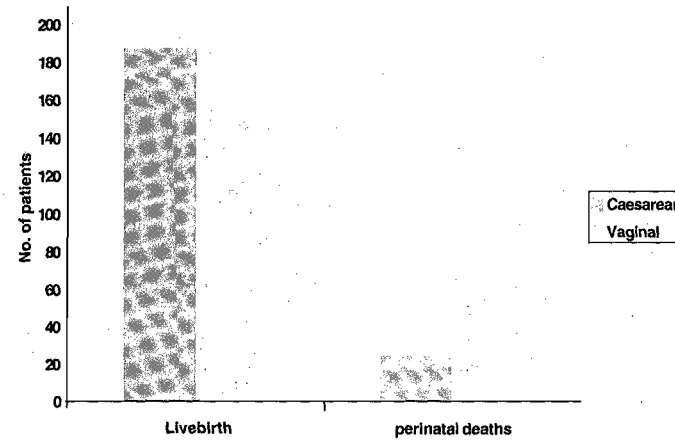

Figure 1: **Perinatal outcome of babies with Birthweights less than 3.5kg**

Comparison of the perinatal outcome by booking status and mode of delivery is done in Table 3 the perinatal mortality rate for the booked patients was 126/1000, while that for the unbooked was 333/1000. For both booked and un-booked patients, caesarean section was associated with a lower perinatal mortality rate (105/1000) when compared with vaginal delivery (270/1000), the p value being less than 0.05.

Further analysis was done using the mode of delivery and birth weight distribution. The birth weights were categorised into two: less or equal to 3.5kg and above 3.50kg. Of the 63 babies whose birth weights were greater than 3.50kg, there were 5 perinatal deaths. Forty three of them (68.3%) were delivered by caesarean section while only 20(31.7%) had vaginal delivery. In babies weighing 3.5kg or less , 94 (26%) had perinatal deaths. One hundred and fourteen (31.6%) of these 361 babies were delivered by caesarean section while 247 (68.4%) were delivered vaginally. Figure 1 shows the perinatal outcome in babies weighing 3.5kg or less at birth. The overall perinatal death rate in the < 3.5kg group was significantly higher following vaginal delivery (P<0.01).

Table 3: **Perinatal Outcome by Mode of Delivery and Booking Status**

Perinatal Outcome	Booked	Unbooked	
Live births			
Caesarean delivery	161* (70%)	69@ (30%)	230(100%)
Vaginal delivery	158* (81%)	37@ (19%)	195(100%)
Perinatal deaths			
Caesarean delivery	17* (63%)	10@ (37%)	27 (100%)
Vaginal delivery	29* (40%)	43@ (60%)	72 (100%)
Total	**365(70%)**	**159(30%)**	**524(100%)**

P value < 0.05
+P value > 0.05

Table 4: **Perinatal Outcome among Preterm and Term Neonates by mode of delivery**

	Live births		Perinatal Deaths		Total	
	C/S	Vag	C/S	Vag		
Preterm	164(49%)	137(40%)	14(4%)	23(7%)	343(100%)	P<0.05
Term	61(34%)	58(32%)	13(7%)	49(27%)	181(100%)	P<0.05
Total	230(44%)	195(37%)	27(5%)	72(14%)	524(100%)	

In Table 4, the perinatal deaths in term and preterm babies were compared for the two modes of delivery. Among preterm neonates caesarean section was associated with better perinatal survival, which was also demonstrated among term neonates. The mean first minute Apgar score for the caesarean delivery group was 4.8 (+/-2.8), and for the vaginal delivery group 4.6 (+/-3.2). This was not statistically significant.

DISCUSSION

The incidence of singleton breech presentation at delivery of 5.7% in this study is higher than rates of 3.0% in term singleton pregnancies quoted by other workers[3]. The caesarean section rate of 49% found in this study is higher than the overall rate in our hospital of 20% but lower than the 61% by Schiff et al[3]. But the findings on maternal age in this study are similar to findings by Abu-Heija[2] in North Jordan. It shows that maternal age did not significantly affect the mode of delivery.

The perinatal mortality rate in this study was significantly higher in the nulliparous group in agreement with the findings by Adetoro[5] et al in Nigeria. However, in studies from the United States[6] and the North Jordan[2], there were no significant parity related increases in perinatal mortality rates. The ready acceptance and performance of caesarean section in these patients in these countries account for this. This is unlike in the developing countries where clinic attendance is poor, and patients might commence unsupervised labour at home. In the study conducted by Adeleye[1] in 1985 in Ibadan involving both singleton and multiple breech births, he found the perinatal mortality to be lower in the nulliparae. This is probably related to the higher perinatal loss associated with multiple pregnancy, a condition which is more common in multiparae.

The unregistered patients who had poor or no supervision in pregnancy are likely to commence labour at home or in ill equipped clinic/hospital. These have been associated with increased maternal and fetal morbidity and mortality rates[5]. This was confirmed by this study in the unbooked patients, vaginal delivery being associated with a 2 fold increase in perinatal mortality rate. Strategies aimed at improving on this situation will include education on utilization of health facilities, efficient and effective health care delivery system with confirmation of presentation using ultrasound scan in the third trimester and prompt referral to secondary and tertiary centres.

Delivery of babies weighing at least 3.5kg has been associated with better perinatal outcome when this is by caesarean section. In a study by Kiely[6] in 1991 in the city of New York, USA the birth weight specific perinatal mortality rates were found to be better in the caesarean section group for all birthweight categories. This he showed to be more significant for birth weights greater than 3.5kg. It is worthy of note that over 80% of these neonates in his study were delivered by caesarean section. This reflects a greater recourse to caesarean delivery once clinical and/or ultrasound estimate of fetal weight exceeds 3.5kg.

There is a higher mean 1 minute Apgar score following caesarean section when compared to vaginal delivery (4.8 and 4.6 respectively), although this difference is not statistically significant. This has been the experience of other workers[2,4,9]. However, a longitudinal study of babies delivered in this hospital is being formulated to find out any differences in the neurological developments of these babies compared to those who presented cephalic.

There is a global trend towards reducing the caesarean section rate. But in babies with breech presentation, this study has shown it to be a better alternative in the nullipara, the patient who did not register for antenatal care, those having preterm labour and when the estimated fetal weights is more than 3.5kg. Formulation of and adherence to guideline concerning delivery of babies presenting by the breech will improve the very poor perinatal outcome obtainable presently in our environment. Fortunately, in modern practice the risks to the mother from caesarean delivery are declining.

REFERENCES

1. **Adeleye JA.** A two year assessment of some aspects of breech presentation and perinatal mortality at theUniversity College Hospital, Ibadan Nigeria. Tropical Journal of Obstetrics and Gynaecology 1985; 5(1): 31–34.

2. **Abu-Heija AT, Ziadeh S, Obeidat A.** Breech delivery at term: Do the perinatal results justify a trial of labour? Journal Obstet. Gynaecol 1997; 17(3): 258–260.

3. **Eyal Schiff, Steven A Friedman, Shlomo Mashiach, Oded Hart, Gad Barkai, Baham Sibai.** Maternal and neonatal outcome of 846 term singleton breech deliveries: Seven year experience at a single centre. Am. J. Obstet. Gynaecol. 1996; 176: 18–23

4. **Gimocsky ML, Wallace RL, Schrifrin BS, Paul RH.** Randomized management of non-frank breech presentation at term: A preliminary report. Am. J. Obstet. Gynaecol. 1983; 146: 34–40.

5. **Adetoro OO, Fakeye OO.** Breech presentation: A three year survey. Tropical Journal of Obstetrics and Gynaecology. 1990; 8(1): 10–11.

6. **Keily JL.** Mode of delivery and Neonatal death in 17587 infants presenting by the Breech. British Journal of Obstetrics and Gynaecology. 1991; 98: 898–904.

7. **Mahomed K.** Breech delivery: A critical evaluation of the mode of delivery and outcome of labour Int. J. Gynaecol. Obstet. 1988; 27: 17–20.

8. **Croughan-Minihance MS, Petitli DB, Gordial, Golditch I.** Morbidity among breech infants according to method of delivery. Obstet. Gynaecol. 1990; 75: 821–825.

9. **Christian SS, Brady K, Read JA, Koopleman J.N.** Vaginal breech delivery: A five year prospective evaluation of a protocol using computerized tomographic pelvimetry. Am. J. Obstet. Gynaecol. (1990): 163: 848–855.