

REVISITING THE MODE OF DELIVERY AND OUTCOME OF SINGLETON BREECH DELIVERY IN A TERTIARY HEALTH FACILITY IN NIGERIA.

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ABSTRACT

Background: Breech presentation is associated with increased risk of adverse fetal and maternal outcome. The delivery options for breech presentation are still one of the most disputable issues among Obstetricians worldwide.

Objectives: This study is to determine the outcome of term singleton breech deliveries among booked women in University of Port Harcourt Teaching Hospital (UPTH). It is also to evaluate the current practice of elective caesarean section and assisted vaginal breech delivery for all nulliparous and multiparous women respectively.

Materials and Methods: This was a 5- year review of hospital records of singleton breech deliveries among booked patients between 1st of January 2009 - 31st of December 2013.

Results: The incidence of singleton breech delivery at term was 2.10%. Nulliparity accounted for 35.5% while grandmultiparity accounted for 4.4%. One hundred and forty one (51.8%) women had emergency caesarean section, 67 (24.6%) had elective caesarean section and 64 (23.5%) had assisted vaginal breech delivery. No external cephalic version was performed. Nullipara with breech presentation was the commonest indication for caesarean section. Assisted vaginal breech delivery was associated with high rate of low Apgar score (score <7) at the 5th minute when compared to elective caesarean section ($p = 0.000088$). There was an increased rate of special care baby unit admission in the group that had assisted vaginal breech delivery than in those that had elective caesarean section. There was no difference in terms of birth injury, neonatal death and maternal morbidities between those that had assisted vaginal breech delivery and elective caesarean section.

Conclusion: Assisted vaginal breech delivery was associated with higher incidence of low Apgar score at the fifth minute especially in the nulliparous patient. It is advisable to offer elective caesarean section to nulliparae with breech presentation whereas the mode of delivery in the multipara should be individualized. There is need to introduce the practice of external cephalic version in the study centre.

Key words: Breech deliveries, maternal and fetal outcomes, Port Harcourt.

INTRODUCTION

Breech presentation is a high risk pregnancy associated with increased risk of fetal and maternal morbidity and mortality.¹⁻⁶. The incidence of breech presentation has an inverse relationship with the gestational age. At 20 weeks gestation, the incidence is about 40%, and decreases to 3-4 % at term^{1,6-13}.

Factors associated with breech presentation include

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nulliparity, advanced maternal age, prematurity, previous breech delivery, contracted pelvis, uterine anomaly, placenta praevia, oligo- or polyhydramnios, multiple pregnancy, pelvic tumours, short umbilical cord, fetal anomaly and intrauterine fetal death. Breech presentation may however occur in the absence of any known predisposing factor.^{3,4,14,15}

The optimum mode of delivery for breech presentation is still a subject of debate amongst Obstetricians.^{1,2,7,8,10} In order to resolve this issue, the term breech trial was conducted and showed that perinatal morbidity and mortality was significantly lower with planned caesarean section compared to planned vaginal breech delivery whereas the maternal outcome was similar in both groups^{7,16,17}. Several studies have findings similar to the outcome of the term breech trial^{4,10,11,16,17} while other studies however showed that planned vaginal breech delivery where appropriate selection criteria are applied would give the same favorable fetal and maternal outcome as a planned caesarean section.^{1,10,18-20} Other studies concluded that the recommendation of the term breech trial should be withdrawn due to the limitations of the trial.^{18,21}

In developing countries especially in our environment where aversion to caesarean section is common with poor health seeking behavior, the policy of planned caesarean delivery for all women with breech presentation irrespective of parity and foetal weight, may not be readily acceptable and may lead to these women presenting to traditional birth attendants for vaginal delivery with resultant higher rate of both maternal and perinatal morbidities and mortality.^{1,2,4,10,19}

External cephalic version followed by vaginal delivery has been shown to reduce the incidence of caesarean section and increase cephalic presentation rate during labour and delivery.^{22,23} On the other hand, it has also been shown that the incidence of breech

deliveries and perinatal morbidity and mortality are not better in units where external cephalic version is practiced as compared to units that avoid it.^{8,14,24} Also in the systemic review by Lede, it was found that ECV at term yielded better results in terms of reduction in non-cephalic presentation and caesarean section rates when compared to ECV conducted before term which has been the traditional practice²⁴. However, external cephalic version is not a common practice amongst the studied population. This may be due to lack of skill or facilities to carry out this procedure.

Like in many other centers in Nigeria, it is the practice in our centre that all women with persistent breech presentation at term are evaluated in terms of parity, previous breech delivery, estimated birth weight, presence or absence of other complications and the adequacy of the pelvis following clinical pelvimetry. An ultrasound scan is also done to exclude placenta praevia, genital tract or fetal anomaly and fetal weight estimation. Assisted vaginal breech delivery conducted by a senior Obstetrician with neonatologist and anaesthetist in attendance is carried out except in cases with footling breech, borderline pelvis, nulliparity, placenta praevia, foetal weight estimation greater than 3.5 kg or any other obstetric complication.^{2,4,10,11,13}

This study is to review the fetal and maternal outcomes of the different delivery options among booked patients with singleton breech deliveries at term and to evaluate the current practice of elective caesarean section for all nulliparous women and AVBD for women with higher parity with fetal weight estimation less than 3.5kg.

MATERIALS AND METHOD

This is a 5-year review of hospital records of all booked cases of singleton breech deliveries at term in UPTH from 1st of January 2009 - 31st December

2013. The un-booked cases were excluded as they present as emergency and did not receive antenatal care to enable planning of their mode of delivery. Permission was obtained from the heads of the department of Obstetrics/Gynaecology and medical records for the use of patient records for the conduct of this study. The folder numbers of patients who had singleton breech deliveries were obtained from the records of the antenatal, theatre and booked labour wards. There were 272 cases of singleton term breech deliveries recorded within the study period. The folder numbers were then used to trace the case files of the patient from the medical records department and relevant data were extracted from the case files. The data extracted include age, parity, mode of delivery, Apgar scores, birth weight, birth injury, admission into Special care baby units, neonatal death, post partum haemorrhage, blood transfusion, genital tract injuries and puerperal sepsis. The data was entered into a spreadsheet and analyzed using SPSS software version 19.0. (Armonk, NY: IBM Corp 2010) The results were presented in percentages and tables. Assisted vaginal breech deliveries and elective caesarean deliveries were compared for low 5 minutes Apgar scores, admission to special care baby unit, birth injury, neonatal mortality and maternal morbidities (post partum haemorrhage, blood transfusion, genital tract injuries and puerperal sepsis).

RESULTS

A total of 12,962 deliveries were recorded during this study period. There were 272 cases of singleton breech deliveries at term amongst the booked patients giving a prevalence rate of 2.10%. The age of the mothers ranged from 17 - 49 years with a mean age of 30.23±4.8 years. Most patients were aged 30 - 34 years. Parity ranged from 0 – 7 and most of the women were nulliparous. Table 1 shows the age and parity distributions of the patients.

Emergency caesarean section was performed for 141 (51.8%) patients while elective caesarean section was performed for sixty seven (24.6%) patients and 64 (23.5%) women had assisted vaginal breech delivery (AVBD). All cases of AVBD were conducted by senior Obstetricians (senior registrars and consultants) and the elective caesarean sections were carried out at 38 weeks of gestation. External cephalic version was not performed for any of these patients.

There were 20 perinatal deaths (out of which 1 was neonatal death) giving a perinatal mortality rate of 75.53 per 1000 total births. Nineteen of the perinatal deaths were intrauterine fetal deaths (IUFD) while one was a case of early neonatal death. The IUFD were from other obstetric complications such as febrile illnesses, antepartum haemorrhage, hypertensive disorders and diabetes while the early neonatal death was due to severe birth asphyxia following AVBD. Sixteen babies had low Apgar scores at the fifth minute out of which 10 were delivered by AVBD while none of the babies delivered by elective caesarean section had abnormal Apgar scores. The difference was statistically significant ($p=0.00008$). Amongst the 91 nulliparous women, 9 (9.9%) had AVBD as they presented in advanced labour before the scheduled date for elective caesarean section. Five babies of the nine nulliparous women that had AVBD had low Apgar score (<7) at the 5th minute while none of the babies of the 31 (34.1%) nulliparous women that had elective caesarean section had low Apgar scores at the fifth minute and the difference was statistically significant ($p = 0.0001$). Table 2 shows the fetal and maternal outcomes while table 3 shows the birth weight and delivery mode by low 5th minute Apgar score. The proportion of SCBU admission was 50 (35.5%), 13 (20.3%) and 7 (10.4%) for emergency caesarean section, assisted vaginal breech delivery and elective caesarean section

respectively. Although there was one early neonatal death in the group that had planned assisted vaginal breech delivery but when compared to none in the elective caesarean delivery group, the difference was not statistically significant ($p = 0.488$). There were 2 cases (1.4%) of birth injuries (humerus and tibia fractures) among the babies delivered by emergency caesarean section. There was no difference in the occurrence of post partum haemorrhage and blood transfusion between assisted vaginal breech delivery group and the elective caesarean delivery group ($p = 0.740$). There was one case of puerperal sepsis in the planned assisted vaginal breech delivery compared to none in the elective caesarean delivery group. The difference was not significant ($p = 0.488$). In those that had planned AVBD, there were 2 babies with birth weight greater than or equal to 3.5kg and 5th minute Apgar score less than 7 compared to none in those that had elective caesarean delivery as shown in table 3. This was however not significant ($p = 0.236$). There was no maternal mortality. There were thirteen cases (20.3%) that had episiotomies while 9 cases (14.1%) had first degree perineal tears.

The indications for caesarean section are as shown in table 4a and 4b. Nullipara with breech presentation were the commonest indications for both elective and emergency caesarean sections. Elective caesarean section for fetopelvic disproportion was the indication in those with estimated fetal weight greater than 3.5kg who were not in labour.

DISCUSSION

The prevalence of breech delivery in this study was 2.10%. This is similar to incidence reported in other centers in Nigeria^{4,10,12,13,25-28}, 2.4% in Zambia²⁹, 2.7% in Gabon³⁰ and 3% - 4% in USA³¹ and Europe.³² It is however, higher than 1.2% - 1.6% reported in Calabar, Ilorin, and Bida in Nigeria.^{4,8}

The caesarean section rate among women with breech presentation in this study is almost twice

higher than the average caesarean section rate during the study period and in other centres in Nigeria^{1,4,8,10,26,27,33}. This high rate could probably be explained by the policy of offering caesarean section to nulliparous women with breech presentation and there were more breech deliveries in the nulliparous group. It is however lower than that in USA³⁴ probably because caesarean section is employed in almost all cases of breech presentation at term irrespective of parity because of the increasing rate of "request caesarean section" and litigations that are associated with assisted vaginal breech delivery³¹

Planned assisted vaginal breech delivery in this study was more associated with multiparae and in women aged 30 - 34 years compared to the nulliparous and teenagers. This is probably because most multiparous women especially within this age group are more suitable for planned assisted breech vaginal delivery as their pelvises had been tested.¹

The incidence of low Apgar score (<7) at the 5th minute was higher among those that had planned AVBD compared to those that had elective caesarean delivery ($p = 0.000088$). This is similar to the findings in some centers in Nigeria²⁷ and globally.^{32,35,36} This has been attributed to the unavoidable compression of the umbilical cord during the delivery of the after coming head of the breech, entrapment of the after-coming head as well as poor technique in the conduct of AVBD.^{1,14,36} This may also explain why admission into SCBU was more among the babies that were delivered by planned AVBD than elective caesarean section although not significant ($p = 0.11$).

The perinatal mortality rate of 75.53/1000 total births observed in this study was slightly higher than the 50/1000 total births reported by Igwebe et al¹⁰ in Nnewi with similar study design and socio-demographic indices but significantly lower than the 250/1000 total births reported by Jibrin et al⁸ in

North central Nigeria whose study included both booked and unbooked patients. Majority of the perinatal mortality in this study were from intrauterine fetal deaths and only one death from severe birth asphyxia following planned assisted vaginal breech delivery. The intrauterine fetal deaths were due to other obstetric complications although higher incidence of congenital malformations accounting for IUFD among this category of patients have been reported¹⁴. Separating these deaths, it is obvious that the mode of deliveries did not impact negatively on the perinatal mortality and this may be attributed to good selection criteria on the mode of delivery among the women, the level of care at all deliveries as they were conducted by senior registrars or consultants with the neonatologists, anaesthetists and other medical staff experienced in breech delivery in attendant. These observations were noted in other studies in USA and Europe^{1,31,37}. The finding that nulliparous women who had AVBD were significantly at risk of having asphyxiated babies when compared to those that delivered by caesarean section is in support of the current practice of recommending elective caesarean section for all nulliparous women with breech presentation at term. This practice will undoubtedly contribute to the high caesarean section rate amongst the study population. As recommended by the World Health Organization (WHO), the practice of external cephalic version will reduce the incidence of breech presentation and the high caesarean section rate associated with breech presentation²⁴. There is therefore the need to introduce this practice amongst the study population. This study is limited on account of the fact that it is a retrospective study with a small sample size which limits the power of the study. A prospective analysis of this study involving a larger sample size is recommended.

CONCLUSION

AVBD was significantly associated with low Apgar scores in this study and the neonatal outcome in nulliparous women that had elective caesarean section was significantly better than in those that had AVBD. This study advocates for training drills on assisted vaginal breech deliveries among caregivers as a step to further improving the low Apgar score associated with assisted vaginal breech delivery while the current practice of elective caesarean section for nulliparous women with breech presentation should be upheld. There is need to introduce the practice of external cephalic version in the study centre as this may reduce the incidence of breech presentation and the high rate of caesarean delivery associated with breech presentation.

Conflict of interest: nil

TABLE 1: MATERNAL AGE, PARITY AND MODE OF DELIVERY.

Age	N(%)	AVBD	ELCS	EMCS
< 19	3 (1.1)	1	0	2
20-24	18 (6.6)	5	4	9
25-29	85 (31.3)	15	23	47
30-34	105 (38.6)	21	26	58
35-39	52 (19.1)	20	12	20
> 40	9 (3.3)	2	2	5
PARITY				
0	91 (33.5)	9	31	51
1	82 (30.1)	15	23	44
2-4	87 (32.0)	36	12	39
>5	12 (4.4)	4	1	7

ELCS- Elective Caesarean section

EMCS- Emergency Caesarean section

TABLE 2: THE NEONATAL AND MATERNAL OUTCOMES BY MODE OF DELIVERY

VARIABLE	AVBD n=64, (%)	ELCS n=67, (%)	P-VALUE Comparing AVBD and ELCS	EMCS n=141
5 TH A/S < 7	10 (15.6)	0 (0)	0.00052	6 (4.3)
SCBU	13 (20.3)	7(10.4)	0.11	50 (35.5)
Admission				
Early Neonatal death	1 (1.6)	0 (0)	0.488	0 (0)
Post partum haemorrhage	1 (1.6)	1(1.5)	0.740	2 (1.4)
Blood transfusion	1 (1.6)	1 (1.5)	0.740	2 (1.4)
Perineal tears	9 (14.1)	0(0)	0.0011	0 (0)
Sepsis	1 (1.6)	0 (0)	0.488	1(0.7)

NB: There were 20 perinatal deaths. Nineteen were intrauterine fetal death (IUFD). Sixteen out of the 19 IUFDs were delivered by AVBD and were excluded from those with 5th minute APGAR score less than 7. The other 3 IUFDs were delivered by emergency Caesarean section.

TABLE 3: BIRTH WEIGHT AND DELIVERY MODE BY LOW 5TH MINUTE A P G A R SCORE(<7)

BIRTH WEIGHT(KG)	AVBD	EL. C/S	EM. C/S
<2.5	2	0	1
2.5-3.5	6	0	5
>3.5	2	0	0
TOTAL	10	0	6

Table 4a : INDICATIONS FOR ELECTIVE CAESAREAN SECTION

Indications	Frequency	Percentage
Nullipara with breech	31	46.27
Previous caesarean section	13	19.40
Previous Myomectomy	7	10.45
Fetopelvic disproportion	16	23.88
Total	67	100

TABLE 4b: INDICATIONS FOR EMERGENCY CAESAREAN SECTION

INDICATIONS	FREQUENCY	PERCENTAGE
Nullipara with breech presentation in labour	31	21.98
Poor progress of labour	28	19.86
Footling breech	25	17.73
Previous CS with breech presentation in labour	18	12.76
Hypertensive disorders	10	7.09
Cord prolapsed	9	6.38
Antepartum haemorrhage	8	5.67
Fetopelvic disproportion in labour	7	4.96
Fetal distress	5	3.54
TOTAL	141	100

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CAESAREAN DELIVERY IN A TERTIARY HEALTH INSTITUTION IN NORTH-EASTERN NIGERIA: A 5-YEAR REVIEW

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ABSTRACT

Background: One of the most dramatic features of modern obstetrics is the increase in the caesarean delivery (CD) rate. When compared with normal vaginal deliveries, CD increases the health risk for mothers and babies as well as the cost of health care **especially in poor-income settings like ours**. This upward trend therefore **constitutes** a major public health problem making regular appraisal of the caesarean delivery very necessary.

Objectives: It was undertaken with the aim of determining the incidence, trend, indications and outcome of CD at the Federal Medical Centre, Gombe (FMCG), north-Eastern Nigeria.

Methods: This was a retrospective study of all the cases of CD carried out at the FMCG from January 2004 to December 2008. The names and hospital numbers of these patients were identified; their case records retrieved and information necessary for the study were obtained and analyzed using SPSS version 16 software.

Results: During the study period, there were 6035 deliveries, out of which 1192 were delivered by CD giving a CD rate of 19.8%. There was a steady increase over the years (12.7% in 2004 to 23.0% in 2008). The major maternal indication was cephalo-pelvic disproportion (16.9%), followed by previous caesarean section (14.8%). Majority (79.4%) of the caesarean sections were emergencies. The major maternal complication was wound sepsis 7.2% followed by haemorrhage (5.1%) necessitating blood transfusion in 6.3%. The maternal mortality ratio was 587/100,000 births and the perinatal mortality was 23.5/ 1000 births.

Conclusion: There is a rising trend in CD at the FMCG, a finding consistent with the literature. Efforts should be made to reduce and/or reverse this ugly trend since some of these patients may not have another opportunity for skilled birth attendant at their subsequent deliveries. Improvement in aseptic majors and proper risk assessment and management for morbidities/mortalities is highly recommended.

Keywords: Caesarean Delivery; Trends; Indications and FMC Gombe

INTRODUCTION

The rate of caesarean delivery (CD) has been on the increase in maternity centres around the world, largely due to a shift in emphasis from the method and technique of delivery to a greater concern about

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perinatal outcome following delivery.^{1,4} There is a growing concern over the rising rate of CD in developing countries; which have been significantly linked to the practice of vaginal birth after caesarean section (VBAC).³ CD is undertaken to improve maternal or foetal outcome or reduce anticipated complications from labour and spontaneous vagina delivery. CD itself was associated with a significant morbidity, mortality however; improvements in surgical, anaesthetic techniques and availability of blood transfusion and antibiotics have made CD relatively safe.⁵

In Nigeria many women are poor and may not easily afford CD and many also dislike it for sociocultural reasons.^{1,3} VBAC is thus being recommended as a relatively safe way of decreasing the ever rising rate of CD globally.^{3,4} Vaginal delivery is associated with fewer risks, requires fewer anesthetics, poses a lower potential for postpartum morbidity, involves a shorter hospital stay, is more affordable, and encourages earlier and better bonding between mother and infant.^{3,4} These advantages are significant, especially in our resource poor setting where sociocultural aversion to CD is common.^{1,3}

The incidence of CD varies from country to country and within the same country varies from hospital to hospital.⁶ Studies from different part of Nigeria have shown that the rate of CD ranges from 9.1 in Ilorin to 35.5 in Osogbo.^{1,2,4,5,7-10} In the developed countries like United States and England, Wales and Northern Ireland, CD rates of 25% and 20% were reported respectively.¹¹ Depending on the population and the facilities available the incidence varies between 10 and 25% in most developed countries.¹²

The indications for CD vary, and may be as a result of maternal, foetal or foeto-maternal factors. However, a small number of CD is done for social (non-medical) reasons.¹² Some documented indications for CD from the literature included cephalo-pelvic disproportion and/or obstructed labour, prolonged

labour, malpresentations, previous caesarean section for recurrent causes, failed VBAC and/or induction of labour, hypertensive disorders of pregnancy, intrauterine growth restriction, precious baby, elderly primigravidae, bad obstetric history, obstetric haemorrhage due to major degree placenta and cord prolapse.¹⁻¹⁰ This study was set out to look at the trends of CD over a 5-year period, its incidence and indications at the FMCG, northern Nigeria. It is proposed that careful probing of the trend, indications and reasons for the use of CD may identify pathway to lower the CD rate which is what informed this review.

MATERIALS AND METHODS

This was a retrospective study conducted at the Department of Obstetrics and Gynaecology of the Federal Medical Centre, Gombe (FMCG), North-Eastern Nigeria. The department has three wards, the obstetrics, gynaecology and labour wards which altogether have a total of 83 beds. The FMCG is a tertiary care centre which was built in 1991 as a referral centre by the then Bauchi state government but clinical services began in May 2000 soon after it was renamed Federal Medical Centre, now upgraded recently to a Federal Teaching Hospital. The hospital is a 300-bed hospital, serving Gombe state and the neighboring Borno, Bauchi, Yobe, Taraba and Adamawa states. Patients' patronage is high. All caesarean deliveries (CD) performed at the FMCG, between January 2004 and December 2008 were reviewed. Names and hospital numbers of these patients were traced from the theatre records, labour ward records and neonatal ward records. Their case records were retrieved from the central medical records department of the hospital. Information necessary for the study were then extracted from the case records which included the age, parity, booking status, indications for CD, perinatal outcome, maternal complications and the

type of caesarean section (emergency or elective). Yearly analysis of the CD was also done. The total number of deliveries over the study period was also calculated. The indications were classified as maternal, fetal or foeto-maternal (where there were both maternal and fetal indications in a patient). Because of its effect on perinatal outcome, obstructed labour from all causes was separated from cephalopelvic disproportion where obstruction did not occur. The software SPSS version 16 was used for analysis. Chi square test was used to determine significant association between variables with level of significance set at <0.05 . The results were presented in tabular form as frequencies and percentages.

RESULTS

During the study period there were 6035 deliveries and 1192 caesarean sections giving an overall caesarean delivery rate of 19.8%. Emergency caesarean delivery was performed in 79.4% of the cases, even though 78.9% of the patients were booked. Table 1 shows socio-demographic characteristics of the patients studied. The age of the patients ranged between 14 - 46 years with a mean age of 27.45 years. Half of the patients (52.8%) were between 20-29 years of age.

Their parity ranged between 0 and 14, 36.7% were nulliparous. Nine hundred and forty one (78.9%) of the patients were booked. Most of the patients were married (98.3%), 66.7% were housewives, 751(63.0%) were Muslims and of Hausa/Fulani ethnicity accounted for 60.8%. Up to forty nine per cent (586) of the patients studied had secondary education.

Table II shows the indications for the caesarean sections. Maternal indications constituted 58.5%, foetal indications 16.1% and in 25.4% were for foeto-maternal indications. The leading maternal

indications were cephalopelvic disproportion (16.9%), previous caesarean section (14.8%), eclampsia (7.5%), failed induction of labour (5.1%), placenta praevia (4.4%), severe pregnancy induced hypertension (3.9%) and obstructed labour (3.4%). Major foetal indications included foetal distress (3.3%), breech presentation (2.5%), foetal macrosomia (1.6%) and twin gestation (2.4%).

Table III depicts the yearly trend of the caesarean sections. During the study period, the caesarean section rate shows a steady increase over the years (12.7% in 2004 to 23.0% in 2008). However, there were no statistically significant association when yearly analysis of the demographic characteristics, type of caesarean section and the major indications was done to account for these rises. The trend is graphically represented in figure 1.

Major maternal complications observed were puerperal sepsis in 86 (7.2%) patients, haemorrhage in 61 (5.1%) patients necessitating blood transfusion in 75 (6.3%) of the patients. There were 7 maternal deaths from the CD; giving a maternal mortality ratio of 587/100,000 live births. Birth asphyxia 31 (2.6%) was the major perinatal complication while perinatal mortality was 235/1000 live births. These are shown on table IV.

DISCUSSION

The present study reports a caesarean section rate of 19.8%. This was higher than the rates reported from other parts of Nigeria¹³⁻¹⁶, but lower than 20.3% reported in Birnin-Kebbi North West Nigeria.¹⁷ These differences are possibly due to referral nature of our centre, high prevalence of cephalopelvic disproportion due to early age of marriage, pre-eclampsia/eclampsia and use of repeat caesarean section for patients with a previous caesarean section. Rates of 16.9% and 18% reported in studies done in South West¹⁸⁻¹⁹, Nigeria were comparable to that of the present study. The steady rise in CD rate

reported in this study is similar to previous report.^{20,21} Majority (79.4%) of the caesarean sections were emergencies. These compares with reports by Aisien²², Okonofua²³ and Nwobodo¹⁷ and lower than 97.4% reported by Buowari.⁶ CD is still considered a last resort because of socio-cultural aversion among our women who only present late for the operation due to poor progress or feto-maternal distress.^{1,3} The major maternal indication was cephalo-pelvic disproportion (16.9%), followed by previous caesarean section (14.8%). The most common indication for caesarean section was obstructed labour/cephalopelvic disproportion and this was consistent with studies from Zaria¹⁵, Birnin Kebbi¹⁷, Ilorin¹⁸ and Kaduna.²⁴ This can be explained partly by the fact that many of the women marry at a young age and are pregnant for the first time at a stage when their pelvis have not reached maximum capacity. In contrast, Ugwu et al and other series reported that previous CD is the commonest indication for CD followed by cephalopelvic disproportion.^{4, 5} Ugwu and colleagues did their studies in regions with higher literacy rate with age of marriage and first pregnancy relatively higher, therefore cephalopelvic disproportion are less common than the finding in our study. Maternal and/or perinatal mortality from CD has greatly reduced in developed countries to the extent that there may not be a single maternal mortality in several thousands of CD however.²⁵ The case is however different in developing countries like ours where persistent late presentation of pregnant women in labour²⁶ may lead to adverse maternal and perinatal outcomes as seen in this study. The perinatal mortality rate of 235 per 1000 found in this review is higher than the rates reported by Aisien, Onwuhafua, Adinma and Okonofua in their various studies.^{22, 24, 27, 28} Prolonged obstructed labour and preeclampsia/eclampsia are associated with severe fetal asphyxia and death if delivery is unduly delayed

^{26, 29} and this may explain the high perinatal mortality recorded in our review. There is therefore the need for patients to have skilled birth attendant at delivery to reverse this unacceptable finding. There is a rising trend in CD at the FMCG, a finding consistent with the previous reports for low resource setting including Nigeria. Unfortunately, this has not improved the perinatal mortality rate. Efforts should be made to reduce and/or reverse this ugly trend since some of these patients may not have another opportunity for skilled birth attendant at their subsequent deliveries. Our review is limited by its retrospective nature where some data may be incomplete. Despite this, it may be seen that aseptic measures and proper risk assessment and management for morbidities/mortalities may reverse the trend and some of the complications associated with CD.

TABLE 1: SOCIO-DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS OF THE PATIENTS

Characteristics	Number	Percentage	Characteristics	Number	Percentage
1. Age (Years)			2. Parity		
10-19	112	9.4	0	438	36.7
20-29	629	52.8	1-4	572	48.0
30-39	423	35.5	5 and above	182	15.3
≥40	28	2.3	Total	1192	100.00
Total	1192	100.00			
3. Ethnicity			4. Education		
Terawa	133	11.2	None	229	19.2
Tangale	171	14.3	Primary	63	5.3
Hausa/Fulani	725	60.8	Secondary	586	49.2
Yoruba	47	3.9	Tertiary	195	16.3
Igbo	51	4.3	Others	119	10.0
Others	65	5.5	Total	1192	100.00
Total	1192	100.00			
5. Religion			6. Marital status		
Islam	751	63.0	Single	1172	98.3
Christianity	410	34.4	Married	7	0.6
Others	31	2.6	Divorced	10	0.8
Total	1192	100.00	Widowed	1192	100.00
			Total		
7. Occupation					
Civil service	201	16.9			
Business	115	9.6			
Housewife	795	66.7			
Others	81	6.8			
Total	1192	100.00			

TABLE II: INDICATIONS OF CAESAREAN DELIVERY AT THE FMCG

INDICATIONS	FREQUENCY	PERCENTAGE
Maternal	697	58.5
Foetal	192	16.1
Foeto-maternal	303	25.4
MATERNAL INDICATIONS		
Cephalopelvic disproportion	201	16.9
Previous caesarean section	177	14.8
Eclampsia	89	7.5
Failed induction of labour	61	5.1
Placenta praevia	53	4.4
Severe Pregnancy induced hypertension	47	3.9
Obstructed labour	40	3.4
Others ¹	29	2.4
FOETAL INDICATIONS		
Foetal distress	39	3.3
Breech	30	2.5
Macrosomia	19	1.6
Twin gestation	29	2.4
Transverse lie	20	1.7
Postdatism	17	1.4
Others ²	38	3.2

KEY: Others¹ = abruption, failure to progress, HIV, bad obstetric history, cervical dystocia, VVF repair, advanced maternal age, diabetics and infertility.

Others² = Premature rupture of membranes, precious baby, cord prolapse, Occipito-posterior position, Intrauterine growth restriction and face presentation.

TABLE III: YEARLY TREND IN CAESAREAN DELIVERY (CD)

YEAR	TOTAL DELIVERY	NUMBER OF CD	PERCENTAGE
2004	869	110	12.7
2005	747	138	18.5
2006	1121	221	19.7
2007	1370	279	20.4
2008	1928	444	23.0
TOTAL	6035	1192	

FIGURE 1: BAR CHART SHOWING TRENDS IN CAESAREAN DELIVERY AT FMCG

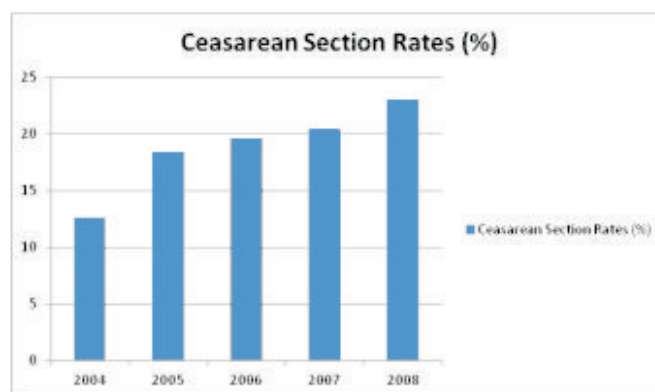


TABLE IV: FOETO-MATERNAL COMPLICATIONS OF CD

VARIABLES	NUMBER	PERCENTAGE
1. MATERNAL		
Nil (normal)	963	80.8
Infections	86	7.2
Anaemia	75	6.3
Postpartum haemorrhage	61	5.1
Maternal death	7	0.6
2. FETAL		
Nil (normal)	1105	92.7
Birth asphyxia	31	2.6
Perinatal death	28	2.3
Neonatal sepsis	16	1.4
Low birth weight	12	1.0

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