Caesarean Section and Perinatal Outcome in a Sub-urban Tertiary Hospital in Northwest Nigeria

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Aims: This study was undertaken to review the caesarean section rate and perinatal mortality in Federal Medical Centre, Birnin Kudu from 1 January 2010 to 31 December 2012.

Methods: This was a retrospective study involving review of 580 case files. Ethical clearance was obtained. The records of labour ward, neonatal intensive care unit and operating theatre were use. Information extracted includes age, parity, booking status, total deliveries, indications for caesarean section and perinatal outcome from 1st January 2010 to 31st December 2012 at Federal Medical Centre, Birnin Kudu. The data obtained was analyzed using SPSS version 16.0 statistical software (Chicago). Absolute numbers and simple percentages were used to describe categorical variables.

Results: A total of 590 caesarean sections were done which is rate of 17.69%. Of the 590 caesarean deliveries, 580 case notes were retrieved giving a retrieval rate of 98.3%. A total of 96 out of 580 babies died within the first one week of caesarean delivery, giving a perinatal mortality rate of 17.4 per 1000. The average age of the women was 25.9±6.2 years. Majority of them were uneducated and unemployed. Obstructed labour was the most common indication for emergency caesarean section accounting for 31.7% of caesarean sections followed by pre-eclampsia/eclampsia.

Conclusions: Caesarean section rate in the present study is comparatively high and perinatal mortality is low but it is unclear if there is a correlation between caesarean section rate and perinatal mortality. This needs further studies.

Keywords: caesarean section; Northwest Nigeria; perinatal outcomes.

INTRODUCTION

Caesarean section is deemed necessary when an attempt at vaginal birth is dangerous to the mother, baby or both. It is the commonest major surgery in obstetrics and it has contributed to improved obstetric care throughout the world.[1] Like any other major abdominal surgery, caesarean section is not devoid of complications. These complications contribute to maternal morbidity and mortality in our environment.[2] Maternal mortality is 10-20 times greater than vaginal delivery.[3] The perinatal mortality and morbidity associated with caesarean section is significantly related to the indication, characteristics of the patient, quality of antenatal care and experience of the surgeon. Reports from Pakistan and other low-resource settings indicate that substandard care, inadequate training, low staff competence and a lack of resources, including equipment and medication, are all factors that contribute to neonatal deaths.[4,5] A number of studies have shown that high caesarean section rates are not associated with better perinatal outcomes in vertex presentation with weight above 2.5 kg.[6-8]

The UN recommends a caesarean section rate of 5–15% to optimally minimize maternal and neonatal mortality rates.[9] Great Britain and as in most developed nations have almost doubled the recommended UN caesarean section rate[10] while a 10% caesarean section rate was reported from Ethiopia.[11] In Nigeria, a caesarean section rate of 10.2 – 34.7% has been reported in some Teaching Hospitals.[12-16] Caesarean section is often done as an emergency procedure in women with cephalo-pelvic disproportion, obstructed labour, foetal distress, antepartum haemorrhage and previous caesarean section resulting in high perinatal and maternal morbidities.[16-24]

METHODS

This was a retrospective study of caesarean sections performed from 1st January 2010 to 31st December 2012 at the Federal Medical Centre, Birnin Kudu, Jigawa State. Birnin Kudu is a town and a local government headquarters in the south of Jigawa state

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of Nigeria. According to the 2006 population census, it had a population of 333,757 inhabitants and they are predominantly Muslims and Hausa/Fulani by ethnicity. Their major occupation is farming. Birnin Kudu is about 130 km southeast of Kano city, the commercial nerve centre of northern Nigeria. The Federal Medical Centre is a tertiary health facility. It serves the health care needs of the people in the community and also receives referrals from other hospitals in the state and neighbouring northern states like Kano and Bauchi. The hospital is a 250-bedded facility. The records of labour ward, special care baby unit and operating theatre were used to identify the total number of deliveries, total number of caesarean sections performed and the perinatal mortality over the period in view. The case notes of patients who had caesarean section were retrieved from the records department and the following information were extracted: age, parity, booking status, indications for caesarean section and perinatal outcome. Ethical approval was taken from Health Research Ethics Committee of Federal Medical Centre Birnin Kudu, Jigawa State, Nigeria. HREC/FMC/25-03-2014. Informed consent from the patients was taken.

No postmortem was done for the mother or neonate that died during this period in consonance with the belief and tradition of the people. The data obtained was analyzed using SPSS version 16.0 s (Chicago Il, USA). Absolute numbers and simple percentages were used to describe categorical variables. Similarly, quantitative variables were described using measures of central tendency (mean, median) and measures of dispersion (range, standard deviation).

RESULTS

During the period from 1st January 2010 to 31st December 2012, there were a total of 3335 deliveries out of which 590 were by caesarean section giving a caesarean section rate of 17.69%. Of the 590 caesarean deliveries, 580 case notes were retrieved giving a retrieval rate of 98.3%. A total of 96 out of 580 babies died within the first one week of caesarean delivery, giving a perinatal mortality rate of 17.4 per 1000.

The average age of the women was 25.9±6.2 years and majority of them were uneducated and unemployed (Table 1). Most of the patients were primiparous women and unbooked. Obstructed labour was the most common indication for emergency caesarean section accounting for 31.7% of caesarean sections. Hypertensive disorders, especially pre-eclampsia/ eclampsia were also significant indications for caesarean section (Table 2). Caesarean section rate is falling (Figure 1). About 17% of neonates were dead. Most of the neonates (78.2%) were of normal weight (Table 3).

Table 1. Distribution of socio-demographic characteristics of the study group (n=580).

Variables	Frequency	%	Mean± SD	p-value
Age				
< 20	140	24.2		
20-24	140	24.2		
25-29	168	29	25.9±6.2	0.02
30-34	57	9.8		
≥35	75	12.9		
No education	441	76		
Primary education	139	24		
Occupation				
None	296	51		
Trader	232	40		
Farmer	52	9		

Table 2. Indications for caesarean section.

Indication	Frequency	%
Obstructed labour	184	31.7
Hypertensive disorders	130	22.4
Antepartum haemorrhage	69	11.9
Foetal Distress	15	2.6
Previous caesarean section	99	17.1
Malpresentation	60	10.3
Bad obstetric history	8	1.4
Others	15	2.6
Total Number	580	100

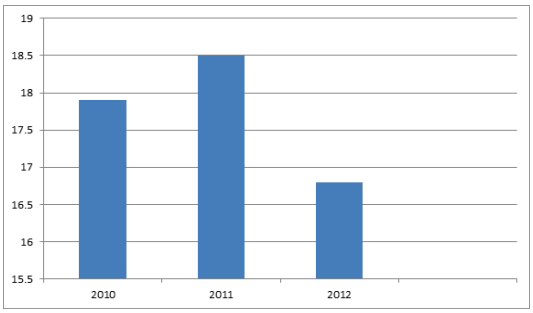

Figure 1. Trend of caesarean section during the period under review, 2010-2012.

Table 3. Perinatal outcome.

Parameters	Frequency	%
Fetal outcome		
Alive	483	83.43
Death	97	16.57
Total	580	100
Birthweight		
<2.5	96	16.57
2.5-3.99	454	78.21
≥4	30	5.21
Total	580	100

DISCUSSION

Caesarean section rate of 17.69% and perinatal mortality rate of 17.4 per 1000 were found in this study. The average age of the women was 25.9±6.2 years and most were primiparous with mean parity of 4±3.

The present study reports a caesarean section rate of 17.69%. This was higher than 10.3% in Enugu,[19] 10.5% (Makurdi),[21] 11.4% (Zaria),[13] 15.8% (Jos),[22] but lower than 20.3% reported in Birnin-Kebbi.[23] These differences are possibly due to referral nature of our centre, high prevalence of 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 southwest, Nigeria were similar to that of the present study.[24,25]

Emergency caesarean section rate of 90.4% reported in the present study is higher than those reported by Aisien[20], Okonofua[26] and Nwobodo[27] but lower than 97.4% reported by Buowari.[29] The implication is that perinatal mortality rate may continue to rise until caesarean section is done as elective rather than emergency procedure.

The most common indication for caesarean section was obstructed labour/cephalopelvic disproportion and this was consistent with studies from Kaduna[12], Zaria[13], Birnin Kebbi[23] and Ilorin.[25] In contrast, Ugwu et al and other series reported that previous caesarean sections is the commonest indication for caesarean section followed by cephalopelvic disproportion.[29,30] The reports of the present study are also in contrast to the findings of Adinma,[31] Aisien,[20] and Okonofua.[26] Malnutrition and chronic infection impair pelvic bone development.[32] Haemoglobinopathies especially sickle cell anaemia is also common in sub-saharan Africa. The women in the setting of this study are also given to marriage at very tender age when their pelvis is barely developed for parturition. All these predispose our women to cephalo-pelvic disproportion/obstructed labour.

The perinatal mortality rate of 17.4 per 1000 found in this review is far less than 162 per 1000 reported by Onwuhafua[12], 95.7 per 1000 reported by Adinma,[31] 81.6 per 1000 reported by Aisien[20] and 61.4 per 1000 reported by Okonofua.[26] Prolonged obstructed labour and preeclampsia/eclampsia are associated with severe fetal asphyxia and death if delivery is unduly delayed.[2,12] These may explain the high perinatal mortality rates. The lower perinatal mortality reported in the present study may be due to skills in neonatal resuscitation acquired by labour ward and neonatal intensive care unit staff and use of magnesium sulphate rather than diazepam in the management of severe pre-eclampsia/eclampsia.

The present study is the first study on caesarean section and perinatal mortality at this sub-urban tertiary hospital. The study did not determine correlation between caesarean section rate and perinatal mortality rate. Caesarean section rate in the present study is comparatively high and perinatal mortality rate is low compared to similar studies carried out in similar setting. It is however unclear if there is a correlation between caesarean section rate and perinatal mortality. The present study is hospital-based and has not determined the correlation between caesarean section and perinatal mortality rates in this sub-urban setting. Community-based research is needed to determine if there is a correlation between caesarean section rate and perinatal mortality in the sub-urban tertiary hospital.

DISCLOSURE

The authors report no conflicts of interest in this work.

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