

Full Length Research

DEMOGRAPHIC AND OBSTETRIC DETERMINANTS OF EMERGENCY CAESAREAN SECTION AMONG WOMEN IN CALABAR, NIGERIA.

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The rising incidence of emergency caesarean section in the tropics is a cause for concern among stakeholders. This study set out to assess the demographic and obstetric parameters of mothers who had emergency caesarean section performed on them in the centre studied. Proforma data sheet was used to obtain relevant information within 24 hours postpartum from women who had emergency caesarean section during the study period. The prevalence of caesarean section in the centre was 23%, with emergency caesarean section accounting for 66.4% of caesarean deliveries performed during the study period. The modal (43.3%) age-group among women was 26-30 years and half of the women were multiparous, followed by primiparous women who accounted for 44.7%. More than half (58.7%) of the women who had emergency caesarean section were of height 150 to 159cm. The majority (60.0%) of the women in the study population had weight ranging from 70 to 89kg. A vast majority (79.3%) of the women had booked and received antenatal care in the centre. Most (80.0%) of the caesarean sections were performed at term and failure to progress in labour was the most common (60.0%) indication for emergency caesarean section among women in the study population. Emergency caesarean sections were more commonly performed among booked women who were multiparous, of relatively short stature and weighing less than 160kg. The majority of the emergency caesarean sections were performed at term with the most common indication being failure to progress in labour.

Key words: demographic, obstetric, determinants, emergency, caesarean section.

INTRODUCTION

Caesarean section serves as a salvage surgical procedure facilitating rapid delivery of the fetus when prolongation of the pregnancy is deemed undesirable. Caesarean delivery could be performed as an elective procedure when there is a predictable risk to the mother or fetus during labour or in the presence of an identifiable indication for the procedure. The procedure is however undertaken as an emergency when a complication of

pregnancy or labour warrants quick intervention to deliver the fetus. (kwawukume 2002; Jaiyesimi and Ojo, 2003)

The rate of caesarean section 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 perinatal outcome following delivery. The incidence of caesarean section globally ranges from less than 10% to up to 35%. (Nwobodo *et al.*, 2011; Igberase *et al.*, 2009)

While the rising caesarean section rate in developed countries could be attributed to the use of continuous cardiotocographic monitoring during labour, defensive practice and repeat caesarean sections; in a developing country like Nigeria, primary caesarean sections result largely from cephalopelvic disproportion.(Festin *et al.*, 2009; Ikeako *et al.*, 2009)

Cephalopelvic disproportion in labour usually manifests as failure to progress in labour, which if neglected, could progress to obstructed labour. Emergency caesarean section accounts for a significant proportion of caesarean sections performed in developing countries. This trend is demonstrated by Nigerian studies, where emergency caesarean section rate was found to contribute 93.7%, 85.2% and 78.2% respectively in Enugu, Jos and Sokoto as against elective caesarean sections in those series.(Nwobodo *et al.*, 2011; Ugwu *et al.*, 2011; Mutihir *et al.*, 2005). Common indications for emergency caesarean section in Nigeria include cephalopelvic disproportion, repeat caesarean sections and fetal distress.(Ugwu *et al.*, 2011) Elective caesarean section is usually offered to women who have had 2 previous caesarean sections.

The rising caesarean section rate the world over has raised concerns among obstetricians, as the former carries significant maternal morbidity and mortality when compared with vaginal delivery. The ongoing effort to allow an attempt at vaginal delivery following one previous transverse lower segment caesarean section for a non-recurrent indication and the confirmation of fetal distress in labour with fetal scalp pH should be intensified as these measures have the potential to slow down the rising emergency caesarean section rate.(Geidem *et al.*, 2009)

This study was designed to establish the demographic and obstetric determinants of emergency caesarean section among women in the University of Calabar Teaching Hospital. It is envisaged that the findings of this study will help us identify a group of women who are at risk of having emergency caesarean section during their delivery. Such knowledge could help us improve upon the maternity care we offer to pregnant women in our environment.

MATERIALS AND METHODS

STUDY DESIGN AND STUDY AREA

This was a descriptive study that was conducted in the maternity annex of the University Calabar Teaching Hospital over a twelve-month period to assess the demographic and obstetric determinants of emergency caesarean section among parturients who delivered during the study period. The University of Calabar

Teaching Hospital is located in Calabar, the state capital of Cross River State, which is in the south-south geopolitical zone of Nigeria. The University of Calabar Teaching Hospital is the only tertiary health care facility that provides specialist maternity care to women in the state and its environ. There is also a secondary health care facility in Calabar, some private clinics and several primary health centres distributed across the state. Cross River State has a population of about 4million people with Calabar, the state capital having a population of 328,876 people, 50% of which are women. (National Population Commission, 2006)

RECRUITMENT AND DATA COLLECTION

Proforma data sheet was designed to obtain information on each parturient who delivered through emergency caesarean section during the period of the study. These pieces of information obtained from the women within 24hours postpartum included, maternal age, parity, height, weight and the booking status of the women. Additional information included the gestational age at the time of delivery and the various indications for emergency caesarean section. The total number of deliveries and the proportion of elective caesarean sections that were performed in the centre during the period under review were also extracted from the delivery register.

STATISTICAL ANALYSIS

The data obtained are presented in the form of numerical, simple proportion and percentages. Statistical calculations were done using conventional statistical formulas and some of the results are presented in tabular form for ease of perusal. The data were analyzed using descriptive and inferential statistics.

RESULTS

The study covered a period of 12 months, when a total of 1100 women were delivered in the maternity annex of the University of Calabar Teaching Hospital. A total of 253 caesarean sections were performed during the study period giving the prevalence of caesarean section of 23%. Analysis of the caesarean section register revealed that 168 (66.4%) were emergencies while 85(33.6%) were performed as elective cases. This gave an emergency caesarean section rate of 66.4% during the study period. Notwithstanding, 150 parturients were included in the study because in 18 of the women, adequate information could not be obtained.

Table I shows the demographic and obstetric parameters of women who underwent emergency caesarean section during the period of the study. The modal (43.3%) age group was 26-30 years. Half of the women were

multiparous, that is parity of 2 to 4, followed by primiparous women who accounted for 44.7% of the women in the study population. More than half (58.7%) of the women who had emergency caesarean section were of height 150 to 159cm. The majority (60.0%) of the women in the study population had weight ranging from 70 to 89kg. A vast majority (79.3%) of the women had booked and received antenatal care in the centre, whereas 2.7% of them had received antenatal care in the

centre but defaulted to attempt delivery elsewhere to no avail before they were brought to the centre.

The gestational age is cross-tabulated against the indications for emergency caesarean section in table II. A vast majority (80.0%) of the caesarean sections were performed at term, that is the period from the 37th completed week to 42nd week of gestation. Failure to progress in labour was responsible for the majority (60.0%) of the caesarean sections among women in the study population.

TABLE I: DEMOGRAPHIC AND OBSTETRIC DETERMINANTS OF EMERGENCY CAESAREAN SECTION AMONG WOMEN IN THE STUDY POPULATION

<u>Demographic/obstetric parameters</u>	<u>No. of women (%)</u>
<u>Age groups (Years)</u>	
16-20	8 (5.3)
21-25	36 (24.0)
26-30	65 (43.3)
31-35	31 (20.7)
36-40	10 (6.7)
<u>Parity</u>	
Para 1	67 (44.7)
Para 2-4	75 (50.0)
Para 5-7	8 (5.3)
<u>Height (cm)</u>	
<150	9 (6.0)
150-159	88 (58.7)
160-169	45 (30.0)
≥170	8 (5.3)
<u>Weight (Kg)</u>	
<50	2 (1.3)
50-69	38 (25.4)
70-89	90 (60.0)
90-119	18 (12.0)
120-139	2 (1.3)
<u>Booking status</u>	
Booked	119 (79.3)
Unbooked	22 (14.7)
Referred	5 (3.3)
Defaulted	4 (2.7)
Total	150 (100.0)

TABLE II: GESTATIONAL AGE AND INDICATIONS FOR EMERGENCY CAESAREAN SECTION AMONG WOMEN IN THE STUDY POPULATION

Gestational age (Weeks)	Indications					
	*Fail. Progr.	Obst. Lab.	Fetal distr.	IPH	PE/Eclamp.	Total
30.0-33.6	1	0	1	0	2	4(2.7)
34.0-37.6	4	2	5	4	6	21(14.0)
38.0-42.0	54	34	28	3	1	120(80.0)
> 42	1	1	3	0	0	5(3.3)
Total	60(40.0)	37(24.7)	37(24.7)	7(4.6)	9(6.0)	150(100.0)

*Fail. Progr.= Failure to progress in labour

Obst. Lab.= Obstructed labour

Fetal distr.= Fetal distress

IPH= Intrapartum haemorrhage

PE/Eclamp.= Preeclampsia and Eclampsia

DISCUSSION

Identifying the factors that are associated with emergency caesarean section among women could contribute to the effort to reduce the rising rate of emergency caesarean section in our maternity centres. The prevalence of caesarean section in the centre studied was 23%. The caesarean section rate in Nigeria appears to vary from one centre to another with the lowest rate recorded being 9.9% in Sokoto and the highest rate of 34.5% obtained in the Niger Delta. (Nwobodo *et al.*, 2011 and Igberase *et al.*, 2009) The contribution of emergency caesarean section was 66.4% among the parturients. This was not surprising as most caesarean sections in Nigeria are performed as emergency procedures. Higher emergency caesarean section rates of 78.2%, 93.7% and 85.2% were attained in Sokoto, Enugu and Jos respectively. (Nwobodo *et al.*, 2011, Ugwu *et al.*, 2011 and Mutahir *et al.*, 2005) This trend is probably related to the high prevalence of cephalopelvic disproportion among women in our environment resulting from relative pelvic contraction. (Orhue, 2006) The reason for the finding of the majority (43.3%) of the parturients belonging to the 26-30 years age-group is not clear, however, it is probably a reflection of the peak age-group of reproduction of women in our environment. Among the few studies that analysed the age group of women who had emergency caesarean section, a study in the Niger Delta of Nigeria had a similar result where the majority of the parturients in that series belonged to a comparable

age-group of 25-29 years. (Igberase *et al.*, 2009) Half of the women who had emergency caesarean section in the study group were multiparous, supporting the findings of other studies in Nigeria. (Ikeako *et al.*, 2009 and Ugwu *et al.*, 2011) This is probably an incidental finding rather than an independent risk factor for emergency caesarean section. The majority (58.7%) of the women who had emergency caesarean section had height of 150-159cm. The height of a woman has been identified as a crude index of the size of her pelvic cavity. (Ekwempu, 2006) This is the likely explanation why the majority of the women had height of less than 160cm. Poverty and undernutrition, which is widespread in Nigeria may be responsible for why our girls do not attain optimal skeletal growth and pelvic maturity before they commence motherhood. The finding of the majority (60.0%) of women having weight of 70-89kg is not clear, notwithstanding, this may simply reflect the modal weight of women who confined in the centre during the study period. This is probable as maternal weight per se is not known to influence childbirth. A vast majority (79.3%) of the women had booked and obtained antenatal care in the centre. This result has revealed that most of the women who confine in our centre are booked pregnant women. Findings from other Nigerian studies however contrasted with ours as booked women accounted for a mere 40.5% and 57.5% respectively in those series. (Igberase *et al.*, 2009 and Ugwu *et al.*, 2011) It is also important to note that antenatal care does not confer immunity on woman during labour from intrapartum

complications. Most (80.0%) of the emergency caesarean sections were performed at term as expected; although, preterm caesarean section accounted for 16.7% of cases, which raises concern about perinatal outcome especially among infants delivered before 34 weeks of gestation. This study however did not focus on perinatal outcome following emergency caesarean section among parturients. Although preterm caesarean sections are often inevitable, a lower rate of 8.0% was obtained by Ozumba and Mbadiwe in their study. (Ozumba and Mbadiwe, 1993) The most common indication for emergency caesarean section was failure to progress in labour, which often result from cephalopelvic disproportion. (Kwawukume, 2001) This result has confirmed the findings of other studies in Nigeria where cephalopelvic disproportion remained the most common (25.6% and 15.5% respectively) indication for emergency caesarean section. (Ikeako *et al.*, 2009 and Geidam *et al.*, 2009) Lower contributions of cephalopelvic disproportion to the indications for emergency caesarean section were however noted in other studies. (Festin *et al.*, 2009 and Kwawukume 2001) Eventhough, obstructed labour contributed to a modest 24.7% of emergency caesarean sections among parturients, this complication of labour is often viewed as a failure of intrapartum supervision as this could be detected at the stage of failure to progress before it progresses to overt obstruction.

In conclusion, emergency caesarean section was more commonly performed among booked women who were multiparous, of relatively short stature and weighing less than 90kg. The majority of the emergency caesarean sections were performed at term with the most common indication being failure to progress in labour. On the other hand, the majority of the preterm cesarean sections were performed due to severe preeclampsia and eclampsia.

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