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The rate of primary caesarean section at the federal medical centre, Owerri.

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ABSTRACT

The rate of primary caesarean section at the federal medical centre, Owerri was analyzed. This is a comparative descriptive study, carried out in the department of obstetrics and gynaecology , Federal Medical centre, Owerri Imo state. The study subjects were recruited using the systematic random sampling technique. The results showed that about 200 women were recruited out of which 48 had caesarean section, giving a primary caesarean section rate of 24%. Ninety one point seven percent (91.7%) were done as emergencies while 8.3% were done as electives. The main indications for emergency caesarean sections were: Dystocia (43.2%), Fetal distress (25.0%) and Pre-eclampsia/eclampsia (18.2%) while persistent transverse lie constituted 50% of the indication for electives. In conclusioThe primary caesarean section rate of 24% found in this study is quite high. Primary caesarean section should be approached more cautiously, since a scared uterus increases the risk of repeat caesarean section with consequent increased morbidity and mortality.
Keywords:Caesarean section, obstetrics, gynaecology and Fetal distress.

INTRODUCTION

The relevance of primary caesarean section in the reproductive career of any woman is only too obvious. This is especially more so at times like now when concerns about the rapidly rising caesarean section rate is at its peak globally and a number of studies have implicated repeat caesarean section (ie previous caesarean section scar) as a leading indication for caesarean birth [1,2,3,4]. Once a woman's uterus has been scared by a caesarean delivery, the threshold for a repeat caesarean section is markedly lowered and hence a rise in the overall caesarean section as seen now is inevitable with the attendant high morbidity and mortality. It appears that the overall caesarean section rate parallels that of primary rate. For instance , in the United States of America ,the primary caesarean section rate increased from 4.2% in 1970 to 24% in 2005. Over the same period the overall caesarean section rate also increased from 5.5% to 30.5% [5]. Between 1980 and 1985 previous caesarean birth was the sole indication for 30 – 40% of all caesarean sections in the USA [6]. In Ontario Canada, caesarean section rate increased from 16.5% in 1979 to 18.7% in 1982 and previous caesarean scar accounted for 68% of the increase ahead of fetal distress, dystocia and breech presentation [3]. Similarly, [1] and [2] working in Kano northern Nigeria and Nnewi southeastern Nigeria, respectively found previous caesarean section scar a leading indication for caesarean delivery. Primary caesarean section not only predisposes a woman to repeat caesarean delivery, it also contributes a major portion of the overall caesarean section. It has been reported to constitute over 65% of caesarean sections in a number of studies [7,8.9.10]. In Ilorin, 75% of the entire caesarean births as at 2003 were primary caesareans section alone [10].

LITERATURE REVIEW

Whereas caesarean section may be defined as the delivery of an infant, the placenta and fetal membranes through an incision on the abdominal and uterine walls [11,12], after the age of fetal viability; primary caesarean section refers to the very first of such surgical procedure irrespective of parity. Primary caesarean section rate is the number of first caesarean sections per 100 of women who have normal delivery [5]. Caesarean section is the commonest major surgical procedure in obstetrics [7,8]. It requires a more constant re-appraisal than any other

surgical procedure as it can become dangerous even as it is regarded as increasingly safe. High caesarean delivery rates is an issue of international public health concern. Although caesarean section can be a life saving intervention, it is recognized that as a major surgical procedure, it carries risks for the both mother and baby which are not present in vaginal delivery. In 1985, the WHO prompted by increasing caesarean section rate stated that there was no additional benefit from a caesarean section rate more than 10-15% [14]. It thus recommended an upper limit of 15% for caesarean births. Though some have argued whether a uniform upper limit for caesarean delivery for every geographical region and institution is proper, it is known that caesarean section rates have increased beyond recommended levels. It has doubled or even quadrupled in some areas over the last few decades. In the USA for instance, the caesarean section rate increased from 5.5% in 1970 to 22.9% of all deliveries in the year 2000 and by 2007, about a third of all deliveries (31.8%) in the United states of America was by caesarean section [5]. In 1980, caesarean section delivery rate in England was 10% of the total delivery however by 2001, the value had appreciated to 21% [12]. In Brazil, 20% of births was by caesarean section in 1970, however this has risen to 40% in government owned hospitals and 80% in privately owned ones [12], which is the highest rate, the world over. A population based study reported an increase from 4.7% to 22.5% in the last three decades in the People's Republic of China, however, a hospital based study in urban China showed a rate that varied from 26% to 63% [15]. In Nigeria, the rate of caesarean section increased from 14.5% in 1999 to 26.9% in 2007 at the Nnamdi Azikiwe University Teaching Hospital[4](South Eastern Nigeria.) from 3.8% in 1990 to 20% in 1999 in the University of Ilorin teaching hospital [13] (North Central Nigeria), from 10.3% to 23% over an 11year period [16] (South Western Nigeria). Moreover, a value as high as 34.5% has been reported, in the Niger Delta [2]. These are contrary to the earlier reported lower rates attributed to socio-cultural reasons [17,18].

Objective of the research

The objective of this research was to determine the rate of primary caesarean section at the federal medical centre, Owerri.

MATERIALS AND METHODS

STUDY AREA

Owerri is the Imo state capital. It has a population of 403,725 people; comprising 205,481 females and 197,944 males [19]. Imo state is regarded as the eastern heart land bounded by Anambra, Abia, and Rivers . It has a population of 3.9million people and an annual population growth of 3%. Its landmass is about 100square kilometers and is predominantly inhabited by Igbos. The Federal Medical Centre Owerri is a tertiary health institution in the Imo state capital with a bed capacity of 383. It serves as a major referral centre for Imo state and its environs. Established in 1903 as a military hospital, it has metamorphosed through a general hospital status to its present status. It is more than 100 years old and is currently a centre for residency training in various disciplines including obstetrics and gynaecology. The obstetrics and gynaecology department has 6 consultant led units, 11 senior registrars, 24 registrars and an annual delivery rate of about 2400.

STUDY DESIGN

This is a comparative descriptive study, carried out in the department of obstetrics and gynaecology , Federal Medical centre, Owerri Imo state.

Inclusion criteria:

a) The study subjects are pregnant women who are undergoing caesarean delivery for the 1st time.
b) Women who have normal delivery.
c) Signed informed consent.

Exclusion criteria:

1. Women under going repeated caesarean section.
2. Women who do not give consent for participation.

SAMPLE SIZE CALCULATION

The sample size was calculated using the best estimate of prevalence rate[10] from literature review of studies done within the sub-Saharan Africa. The sample size was estimated using the following formula

$$N = \frac{Z^2 PQ}{D^2}$$

where N = Sample size. Z= Standard normal deviation usually set at 1.96, which corresponds to 95% confidence interval. P= Best estimate of prevalence of primary caesarean section from literature review 13% . Q = (1.00 - P) which is equal to 1.00 - 0.13 = O.87. D = Degree of accuracy, usually set at 0.05

$$\text{Thus } N = \frac{(1.96)^2(0.13)(0.89)}{\{0.05\}^2}$$

$$= \frac{3.482(0.13)(O.87)}{0.0025}$$

$$= 173$$

However this was made up to 200 in order to increase the power of the study.

RECRUITMENT

The study subjects were recruited using the systematic random sampling technique. On the average, about 200 women deliver every month in our labour ward. This gave a sampling frame of 600 for the 3 months data collection period. With a sample size of 200, the samping fraction was 1/3. This mean that after a simple random sampling for the first subject, every third subject that met the criteria was recruited until the sample size was completed. The study subjects were recruited from the pre natal and labour wards, since every woman for delivery passes through either or both of these wards in our centre. All enrolled subjects were followed from the labour ward to theatre and through the post operative or lying in ward period as the case may be. The maternal height in meters and the weight in kilograms were measured at the time of recruitment and the body mass index (BMI), was calculated by dividing the maternal weight in kilograms by the height in meters squared and entered into the data form. A standard questionnaire was used to extract information on maternal age, booking status, parity, literacy level, occupation ,husbands occupation, route of delivery, indication for caesarean section, nature of surgery(emergency or elective), fetal and maternal outcomes. Social classification was obtained using [19] method. This considers husband's occupation and maternal educational attainment and places her in upper, middle or lower socio economic class based on her score.

DATA ANALYSIS

The data collected was sorted out, coded and entered into spss 16.0 statistical package. Frequency table and charts were generated for relevant variables. Measures of central tendency and dispersion were used to summarise quantitative variables such as age,height, weight, babies weight etc, while qualitative variables such as occupation and literacy level were summarized with proportions. The observed data were subjected to bivariate analysis using the t- test and chi square tests. Multilinear regression analysis was carried out to determine the predisposing factors for primary caesarean section. All analysis were tested at the 5% level of statistical significance with $P < 0.05$ considered statistically significant.

ETHICAL ISSUES

Official approval to carry out the study was obtained from the ethical committee

of the Federal Medical Centre Owerri. Only patients who consented to participate were recruited.

DISSEMINATION OF RESULTS

The result of study was submitted to the West African College of Surgeons as part fulfillment of for part 11 FWACS(O/G) examination.

RESULTS

Table 1 Route of delivery

Route of delivery

	Frequency	Percentage (%)
Vaginal	152	76.0
Caesarean	48	24.0
Total	200	100.0

Table 2 Indications for caesarean section

Emergency	**Frequency**	**Percentage (%)**
Fetal distress	11	25.0
Dystocia	19	43.2
Failed induction	2	4.5
PIH/pre-eclampsia/eclampsia	8	18.2
APH	1	2.3
Others	3	6.8
Total	44	100.0

Elective	**Frequency**	**Percentage (%)**
Breech presentation	1	25.0
Placenta previa	1	25.0
Others (transverse lie)	2	50.0
Total	4	100.0

RESULTS

During the study period, February to April 2012, 200 women were recruited out of which 48 had caesarean section, giving a primary caesarean section rate of 24%. Ninety one point seven percent(91.7%) were done as emergencies while 8.3% were done as electives.(Tables 1; 2) The main indications for emergency caesarean sections were: Dystocia (43.2%), Fetal distress (25.0%) and Pre eclampsia/eclampsia(18.2%) while persistent transverse lie constituted 50% of the indication for electives.(Tables 2) None was done as a primary elective procedure. Post operative wound infections (16.7%) and post operative anaemia (14.6%) were the common post operative complications. One unbooked woman was nursed in the intensive care unit following a life threatening puerperal sepsis. There was no maternal death. The estimated blood loss ranged from 200mls to 1.2litres with a mean of 412.5mls +/- 188.9SD.(Table1.3a) The babies weights at birth ranged from 1.25kg to 4.5kg with a mean of 2.97 +/- SD. Eleven neonates had an APGAR of <7 at 5 minutes, six had need for admission into the special baby care unit. There were five neonatal deaths. One hundred and seventy nine(89.5%) of the women were booked while 21 (10.5%) were unbooked. On crosstabulation of the booking status and eventual outcome of delivery (Table 22), majority (76.2%) of the unbooked women had primary caesarean section , whereas only 17.9% of the booked women underwent caesarean delivery. Similarly a greater proportion of the booked women (82.1%) had normal delivery while only 23.8% of the unbooked women could be delivered vaginally. Being unbooked was

significantly associated with a risk of primary caesarean delivery with a chi-square = 35.039 and P- value < 0.001.

DISCUSSION

Primary caesarean section rate of 24.0% found in this study is higher than 3.5% and 12.7% found in Papa New Guinea [18] and in Ilorin, Nigeria [10] respectively. It is also suprisingly higher than the 20.6% reported in America[5]. This finding may be because the Federal Medical Centre, Owerri, has been the only functional government owned tertiary hospital serving Owerri and its environment for more than 5years now. Most complicated cases with a high risk of operative delivery are referred to it. Such a high rate means that Primary caesarean section remains very relevant in the worrisome rising overall caesarean section rate in our subregion and globally. [19], in 2011 reported that primary caesarean section accounted for 50% of the increasing caesarean section rate in America [20]. A booking rate of 89.5% found in the study is an improvement on 65% reported for developing world but still much less than 97% reported in the developed world [15,19]. Perhaps this was a reflection of the high literacy level also found in the study. All the women had some formal education and majority(67.0%) had some tertiary education. More so, the Federal Medical Centre draws its patients mainly from Owerri urban. Majority of the women(76.2%) who were unbooked had caesarean delivery whereas only 17.9% of the booked women had caesarean delivery. Being unbooked was significantly associated with primary caesarean section($p < 0.001$). This result is in keeping with the findings by other workers [21,22,23]. This also is understandable as most unbooked cases present only when life threatening complications arise. The unbooked women have been found also to have a higher post operative morbidity and mortality, as well as a poorer perinatal out come [1,19]. All the five neonatal deaths recorded in this study were from unbookedmothers.

CONCLUSION

The primary caesarean section rate of 24% found in this study is quite high. Primary caesarean section should be approached more cautiously, since a scared uterus increases the risk of repeat caesarean section with consequent increased morbidity and mortality. Being unbooked and nulliparity (not low parity) were significantly associated with a risk of primary caesarean section ($x^2 = 66.056$ and $P < 0.001$) and ($p < 0.001$ and $x^2 = 17.855$), respectively. The bulk of the parturients (50.5%) were nulliparous.

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