European Journal of Biology and Medical Science Research
Vol.9, No.3, pp.1-8, 2021
Print ISSN: ISSN 2053-406X,
Online ISSN: ISSN 2053-4078

INDICATIONS AND FETO-MATERNAL OUTCOMES OF CAESAREAN SECTION AT UNIVERSITY CALABAR TEACHING HOSPITAL: A SIX YEAR REVIEW

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ABSTRACT: *Caesarean section is one of the most common surgical procedures. With an increasing prevalence of caesarean section globally, periodic review is pertinent in order to determine the prevalence, indications and outcomes in our environment.The delivery records in the maternity unit of UCTH between 1st January 2013 and 31st December, 2018 were reviewed and relevant data obtained. Data were analyzed and presented as percentages.Caesarean section was the commonest major obstetric operation in university of Calabar Teaching Hospital over the period under review with a rate of 38.8%.The commonest indication being repeat caesarean section which accounted for 29.5% followed by Cephalo-pelvic disproportion (CPD) 17%. A total of 78% clients had emergency caesarean section while 22% of the caesarean sections were elective cases. The study demonstrated a high caesarean section rate in UCTH, Calabar (38.8%). Intensive effort should be invested towards reducing the prevalence by reducing the rate at which primary Caesarean section is performed. This can be achieved by encouraging operative vaginal deliveries; vaginal breech deliveries and vaginal birth after caesarean section to stem the tide of increasing caesarean section rate.*

KEYWORDS: caesarean section, antenatal care, obstructed labour, Calabar

INTRODUCTION

In our clime, high premium is placed on childbearing and parenthood with an ostensible penchant for high parity in which case vaginal delivery is preponderantly conjectured as the proof of womanhood. Lawani LO, Igboke FN et al, (2019) revealed that caesarean delivery is becoming common place despite its associated morbidity, mortality, prolonged hospital stay and high cost. It is almost certainly one of the oldest operations in surgery with its origin lost in the midst of antiquity and mythology (Lawani LO, Igboke FN, Ukaegbe CI et al, 2019; Daniel CN and Singh S, 2016). It has over the years evolved from an operation of last resort, usually leading to maternal death to a method of delivery by maternal choice. It is the delivery of the foetus, placenta and membranes after the age of foetal viability through abdominal and uterine incisions (Thomas FB and Andrew AC, 2014). This definition excludes uterine rupture and abdominal pregnancy where the foetus is removed from the abdominal cavity. In circumstances where vaginal delivery is not feasible, caesarean section has contributed to improved obstetric outcome (Inyang-Etoh CS and Etuk SJ, 2013).

Global variation in the incidence of caesarean section had been observed and also within the same country (Nwobodo EI and Waral HL, 2014). WHO officially withdrew its previous recommendation of 15% because there was no appropriate evidence for an optimum rate of caesarean section and what matters most is that women who need caesarean section receive them. Rates of 2% have been reported in Haiti, 20% in England, 25-30% in the UK, 30.2% in the US, 40% in Brazil and rates of 20-30% have been reported in most Nigerian tertiary hospitals (Akadri AA and Odelola OI, 2017; Njoku CO et al, 2016). A rate of 25.5% was reported in Calabar (Njoku CO et al, 2016). It is presently one of the most commonly performed surgeries in females.

Besides the increase safety of the operation due to improved anaesthesia, availability of blood transfusion services and antibiotics administration, the other factors accounting for the rise in caesarean section rate are: easy identification of foetus at risk before term, identification of at risk mothers, frequent resort to caesarean section in cases of previous caesarean section and increase number of elderly primigravida due to educational pursuit. Others are increase in the rate of assisted reproductive technology, decline in operative vaginal delivery and vaginal breech delivery, increase in diagnosis of foetal distress associated with the use of electronic foetal monitoring, increase rate of induction of labour, concern for litigations and fear for pelvic floor injuries associated with vaginal delivery (Dutta DC, 2014; Nwobodo EI and Waral HL, 2014; Nwobodo EI, Isah AY and Pante A, 2011). It was proposed that since the advent of successful caesarean section, over the years, mothers with small pelvis and large babies have survived, and contribute to these traits perpetuating in the population. Besides, caesarean section is more convenient for obstetricians than the lengthy vaginal delivery.

Daniel CN and Singh S (2011) reported that the indications for caesarean section have progressively increased. The indications for caesarean section are many and varying, often relative than absolute. They include contracted pelvis, cephalopelvic disproportion, major degree placenta praevia, two or more previous caesarean sections, malpresentation, foetal distress, intrauterine growth restriction and bad obstetric history (Incorpi MH, 2007; Akadri AA and Odelola OI, 2017). Currently, indications for caesarean delivery are classified into categories I, II, III, and IV. In Category I also known as emergency caesarean section, there is threat to mother or foetus as in foetal distress, uterine rupture, cord prolapse in which case delivery must be achieved within 30minutes. Category II or urgent caesarean section when there is foetal or maternal compromise not immediately life threatening such as antepartum haemorrhage and non-progressive labour with foetal and maternal compromise. Category III or scheduled caesarean section is where a woman is booked for elective caesarean section and she ruptures membranes. Delivery should be carried-out within 75minutes (Thomas FB and Andrew AC, 2014; Incorpi MH, 2007; Mutihir JT, Daru PH and Ujah IAO, 2005).

Early complications include intraoperative and post-operative bleeding, damage to contiguous structures and anaesthetic complications. Others are Neonatal respiratory distress syndrome, iatrogenic prematurity, atelectasis, lower respiratory tract infection, endometritis, wound haematoma /infection, wound dehiscence, paralytic ileus and thromboembolism (Akadri AA and Odelola OI, 2017; Nwosu C Agumor K Aboyeji AP and Ijaiya MA, 2004). Late complications

include increase risk of rupture in subsequent pregnancy, placenta praevia with higher risk of morbidly adherent placenta, peritonitis, adhesions and intestinal obstruction. Others are incisional hernia, keloid, hypertrophic scare, endometriosis and genital fistulae. Therefore, the aim of the study was to evaluate the prevalence, indications and outcomes of caesarean section in UCTH during the period under review. The evaluation is expected to assist in future decision making and scale-up care to reduce maternal and foetal morbidities and mortalities from caesarean sections.

METHODOLOGY

This was a retrospective study involving pregnant women who had caesarean section at UCTH from 1st January, 2013 to 31st December, 2018. Data were extracted from the delivery register and case records of patients who had caesarean sections. Demographic data, indications for caesarean section, foetal and maternal outcomes were obtained and analyzed. A patient is referred to as unbooked if she did not attend antenatal clinic at all throughout the course of her pregnancy and only presented for the first time at UCTH either in labour or with complications of pregnancy, while booked pregnant women are patients with previous antenatal visit. Data were presented in percentage in tables.

RESULT

Out of the 11,231 women who delivered during the study period, 4,358 women had caesarean section, giving a prevalence rate of 38.8%. Due to incomplete data in some of the records, 4,303 women who had caesarean section over the period were analyzed. Table 1 depicts the trend of caesarean section during the six years' period under review. There was a steady rise in caesarean section rate from 33.4% 2013 to 42.4% in 2016. Caesarean section rate was highest in 2016 before a slight decline in 2018 within the period under review.

Table 1: **Yearly rate of caesarean section**

Year	Total	Caesarean sections	Percentage (%)
2013	2747	918	33.4
2014	1404	540	38.5
2015	1755	670	38.2
2016	1995	846	42.4
2017	1843	772	41.9
2018	1487	612	41.2
Total	**11,231**	**4358**	**38.8**

Table 2 reflects the age, parity, booking status, marital status and tribe of the patients who had caesarean sections during the period under review. The modal age group was (30-39) 54.94%. The cumulative age group of (20-39) accounted for 93.9%. Women aged >40yrs had the least caesarean section rate which was 2.53%. Majority of the subjects, 75.6% had antenatal care in UCTH (booked) while the remaining 24.4% were unbooked. Most of the clients who had caesarean section had parity 1-4 (61.9%), 33.8% were nulliparous while 4.3% had parity >4. Most (90.8%) of those who had caesarean delivery were married and majority of them were from Efik and Ibibio tribes culminating into 82.7%.

Table 2: Socio-demographic characteristics of the patients

Demographic	**Frequency**	**Percentage (%)**
Age		
<19	152	3.54
20-29	1,678	38.99
30-39	2,364	54.94
>40	109	2.53
Parity		
Nulliparous	1,454	33.8
1-4	2,664	61.9
>4	185	4.3
Booking status		
Booked	3253	75.6
Unbooked	1050	24.4
Marital status		
Single	219	5.I
Married	3,907	90.8
Divorced	120	2.8
Widow	57	1.3
Tribe		
Efik	2104	48.9
Ibibio	1454	33.8
Others (Ibo, Yoruba,etc)	745	17.3

The maternal outcomes following caesarean delivery within the period under review were shown in table 3. A total of 22.8% had maternal complications. Surgical site infection was the most common complication and this was noticed in 8% of the patients. A total of 4.1% of clients had hysterectomy and 0.8% maternal death was linked to caesarean delivery during the period under review.

Table 3: Maternal outcome of caesarean sections

Parameter	Frequency	Percentage (%)
No complication	3,322	77.2
Postpartum haemorrhage	194	4.5
Anaemia	232	5.4
Surgical site infection	344	8
Hysterectomy	176	4.1
Maternal death	35	0.8

A total of 33% of foetus developed foetal complications. Birth Asphyxia was the commonest foetal complications of caesarean section and occurred in 9.1% of the subjects. Perinatal mortality was observed in 3% of the newborn.

Table 4: Foetal outcome of caesarean section

Parameter	Frequency	Percentage (%)
No complication	3,313	77.0
Birth asphyxia	392	9.1
Neonatal sepsis	185	4.3
Low birth weight	284	6.6
Perinatal death	129	3

Table 5 shows the indications for caesarean section and the type of caesarean section. A total of 78% of the subjects had emergency caesarean delivery, while 22% were elective cases. Repeat caesarean section was the commonest indication amounting to 29.5%, followed by cephalopelvic disproportion (CPD) 17% and obstructed labour 13.2 %.

Table 5: Indications for caesarean section

Parameter	Frequency	Percentage (%)
Previous caesarean section	1,269	29.5
CPD	732	17.0
Obstructed labour	568	13.2
Failure of labour to progress	349	8.1
Breech presentation	271	6.3
Foetal distress	314	7.3
Antepartum haemorrhage	267	6.2
Hypertension in pregnancy	387	9.0
Multiple pregnancy	99	2.3
Retained and twin	47	11
Class of caesarean section		
Elective	947	22
Emergency	3356	78

DISCUSSION

Caesarean section represents the most significant operative intervention in Obstetrics as its development and application have saved the lives of countless mothers and infants. However, inappropriate use or poor operative approach can be a direct and avoidable cause of morbidity (Thomas FB and Andrew AC, 2014). Globally, there is variation in the incidence of caesarean section and it has shown an increasing rate in recent times. In the present study, a prevalence of 38.8% was reported. This is comparable to 32.9% and 28.5% reported in south-west and south-south Nigeria, respectively (Akadri AA and Odelola OI, 2017; Inyang-Etoh CS and Etuk SJ, 2013). It is higher than 25.6% prevalence reported in a study in Calabar between 2008 and 2012 (Njoku CO et al, 2016). A study done in a tertiary hospital in North West Nigeria reported an incidence rate of 34.5% (Daniel C.N and Singh S, 2011). In some studies, a global incidence of 10-30% were reported while an incidence of 20-40% was reported for Nigeria (Lawani LO, Igboke FN et al, 2019; Isah AD, Adewole N and Zaman JA, 2018). This increasing trend in the incidence of caesarean section has been attributed to increase use of electronic foetal monitoring devices in labour and the resultant increase dictation of foetal heart tone abnormalities. The specialist status of our hospital (UCTH) leads to increased turnover of high risk deliveries from primary and secondary health care facilities, TBA's and churches with resultant increase in caesarean section rate.

To meet the sustainable development goals, and decrease maternal mortality, increase access to safe caesarean section as an obstetric intervention is of critical importance (Lawani LO, Igboke FN et al, 2019; Isah AD, Adewole N and Zaman JA, 2018). In this study, the high maternal and neonatal morbidity and mortality recorded may be due to poor obstetric practices in our environment, where traditional birth attendants, unsupervised home delivery, churches and other un-orthodox institutions conducts most deliveries and refer complicated ones at a time when other forms of interventions have failed. This situation of late presentation of severe obstetrics condition to the hospital is compounded by poorly funded health institution which lack basic facilities such as power supply, emergency blood services and effective and affordable antibiotics. Most of these patients with severe obstetric condition are poor and present to the health facility without fund to pay for health services. Patients care in most cases are either delayed or abandoned until they source fund for basic needs such as payment for health record, blood, antibiotics and surgery.

For the period under review, with respect to age distribution, the age bracket (20-39) accounted for 93.93%. This constitutes the group with maximum reproductive potential and is at the peak of their reproductive career. Caesarean section was commonest in women with (1-4) children and is in agreement with previous studies (Lawani LO, Igboke FN et al, 2019; Daniel CN and Singh S, 2011). The percentage of unbooked patients was high and this reflects the persistence of the issues of low acceptability of antenatal care in developing counties which has been a concern in the most developing countries.

The Study revealed a higher proportion of emergency caesarean section compared to elective caesarean section and this had also been recorded in some studies in developing counties (Lawani LO, Igboke FN et al, 2019; Daniel CN and Singh S, 2011). This may not be unconnected with high rate of unbooked patients following high turnover of patients with complications from labour and delivery in churches and TBAs. Repeat caesarean section was the leading indication for caesarean section accounting for 29.5% and consistent with some other studies (Okonta P I. Otoide VO and Okogborrin SA, 2003; Swende TZ, Agida ET and Jogo AA, 2007). A possible explanation is that mothers who were previously malnourished and had small pelvis or even normal pelvis now live in relatively more affluent settings and therefore prone to giving birth to bigger babies and this could lead to difficult labour.

CONCLUSION AND RECOMMENDATION

The caesarean section rate of 38.8% within the period under review is high. The leading indication is repeat caesarean section (29.5%), cephalo-pelvic disproportion (17.0%) and obstructed labour (13.2%). In view of these findings, it is noteworthy to turn attention to community mobilization/awareness campaign to enhance attendance at the antenatal clinic. Effort at reducing the rising trend of caesarean section can be achieved by encouraging hospital delivery, vaginal birth after caesarean section, scale-up training on performance of vaginal breech deliveries and operative vaginal deliveries.

Conflict of interest: There was no conflict of interest in this study

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