ORIGINAL RESEARCH

FIVE-YEAR REVIEW OF ELECTIVE CAESAREAN SECTIONS AT THE CENTRAL HOSPITAL, AGBOR, DELTA STATE, NIGERIA

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Abstract

Background: Caesarean section (CS) is the most commonly performed surgery in obstetrics. It can be done as an emergency (EMCS) or elective (ELCS) procedure. The global rate of CS has been increasing, with ELCS contributing significantly to this rise**.**

Objective: This study aimed to determine the rate and indications of ELCS and explore potential ways to prevent unnecessary ELCS procedures.

Subjects and methods: This was a retrospective study reviewing one thousand three hundred and seventy-nine (1,379) cases of ELCS managed at the Central Hospital Agbor (CHA) in Delta State from January 1, 2019, to December 31, 2023. The collected data were analyzed using version 25.0 of the Statistical Package for Social Sciences (SPSS) software for Windows.

Result: The CS rate within the period of review was 43.8%, while the ELCS rate was 23.2%. The ELCS rate was consistently higher than the EMCS rate over the five years. The most common indications for ELCS were Repeat CS 344 (24.9%), two previous CS 292 (21.2%), Breech 139 (10.1%), and Macrosomia 85(6.2%). The age brackets of 20-29 and 30-39 comprise 36.2% and 57.9% of the study population, respectively, while multiparous women account for 76.9% of the population. The majority of participants were booked patients, representing 91.3% of the study group.

Conclusion: The CS rate, especially for ELCS, is notably high. It is important to meticulously select candidates for CS, particularly for primary CS, to prevent unnecessary procedures and the potential for repeat CS in the future, addressing the increasing rate and its negative impacts**.**

Keywords: Caesarean section; Healthcare services; Nigeria; Pregnancy; Women's health.

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INTRODUCTION

Caesarean Section (CS) is a surgical procedure in which incisions are made through a woman´s abdomen and uterus to deliver one or more babies and to remove the placenta and fetal membranes.[1] When vaginal delivery is not feasible, CS is a critical intervention that can prevent complications and save the lives of both the mother and the baby. The reasons for the procedure can vary and may include fetal indications such as fetal distress, breech presentation, or macrosomia, as well as maternal factors like short stature, pregnancy-induced hypertension, or a combination of both. It can be performed as an emergency or elective procedure. The World Health Organization (WHO) considers a 5-15% CS rate the optimal range[2] A lower rate could suggest unmet medical needs, while a higher rate may sometimes indicate improper selection.[3,4] Despite the WHO recommendations, the global rate of CS is rising due to several factors. Advances in anesthesia, along with the availability of blood transfusions and antibiotics, have enhanced the procedure's safety.[5] Additionally, there has been a decrease in the frequency of operative vaginal deliveries and vaginal breech deliveries.[5] Concerns about litigation in obstetric practice, the identification of high-risk mothers, and the increasing trend of repeat CS in women with prior cesarean deliveries have further contributed to the preference for CS as a delivery method.[5]

The growing rate of CS impacts both elective and emergency procedures. An ELCS is planned when there is a considerable risk of negative outcomes for the mother or baby if it is not performed at a specific time. The conditions necessitating an ELCS are diverse and frequently subjective, as opposed to being strictly definitive. These factors encompass conditions such as a contracted pelvis, placenta previa, history of two or more previous caesarean deliveries, fetal malpresentation, macrosomia, oligohydramnios, intrauterine growth restriction, and bad obstetric history. A recent analysis [6] at the same centre revealed a higher incidence of ELCS compared to studies from other centres where EMCS was more common.[3,5,7-10] This finding highlights the necessity of documenting the prevalence, underlying indications, and potential strategies to curtail the increasing trend in ELCS. The goal is to minimize unnecessary procedures while ensuring optimal health outcomes for both the mother and the fetus.

PATIENTS AND METHODS

Study Setting and Design: This was a retrospective study of all ELCS carried out at the Central Hospital Agbor (CHA), Delta State, Nigeria, from January 2019 to December 2023. The Hospital is a 250-bed secondary Health facility established in the year 1906. The Obstetrics and Gynaecology Department has two consultants who are fellows of the National Postgraduate Medical College of Nigeria and the West African College of Surgeons. The Hospital attracts a monthly antenatal booking of over 200 women, and the delivery rate in the past 5 years has been approximately 1,200 per year.

In November 2007, the Delta State Government launched a comprehensive, free maternal and child health program, which successive governments have continued to sustain. This initiative encompasses the full spectrum of maternal care, including antenatal care, delivery (including CS), postpartum and postnatal care up to six weeks after delivery, as well as the provision of essential drugs, supplies, laboratory investigations, and surgical management of ruptured ectopic pregnancy and blood transfusion. This program has been a vital component of the state's healthcare strategy, ensuring that pregnant women and new mothers have access to quality care, regardless of their financial situation.

Ethical clearance: The study protocol was approved by the Ethical Committee of the Hospital with ethical no AMZ/CHA/8/5/25/009. The collected data were entered and kept in a password-protected computer, maintaining the confidentiality of patients' records.

Data collection

The obstetric theatre registers and labor ward delivery records were examined to identify patients who underwent ELCS during the study period. At our centre, parameters documented in our labor ward delivery register includes patient demographics, date, parity, gestational age, reasons for CS, type of CS, Apgar scores, single or multiple births, birth weight, and the conditions of the baby and mother until discharge, while the labor ward theatre register records age, parity, reason for CS, type of CS, time and duration of surgery, anesthesia technique, ranks of the anesthetist, surgeon, and assistant, and any major intraoperative complications. If information was incomplete in one record, the other was used to fill in the gaps, thus reducing missing data. The information was collected using a data extraction form designed specifically for this purpose.

Data Analysis

The generated data were keyed into the Statistical Package for Social Sciences (SPSS) computer software version 25.0 for Windows. The results were analysed using descriptive statistical methods.

RESULTS

Over the five-year review period, the total number of deliveries was 5,951, with 2607 delivered through CS, giving an overall CS rate of 43.8%. EMCS was 1228 (47.1%), while ELCS was 1379 (52.9%). Among the women who had ELCS, the average age of the parturients was 31.30 ± 5.09 years, while the minimum and maximum ages were 16 and 47 years, respectively. The modal age was 35 years. The majority of the participants (93%) were in the age ranges of 20-29 and 30-39 years. Multiparous women were the majority (1061), comprising 76.9% of the total population. Nulliparous women and Grand multiparous women comprised 290 (21.0%) and 28 (2.0%), respectively (Table I).

Table I: Sociodemographic Characteristics of Participants

Variable	Frequency	Percentage (%)
Age		
<20	8	0.6
20-29	499	36.2
30-39	799	57.9
>40	73	53
Parity		
0	290	21.0
1-4	1061	77.0
≥5	28	2.0
Booking Status		
Booked	1259	91.3
Unbooked	120	8.7

Throughout the five-year review, the rate of ELCS was higher than the rate for EMCS. (Table II).

Table II: Yearly Delivery and Elective CS Rates

Year	No of Elective CS	Total Deliveries	Elective CS rate
2019	221	1234	17.9%
2020	285	1090	26.1%
2021	294	1225	24.0%
2022	293	1208	24.3%
2023	286	1194	24.0%
Total	**1379**	**5951**	**23.2%**

Table III: Indications for ELCS

Indication	Frequency (N=1379)	Percentage (%)
Repeat CS	344	25.0
Two previous CS	292	21.2
Breech	139	10.1
Macrosomia	85	6.2
Pregnancy induced hypertension (PIH)	82	6.0
Twin pregnancy	66	4.8
Placenta praevia	61	4.4
Three previous CS	43	3.1
Fibroid	43	3.1
Abnormal lie	33	2.4
Maternal Request	21	1.5
Others	170	12.3

The most common indications for ELCS were Repeat CS (25%), two previous CS (21.2%), Breech presentation (10.1%), Macrosomia (6.2%), and pregnancy-induced hypertension (6%). (Table III).

Over the five years, 4 maternal deaths occurred following ELCS, three from postpartum haemorrhage, and one from high spinal anaesthesia, while 10 perinatal deaths (9 macerated stillbirths and 1 Fresh stillbirth) occurred.

DISCUSSION

Over the five-year review period, the rate of CS was 43.8%, while the rate of ELCS was 23.2%. The CS rate is much higher than those reported in many other centres in Nigeria.[11-15] The proportion of ELCS (52.9%) was significantly higher than that of EMCS (47.1%), in contrast to some previous studies.[3,5,7-10] The reason for the high rate of CS, particularly ELCS, may be attributed to the fact that CS and vaginal delivery are free in the centre. With costs mitigated, the acceptance of CS is generally expected to increase. In a previous survey on the acceptance of CS among antenatal women in the centre, 91.1% of participants

reported acceptance if indicated.[16] This was attributed to the mitigation of costs, among other factors.

In this study, the predominant indications for ELCS were repeat CS and two prior Cesarean deliveries. ELCS is particularly necessary for individuals with a history of CS who also present with additional comorbidities. A predominant factor contributing to the frequency of repeat CS was a brief interval between pregnancies. This may reflect a limited adoption of family planning practices among women of reproductive age within the population under study. Two previous CS is an absolute indication for CS for fear of uterine rupture and maternal and child death. Additionally, breech presentation was noted as an indication for ELCS in 10.1% of cases. Historically, multiparous women with a breech presentation, when selected carefully and assisted by an experienced accoucheur, were considered for assisted breech delivery. However, there has been a recent trend towards performing ELCS for all cases of breech presentation, contributing to an increased rate of ELCS procedures. Macrosomia was the indication for ELCS among 6.2% of the participants. Better nutrition and the use of various multivitamins among pregnant women may be contributing factors. However, in some suspected cases of fetal macrosomia that necessitated a CS, some babies were of normal weight, highlighting the need for proper evaluation and the combination of clinical examination with sonographic findings. Many twin pregnancies were delivered via ELCS, even when the first twin was in a cephalic position. The fear that the second twin may be delivered in a breech presentation, along with a lack of experience in assisting with breech deliveries, may explain the reliance on ELCS. Although there is still aversion to CS,[16,17] maternal request in the absence of a well-defined obstetric indication is an increasing indication for ELCS as documented in this review.

The high rate of ELCS recorded in this finding underscores the need for proper patient selection, particularly regarding the first surgery. Primary CS is a harbinger for further CS; therefore, proper selection should be carried out and the patient adequately counselled before embarking on the procedure. There is a need for training medical staff in labour management and the conduct of assisted breech delivery. Caution should be exercised regarding maternal requests for CS, as the procedure may not be entirely beneficial to the patient, particularly concerning future reproductive health.

Strengths and Limitations: This study represents the first ELCS review conducted in this centre. It functions as a clinical audit and establishes a basis for future analysis. The study is distinctive due to its inclusion of a free antenatal care program, which allows individuals from all socioeconomic backgrounds to give birth at this center, thereby enhancing the study's findings. However, although the antenatal care program was free, the study is limited to this particular facility, so the results may not be generally applicable. Record-keeping was inadequate, and the authors had to utilize data from various sources to address the issue of missing information. As a result, there remains a possibility that a few cases might not have been captured.

CONCLUSION

CS and ELCS, in particular, are on the increase. The rate is currently three times above the upper level of the recommended CS rate by WHO. While an ELCS is safer than an EMCS, it is not completely without risks of morbidity or mortality for the mother and baby. The current study's observed trend in elective CS highlights the necessity for improved patient selection and more comprehensive counseling on their advantages and potential risks.

Conflict of interest-Nil

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Ethical approval: The study protocol was approved by the Ethical Committee of the Hospital with ethical no AMZ/CHA/8/5/25/009

Authors contributions

MNR-Conception, design of the research, and data acquisition**.**
MNR and BKG-Analysis, Data interpretation, Drafting the work, Review, final approval for publication, and both authors have agreed to be accountable for all aspects of the work.

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