

An audit of caesarean section in a semi urban hospital in northern cross river state Nigeria utilizing the robson-10 criteria

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Abstract

Introduction: There has been rising rates of caesarean section across the globe and some of their indications are unjustified. This brings to the fore, the need to audit the caesarean section cases done in a resource poor setting like ours, utilizing the World Health Organization (W.H.O) endorsed Robson Ten Group Classification System (TGCS).

Objective: To determine the rate of caesarean section and the major contributing groups to this overall rate using the Robson Ten Group Classification System.

Materials and Method: This is a retrospective study of 430 women who had caesarean section over a 24 month period.

Result: Out of 1402 women that delivered during the study period, 430 of them had caesarean section, giving a caesarean section rate of 30.7%. Using the Robson Ten Group Classification System, group 3 was the major contributor to the overall caesarean section rate with 25.81%. This was followed by groups 1 (18.84%) and 4 (13.95%) respectively.

Conclusion: A high caesarean section rate of 30.7% was obtained from our study and group 3 was the major contributor to this caesarean section rate. Constant auditing is encouraged to lower the caesarean section rate.

Key words: Caesarean section; Robson ten; Classification; Nigeria.

1. Introduction

Caesarean section (CS) is the delivery of the baby, placenta and membranes through a surgical incision on the maternal abdominal and uterine walls [1]. It is the commonest major surgery performed on women globally and one of the major surgeries performed in obstetric practice [2, 3, 4].

The major indications for caesarean section are obstructed labour, gross cephalopelvic disproportion, two or more previous caesarean sections, antepartum haemorrhage (placenta praevia or abruptio placentae) and fetal distress. Others are failed induction of labour, failed vaginal birth after caesarean section (VBAC), preeclampsia/eclampsia, malpresentation and persistent occipito posterior position [2, 5, 6, 7, 8, 9].

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The recommended caesarean section rate by the World Health Organization (W.H.O) is 10 - 15% to avoid harm to the obstetric population [10]. While lower rate could suggest unmet need, a higher rate indicates improper selection at times [4, 11]. There is a range of caesarean section rate from 10.4% to 27.6% in Nigeria [4, 5, 6, 7, 8, 9, 11].

There is an increasing rate of caesarean section globally and this has been of concern to Obstetricians [12, 13]. This is because despite the increasing safety of anaesthesia and surgical techniques, caesarean sections account for more maternal morbidity and mortality compared to normal vaginal delivery [13]. Maternal mortality has been noted to be 10 to 20 times greater in women who had caesarean delivery than vaginal delivery [2].

There is a noted strong aversion for caesarean section in our environment [14]. As a matter of fact, caesarean delivery is despised by women in our culture independent of the level of education [15]. This aversion could drive a pregnant woman to strive to achieve vaginal delivery at all cost to prove her womanhood and thereby increasing the burden of caesarean section refusal and its adverse toll on maternal health [14,15,16].

Most of the caesarean sections done in Nigeria are of the emergency type especially in the unbooked patients who mostly present in emergency as a last resort with impending complications [2, 17, 18, 19]. The medical complications of caesarean section are post partum haemorrhage, increased requirements of blood transfusion, injury to bladder, ureter and intestines, prolonged hospital stay, post partum infection, wound dehiscence, endometritis, uterine synechae and infertility [20]. Apart from medical and anaesthetic complications there are social, economic and psychological implications of caesarean delivery [21].

The Robson Ten Group Classification System (TGCS) was designed for assessing caesarean deliveries and has been used across nations for comparing institutional studies [22]. The WHO in a systematic review in 2014 endorsed the Robson criteria as a global standard for identifying and analysing caesarean section rates contributors [23]. The Robson TGCS classifies all women into one of ten categories that are mutually exclusive and as a set, completely comprehensive. The categories are based on five basic obstetrical characteristics (parity, number of fetuses, previous caesarean section, onset of labour, gestational age and fetal presentation) [24].

In spite of the caesarean deliveries done in our centre of study which serves as a referral centre for health centres and maternities in Northern Cross River and parts of Benue state no study has been conducted on caesarean section. This spurred the audit on caesarean deliveries using the Robson Ten Group Classification System.

Objective

The study was to determine the rate of caesarean section and the major contributors to the rate utilizing the Robson Ten Group Classification System.

2. Methodology

This study retrospectively reviewed 430 women who had caesarean section out of 1402 of them that delivered at the Catholic Maternity Hospital Ogoja, Cross River state between January 2016 and December 2017. Their case files, theatre records, birth register and data were retrieved from the Medical records department, theatre, labour ward and post natal wards respectively.

The information obtained were age, parity, booking status, gestational age at delivery, indication for caesarean section, birth weight, APGAR score, gender of baby and neonatal morbidity and mortality.

The data was analysed with IBM's Statistical Package for Social Sciences (SPSS) version 23.0 for windows. The data was presented as absolute numbers, percentages, means / standard deviation and frequency tables.

Robson Ten Group Classification System was used to group the indications and the rate of caesarean deliveries in a frequency and percentage table.

Table 1 Robson Ten Group Classification System

Group	Description
1	Nullipara, single, cephalic, term pregnancy, spontaneous labour
2	Nullipara, single, cephalic, term, induced labour or planned caesarean section
3	Multipara without uterine scar, single, cephalic, term, spontaneous labour
4	Multipara without uterine scar, single, cephalic, term, induced labour or planned caesarean section
5	Multipara with uterine scar, single, cephalic, term
6	Nullipara, single, breech presentation
7	Multipara, single, breech including previous caesarean section
8	Multiple pregnancy
9	Single, abnormal lie including previous scar
10	Single, cephalic, preterm including previous scar

3. Results

In our period of study, 430 women had caesarean section out of the 1402 of them that had child birth. This gave a caesarean section rate of 30.7%. Using the Robson Ten Group Classification System, group 3 was the major contributor to the overall caesarean section rate with 25.81%. This was followed by group 1 (18.84%) and group 4 (13.95%) in order of frequency as shown in table 2 below.

Table 2 Robson 10 Group, frequency and percentage of caesarean section

Group	Frequency	Percentage
1	81	18.84
2	31	7.21
3	111	25.81
4	60	13.95
5	44	10.23
6	11	2.56
7	28	6.51
8	23	5.35
9	30	6.98
10	11	2.56
Total	430	100

Most of the women had emergency caesarean section and constituting 82.3% while majority of them were multiparous (73.4%). These are shown in table 3 together with the fetomaternal outcome parameters.

Table 3 The sociodemographic characteristics and fetomaternal outcome

	Frequency	Percent
Age group		
<=25	144	33.2
26 - 30	151	35.7
31 - 35	86	19.8
36 - 40	40	9.2
41 - 45	9	2.1
Parity		
1	112	26.6
2	90	20.7
3	85	19.6
4 or more	143	32.9
Type of C/S		
Emergency	353	82.3
Elective	77	17.7
GA at delivery		
Preterm	17	3.9
Term	413	96.1
Booking		
Booked	269	62.9
Unbooked	161	37.1
APGAR score		
Poor	60	13.8
Good	370	86.2
Birth weight		
Low	53	12.2
Normal	377	87.8
Sex of the baby		
Male	236	54.4
Female	198	45.6
Still birth		
Yes	44	10.1
No	390	89.9

Table 4 below shows that the mean age of these surgically delivered women was 28.56 +/- 5.57 years. The minimum and maximum values of the women's age, parity, gestational age (GA) at delivery and the fetal outcome values are also shown here.

Table 4 The mean and range of the fetomaternal parameters

	N	Minimum	Maximum	Mean	Standard Deviation
Age	430	18.00	45.00	28.56	5.57
Parity	430	1.00	10.00	2.98	1.85
GA at delivery	430	31.00	42.00	38.63	1.34
APGAR score	430	0.00	98.00	7.74	5.20
Birth Weight	430	1.20	4.90	3.12	0.60

4. Discussion

The overall caesarean section rate from this study was 30.7%. This was similar to 31.6% obtained from North America [25]. It was higher than 21% from a Tanzanian study and lower than 38.16% by Pravina et al [24, 26].

It was much higher than the 10-15% rate recommended by the World Health Organization. It has been affirmed that caesarean section rates higher or lower than this recommended rate do not protect against poor maternal and neonatal outcomes and rather could endanger the obstetric population [10, 27, 28].

The multiparous women constituted 73.4% and were more than the primipara (26.6%) as shown in table 3. A related Nigerian study also showed that multiparous women underwent more caesarean deliveries than the primipara at 66% [11]. The mean age of the participants was 28.56 +/- 5.57 years which is comparable to that of 26.6 +/- 6.5 years noted by Dekker et al and 26.53 +/- 5.1 years in India. [20, 26].

Table 2 shows that group 3 using the Robson Ten Group Classification System (TGCS) was the highest contributor to the CS rate in this study with 25.81%. This was followed by groups 1 and 4 with 18.84% and 13.95% respectively. For our study therefore, groups 3, 1 and 4 were the top contributors to the caesarean section rate. This was different from studies done by Pravina et al (groups 5, 2, 1), Parveen et al (groups 10, 5, 1), Pati et al (groups 2, 1, 3) and Sungkar et al (groups 10, 1, 3) as their highest contributors respectively [20, 24, 29, 30].

Group 3 had multipara without uterine scar, single, cephalic, term babies and spontaneous labour as the components (table 1). This showed that they were mostly primary caesarean section cases, babies in fetal distress and patients with poor progress of labour. Most of the cases done in this facility had emergency caesarean section (82.3%) as shown in table 3 and is corroborated by another study with emergency caesarean rate of 60.93% [20]. Being a referral centre, this could explain why group 3 contributed the most to the overall CS rate.

Some of the referring health centres and maternities might not have adequate and skilled staff to monitor labour with partograph, do continuous electronic fetal monitoring, augment labour effectively with efficacious oxytocics nor carry out instrumental deliveries. These measures could reduce caesarean section intervention and had been noted in a related Asian study [24].

Using this Robson Ten Group Classification System to audit CS in our environment should encourage future auditing to reduce the caesarean section rate from major contributing groups. This helps in the development of centre – specific strategies and improvement in clinical practices that may eventually lower the overall caesarean section rate [27, 31].

The use of the Robson TGCS has been endorsed by the World Health Organization (WHO) and the Federation of International Gynaecology and Obstetrics (FIGO) as a global standard tool for assessing, monitoring and comparing rates of caesarean section between health care facilities, countries and regions globally [10, 32].

5. Conclusion

A high caesarean section rate of 30.7% was obtained from our study and group 3 was the major contributor to the overall caesarean section rate followed by groups 1 and 4 utilizing the Robson Ten Group Classification System. Constant auditing is encouraged to lower the caesarean section rate.

6. Compliance with ethical standard

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Disclosure of conflict of interest

The authors declare no conflict of interest.

Statement of ethical approval

This was obtained from the hospital's ethics committee.

Statement of informed consent

Anonymity of the patients was maintained and informed consent obtained from the study participants.

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