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Post-operative Experience following Caesarean Section in a Nigerian Obstetric Population

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Abstract:

Background: Caesarean section is the most significant obstetrics operative intervention globally. Good postoperative experience after caesarean section is important because there is need for the mother to recover from surgery and take care of her baby. The aim of this study was to assess the experience of women that had caesarean section in the first 24 hours postoperatively.

Materials/methods: This was a cross-sectional study conducted among women that had elective and emergency caesarean section. They were followed up to 24 hours post-operative. The primary outcome measures were pain score and satisfaction. Secondary outcome measures were time of mobilization, time of commencement of oral feeds and time of initiation of breastfeeding. Data analysis was carried out using Statistical Package for Social Sciences version 22.

Results: The median pain scores among those that had emergency and elective caesarean section ranged between 2 and 3 at all points of pain assessment. The satisfaction was good among 66.1% that had emergency caesarean section and 71.2% among those that had elective caesarean section. However, the difference was not statistically significant ($\chi^2 = 0.546, p = 0.761$). More than 90% of the participants that had either emergency or elective caesarean section did not ambulate within the first 24 hours after caesarean section and there was no association between the time of ambulation and the type of caesarean section ($\chi^2 = 0.005, p = 0.941$).

Conclusion: The participants had adequate pain relief and majority were satisfied with the pain relief. However, the optimum satisfaction was not achieved. The participants did not ambulate early and did not initiate breast-feeding early.

Recommendation: Further research is recommended to assess other factors that affect patient's satisfaction and ambulation so as to improve on patient's postoperative care.

Keywords: Caesarean section, Post-operative experience, Pain-relief, Satisfaction

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Introduction

Caesarean section (CS) is the most significant obstetrics operative intervention with a global rise of more than 30% in some regions (1). The optimal range for caesarean section considered by World Health Organization (WHO) as target for provision of life saving intervention for infants and mothers is 5-15% (2). Higher rates suggest improper selection while lower rates indicate unmet needs of the patients (2). Caesarean section rate of 10.6% has been reported in Sokoto, North Western Nigeria (3).

Good postoperative experience after caesarean section is important because there is need for the mother to recover from surgery and take care of her baby. Some of these experiences in the immediate post-operative period include adequate pain relief, early mobilization, early commencement of oral feeds, early commencement of breast-feeding and general good satisfaction with pain relief. A qualitative study on women's perspective on recovery after CS found that priority of women following caesarean section centered about pain relief, mobilization and ability to return to their normal activity (4). Inadequate post-operative pain relief after caesarean section could lead to late ambulation, delay in initiating breast-feeding and inability of the mother to take care of her newborn (5).

Post-operative pain relief after caesarean section should be provided in order to improve the experience of patients and decrease morbidity (6). The efficacy of analgesic is important for patient satisfaction (6). The Royal College of anaesthesiologists have proposed that > 95% of women should be satisfied with pain relief on the first day post-operative following caesarean section and all women should receive epidural or subarachnoid opioids if caesarean section is done by regional anaesthesia (6).

Post-operative pain relief is an integral part of post-operative management and inadequate treatment of pain has major psychological, physiological, economic, and social consequences for the patients, their families, and society (7). The American Society of

Anesthesiologists Task Force on acute pain management advocates the use of multi-modal analgesia (8). It involves the administration of two or more drugs with different mode of action for providing analgesia which can be administered through the same or different routes (8). The rationale for using multi-modal methods is the achievement of satisfactory analgesia by synergistic effects between different classes of drugs and the incidence of side effects from any of the drugs used could be reduced since there is room for a reduction in the doses of individual drugs (9). A lower incidence of side effects and improved pain relief has been demonstrated with multi-modal analgesia methods (10-13). This may provide improved recovery, shorter hospital stay and possibly decreased healthcare costs.

Enhanced recovery after surgery (ERAS) was initially introduced for colorectal surgery patients but it has gained widespread use in others fields like obstetrics (14). Postoperative components of enhanced recovery for obstetrics surgery (EROS) include early ambulation, early oral intake, multimodal analgesia and early removal of urethral catheter (15). Enhanced recovery after surgery decreases morbidity, length of hospital stays and improves clinical outcome (16).

A study by Eleje et al in Rivers state have reported that up to 94% of patients had had caesarean section began independent mobilization after 24 hours post-operative (13). The mean duration of ambulation following caesarean section was found to be 18.6 ± 2.4 hours in Abakaliki, Ebonyi state (12) while it was found to be 22 ± 6.38 in Kano (10). This delay in ambulation following caesarean section could affect the emotional and psychological wellbeing of women. In addition, early ambulation could enhance breast-feeding, encourage mother to child bonding and reduces the risk of thromboembolism.

Egede et al (12) reported that up to 45% of the study participants in his study, initiated breast-feeding after 12 hours post-operative while Adamou et al (10) in Kano found that the mean duration of initiation of breast-feeding as high as 22.2 ± 6.9 hours. This duration of initiation of breast-feeding is markedly higher than that recommended by World Health Organization for baby friendly Hospital initiative which recommended initiation of breast-feeding within 1 hour after delivery. Egede et al in Abakaliki, Ebonyi state reported a satisfaction of 76% among those that had emergency caesarean section and 85.6% among those that had elective caesarean section (13). This is lower than the target of 95%.

Most women who undergo caesarean section do not actually have any underlying disease except that they

are fulfilling their duty of procreation. Hence, there is need to ensure that women have good experience while discharging this important responsibility. The pain relief, mobilization, initiation of breast-feeding and satisfaction with pain relief could affect the experience following caesarean section. There is paucity of published data on post-operative experience in the study centre. In addition, Adshead and co (16) suggested the need to conduct further research on the individual components of enhanced recovery after obstetric surgery and post-operative component is one of them. The aim of this study was to assess the experience of women that had caesarean section in the first 24 hours postoperatively. The findings from this study could be used to modify or improve the care rendered to pregnant women.

Materials and methods

The study was conducted among women that had caesarean section at Usmanu Danfodiyo University Teaching Hospital (UDUTH), Sokoto, North western Nigeria. UDUTH is a tertiary health institution located in the city of Sokoto, Sokoto State. It provides tertiary health care delivery, research and training and it's among the second-generation teaching hospitals in Nigeria. It serves Sokoto State and neighbouring Zamfara, Kebbi and Niger states, and also the Niger Republic.

The study was a cross-sectional study among pregnant women that had caesarean section at UDUTH. The inclusion criteria were those that had elective or emergency caesarean section under spinal anaesthesia and have consented to participate in the study were recruited. Those who were unconscious or had any intra-operative or post-operative complications were excluded from the study. They were recruited consecutively until the calculated sample size of 193 was reached.

All women who had elective caesarean section were recruited into the study a day prior to surgery and those that had emergency caesarean section were recruited as soon as the decision for the CS was taken. A written informed consent was obtained from the participants.

The instrument used for data collection was an interviewer administered questionnaire. Section A contained the socio-demographic characteristics, section B was obstetric history, section C was the numeric rating scale for pain, Section D contained the time of mobilization, time of initiation of breast-feeding, time of commencement of oral feeds and satisfaction. The surgeries were performed by senior registrars and consultants of the department while the administration

of the questionnaire was done by the researchers and some trained research assistants. Post-operative medications were served by the nurses.

Post-operative management was commenced immediately after the CS and vital signs were monitored closely. All participants were given intravenous fluids and intravenous antibiotics (Ceftriazone and metronidazole). Analgesia was achieved with combination of intramuscular pentazocine + rectal diclofenac or intramuscular paracetamol + rectal diclofenac. They were followed up to 24 hours post-operative. The primary outcome measures were pain score and satisfaction. Secondary outcome measures were time of mobilization, time of commencement of oral feeds and time of initiation of spontaneous breast-feeding.

Pain was assessed using numeric rating scale (NRS) which is a validated and reliable scale to measure pain intensity in adults (17). It is a segmented version of visual analog scale where a respondent chose a number that best indicate their pain intensity. The pain intensity is increased as the numbers increase. It has a horizontal line with 11 points from 0-10; where 0 represents "no pain" and 10 represents "worst imaginable pain." The pain score was assessed at 1 hour, 12 hours and 24 hours post-operative. Satisfaction with postoperative pain relief was assessed at the end of 24 hours using 5-point Likert scale as very dissatisfied (score of 1), dissatisfied (score of 2), neither satisfied nor dissatisfied (score of 3), satisfied (score of 4) or very satisfied (score of 5). Time of mobilization, spontaneous breast feeding and commencement of oral feed were noted. Time of mobilization was defined as the first time the participant walked without support after the caesarean section. The outcomes were compared between those that had emergency and elective caesarean section.

Data analysis was carried out using Statistical Package for Social Sciences version 22 (IBM SPSS statistics for windows version 22.0. Armonk, NY: IBM Corp.). Descriptive statistics for continuous variables were presented as median (inter-quartile range) and mean $\pm$ standard deviation. Categorical variables were presented as frequency and percentage. Time of mobilization was categorized into ≤ 24 hours and more than 24 hours. Time of spontaneous breast-feeding was categorized into less than 6 hours, 6-12 hours, 13 - 24hr and >24 hrs. Time of commencement of oral feed was categorized into ≤ 12 hours and more than 12 hours. Satisfaction was recategorized into 3 groups. Those on Likert scale of 1 and 2 were categorized as not satisfied, those with 3 neutral and those with 4 and 5 were categorized as satisfied. Mann Whitney U test

was used to compare the pain score between emergency and elective CS. Chi square test was used to compare categorical variables. *P* value < 0.05 was considered significant.

The study was conducted in line with Helsinki Declaration on human subject experiment and ethical approval was obtained from Usman Danfodiyo University Teaching Hospital (UDUTH) Ethics and health research committee with a registration number UDUTH/HREC/2018/No.679. Written informed consent was obtained from all the participants prior to data collection.

Results

A total of 193 participants were recruited into the study and all the participants completed the study. The mean age of the participants was 29.8 ± 6 years. Most of the participants were within the age group of 25 to 34 years and majority were Hausa and Muslims. Majority were of high social class and 26.4% were Primipara. Almost 66% of the caesarean sections were done as emergency. This is shown in Table 1.

Table 1: Socio-demography and obstetrics characteristics of the participants

Characteristics	Frequency (n)	Percentage (%)
Age		
Less than 20 years	9	4.7
20 to 24 years	26	13.5
25 to 29 years	54	28.0
30-34 years	57	29.5
35 and above	47	24.5
Ethnicity		
Hausa	128	66.3
Ibo	23	11.9
Yoruba	14	7.3
Others	28	14.5
Religion		
Islam	153	79.3
Christianity	40	20.7
Educational status		
No formal education	28	14.5
Primary	9	4.7
Secondary	55	28.5
Tertiary	101	52.3
Social class		
High	113	58.5
Middle	47	24.4
Low	33	17.1
Parity		
Nullipara	51	26.4
Multipara	109	56.5
Grandmultipara	33	17.1
Type of Caesarean section		
Emergency	127	65.8
Elective	66	34.2

The mean gestational age at delivery for the participants was 37.96 ± 2.8 weeks. The most common indication for caesarean section among the participants was failure to progress in labour due to malposition and

repeat caesarean section (due to failed vaginal birth after caesarean section and 2 or more previous caesarean section). This is shown in figure 1.

Figure 1: Indications for caesarean section among the participants

The median pain scores among those that had emergency and elective caesarean section ranged between 2 and 3 at all points of pain assessment. This indicates significant pain relief among those that had emergency and elective caesarean section. There was no significant difference in the pain score between those that had emergency or elective Caesarean section ($p > 0.05$). This is shown in Table 2.

The satisfaction with post-operative pain relief was good among 66.1% that had emergency caesarean section and 71.2% among those that had elective caesarean section. However, the difference was not statistically significant ($\chi^2 = 0.546, p = 0.761$). This is shown in Table 3.

More than 90% of the participants that had either ambulate within the first 24 hours after caesarean section and there was no association between the time emergency or elective caesarean section did not of ambulation and the type of caesarean section ($\chi^2 = 0.005, p = 0.941$). Similarly, there was no associa-

tion between the time of initiation of breast-feeding and the type of caesarean section ($\chi^2 = 0.105, p = 0.746$). Majority of the participants in both groups commenced oral feeding less than 12 hours post-operatively and there was no association between the time of commencement of oral feeding and the type of caesarean section ($\chi^2 = 2.943, p = 0.086$). This is shown in Table 4.

Discussion

The age group distribution in the 2 groups was comparably the same and this indicate similar age distribution between those that had emergency caesarean section and those that had elective caesarean section. Most of the participants in this study were between the ages of 20 to 34 years. Similar finding was also reported from previous studies on caesarean section in Sokoto (3, 18) and in Oshogo, Osun state (19). This falls within the reproductive age group distribution as reported by 2017 demographic statistics bulletin and may indicate active reproductive age group (20). This could suggest a target age group that would require special attention in reproductive health. Most of the participants were Hausa/Fulani and Muslims as the inhabitants of the study area. Similar finding was also reported in previous studies at the same study area (3). Majority of the participants had tertiary level of education. Similar finding was also reported from a retrospective study on caesarean section in the same study area (3, 18). This could be because educated women are more likely to present to a tertiary centre like the study area since they know they can get an optimum care.

Primipara accounted for about one quarter of the participants among those that had emergency and elective caesarean section and this could be because Primipara are testing their pelvis for the first time and could be at risk of having poor progress in labour which could lead to intervention by caesarean section in order to avoid complications of labour. Similar finding was also reported by Adekanle et al in Oshogbo, Osun state (19). The mean gestational age of 37.96 ± 2.8 weeks indicates

Table 2: Comparison of pain score between emergency and elective caesarean section

Time	Emergency CS Median (IQR)	Elective CS Median (IQR)	Mann Whitney U test	P value
1 hour post op	3 (2-4)	3 (1-5)	4,131	0.870
12 hours post op	3 (2-4)	2 (1.75 -3)	3,645	0.132
24 hours post op	3 (1-4)	2 (1-4)	3,745	0.219

Table 3: Comparison of satisfaction between emergency and elective caesarean section

Satisfaction	Emergency CS n (%)	Elective CS n (%)	χ^2	P value
Satisfied	84 (66.1)	47 (71.2)	0.546	0.781
Neutral	37 (29.1)	16 (24.2)		
Dissatisfied	6 (4.8)	3 (4.6)		

Table 4: Comparison of time of ambulation, breastfeeding and commencement of oral feeding post-operative

Variable	Emergency CS n (%)	Elective CS n (%)	χ^2	P value
Time of ambulation				
Less than 24 hours	10 (8.0)	5 (7.6)	0.005	0.941
24 hours and above	117 (92.0)	61 (92.4)		
Time of commencement of breastfeeding				
Less than 6 hours	0 (0)	0 (0)	0.105	0.746
6 to 12 hours	11 (8.7)	7 (10.6)		
13 to 24 hours	47 (37.3)	25 (37.9)		
More than 24 hours	68 (54.0)	34 (51.5)		
Time of commencement of oral feeding				
Less than 12 hours	94 (74.0)	56 (84.8)	2.943	0.086
12 hours and above	33 (26.0)	10 (15.2)		

that most of the caesarean sections were carried out at term and most were also performed as emergency. This is similar to the previous findings in retrospective studies on caesarean section (3, 18). It could be explained by the fact that some complications in labour cannot be predicted but close intrapartum monitoring would help in early detection and appropriate intervention offered. The complications that occur in the first stage of labour are usually managed by emergency caesarean section.

The indications for caesarean section found in this study were not far different from those indications from previous studies on caesarean section (3, 18, 19). Failure to progress in labour and repeat caesarean section (due to failed vaginal birth after caesarean section and 2 or more previous caesarean section) were the most common indications in this study. This could be due to close intrapartum monitoring and prompt management when there was poor progress in labour. Nwobodo et al (18) in Sokoto reported repeat caesarean section and malpresentation were the most common indications while Adekanle et al in Oshogbo (19) reported that repeat caesarean section, obstructed labour and failure to progress in labour were the most common indications. Repeat caesarean section was found to have an increasing trend in the United States and the indications for primary caesarean section were mainly due to poor progress in labour, non-reassuring fetal heart rate and malpresentation (21).

The median pain score of 2 and 3 indicates that the analgesic combinations received provided adequate analgesia. Both combination of analgesics used have been reported to provide adequate analgesia after caesarean section (10-13, 22). Majority of the participants were satisfied with the pain relief but the percentage of those satisfied is less the target of 95% satisfaction proposed by Royal College of anaesthesiologists (6).

The spikes of severe pain before administration of rescue analgesics and occurrence of side effects like

vomiting and drowsiness would have been responsible for the poor satisfaction experienced by the participants. Only 8% and 7.6% of the participants that had emergency and elective caesarean section began independent mobilization less than 24 hours post operatively and there was no significant difference between the two groups. This implies that there are other underlying factors responsible for delay in mobilization after caesarean section since both groups had adequate analgesia. These factors could be fear of complication by the participants if they start moving early or probably delay in removal of urethral catheters post-operative. Perhaps early removal of urethral catheter could encourage early ambulation. Early mobilization following surgeries is an important consideration in enhanced recovery after surgery (ERAS) (16).

Less than 50% of the participants initiated breast feeding within the first 24 hours after caesarean section. Factors like delay in establishment of lactation or admission at neonatal special care baby unit (SCBU) would have been responsible for the delay in initiating breast-feeding. The baby friendly hospital initiative by world health organization (WHO) has recommended early commencement of breast feeding within one hour of delivery in order to reduce infant mortality. None of the participants initiated breast feeding within first 6 hours after delivery and this could imply poor implementation of baby friendly hospital initiative. Most of the participants in both groups commenced oral sips less than 12 hours post-operative and this may be because they had uncomplicated caesarean section under sub-arachnoid block.

Conclusion

The participants had adequate pain relief and more than 60% were satisfied with the pain relief. However, the optimum satisfaction was not achieved. The participants did not ambulate early and did not initiate spontaneous breast-feeding early.

Recommendation

Further research is recommended to assess other factors that affect patient's satisfaction so as to improve on patient's satisfaction. Further research is also recommended to determine other factors responsible for delay in initiating breastfeeding and ambulation after caesarean section. There is need to conduct another study with longer duration of follow up to ascertain their experience up to discharge.

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