

Prevalence of General Anesthesia among all Patients Presenting to Operation Theatre for Caesarean Section in a Tertiary Care Hospital

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Abstract

Introduction: Caesarean section (CS) is an ongoing surgical procedure that has increased in the current time. The anesthesia of choice for CS worldwide is subarachnoid block. However, General Anesthesia (GA) is needed wherever spinal anesthesia is contraindicated, failed or inadequate. This study was conducted to find the prevalence of GA for CS in our institution which is a tertiary care hospital.

Methods: A retrospective descriptive cross-sectional study was conducted in Rapti Academy of Health Sciences (RAHS), Dang, Nepal. The study included pregnant ladies who were posted for CS over one year period. The data was collected from operation theatre records. The age of patient, nature of surgery, indication for GA, method of anesthesia and outcome of surgery were recorded.

Results: There were a total of 1238 CS. Of the total number of cases, the majority 779 (62.92%) were emergency and 459 (37.08%) were elective cases. Subarachnoid block was performed in 1229 (99.27%) and GA in 9 (0.73%) cases. The primary indication for GA was found to be Eclampsia, failure of subarachnoid block and hypovolemic shock secondary to antepartum hemorrhage with frequency of 5 (55.56%), 3 (33.33%) and 1 (11.11%) respectively. Complications associated with GA in pregnancy were not encountered.

Conclusion: The prevalence of GA for CS was low in this tertiary care hospital, with regional anesthesia being the preferred technique. General anesthesia was reserved for emergencies, contraindications to regional anesthesia, or following failed spinal anesthesia. These findings align with current obstetric anesthesia guidelines and emphasize the need for continued efforts to optimize neuraxial anesthesia use to improve maternal and fetal safety.

Keywords: Caesarean section; general anesthesia; subarachnoid block

Introduction

Reviewing the history, CS has been recorded since ancient times in both Western and non-Western literature. The first successful CS on a live pregnant lady was performed in the fifteenth century.¹ It is a frequent and increasing operative procedure for delivery of fetus globally.^{2,3} Single-shot subarachnoid block is a gold standard and safer technique for it due to raised morbidity and difficult airway in GA.^{4,5,6} However, GA is inevitable mode of anesthesia for CS.⁷ Few studies have been conducted

in Nepal and abroad to determine the prevalence of GA in CS.^{8,9,10} This study was conducted for our institutional review and data.

This study is intended to find the cause of GA for CS. This is expected to help ways to reduce the prevalence and better management of CS under GA thereby decreasing morbidity and mortality.

Methods

This retrospective descriptive cross-sectional study was

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conducted in Rapti Academy of Health Sciences (RAHS) over a period of one year. Approval of study was obtained from the Institution Review Board of RAHS with reference ID 011-2024/272. Data was collected from the operation theatre record book. It included all the pregnant ladies posted for CS from 16 June 2023 to 14 June 2024 age 15-45 years. Records with missing or incomplete information were excluded from the study. Total number of CS, elective and emergency cases, mode of anesthesia used, GA related complications, age group of patients, reason for GA and complications related to it were recorded. The data was entered in Microsoft Excel 2010 and expressed as percentage and numbers.

Results

A total of 1238 CS were performed over the period of one year. Among all operative cases, 779 (62.92%) were emergency cases and 459 (37.08%) were elective cases. Mode of anesthesia was subarachnoid block in 1229 (99.27%) and GA in 9 (0.73%) cases. Eight emergency and one elective case needed GA.

Age group of patients posted for CS ranged from 15-45 years. Most of the patients, 843 (68.09%) were of age group 21-30 years, whereas the least, i.e., 4 (0.32%) were of the age group more than forty. Eclampsia 5 (55.56%) was the commonest indication for GA in our study. Failure of subarachnoid block and hypovolemic shock secondary to antepartum hemorrhage accounted for 3 (33.33%) and 1 (11.11%) respectively. Complications related to GA in pregnant ladies and neonate were not seen in our study.

Table 1: Age distribution of patients undergoing CS.

Age (years)	Number	Percentage %
< 21	184	14.86
21-30	843	68.09
31-40	207	16.73
>40	4	0.32
	1238	100

Table 2: Indication of General Anesthesia for CS.

Indication of General Anesthesia	Number	Percentage
Eclampsia	5	55.56
Failure of subarachnoid block	3	33.33
Hypovolemic shock secondary to Antepartum hemorrhage	1	11.11

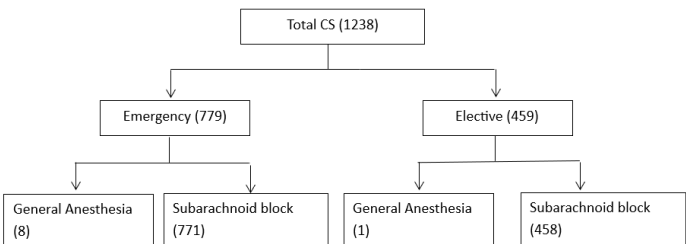


Figure 1: Flow chart showing nature of CS and method of anesthesia.

Discussion

CS is performed worldwide under subarachnoid block and is in increasing trend due to medical and non-medical reasons.² CS is practiced routinely under subarachnoid block in our institution.

The prevalence of GA for CS was 0.73 % in our institution which varied from 0.5% to 69.59% in other studies.^{11,12,13} In comparison to other studies conducted in tertiary hospitals in this part of world, the prevalence of GA in CS was least in our study while it was 1.87%, 4.84% and 17%, in studies conducted by Sigdel R et al Adhikari KM et al and Bhattarai R et al respectively.^{8,9,10} Higher prevalence of GA for CS was seen in studies conducted abroad due to patient choice, lack of skilled anesthesiologist and unfamiliarity with subarachnoid block with prevalence of 20.4%, 24.8% 66% and 69.59% in studies by RK Kan et al, Sari MA et al, Okafor et al and TC Martin et al respectively.^{14,12,15,13}

Emergency and elective CS were found to be 62.92% and 37.08% respectively in our study. This is similar to study conducted by Adhikari KM et al 85.27% and 14.73% respectively.⁸ A higher number of emergency CS in our study may be due to the location of the institution and study site being the referral center to nearby primary and secondary level health centers nearby. Nine (0.73%) out of 1238 cases needed GA of which one was elective case (0.08 %) and eight emergency cases (0.65%) similar to study done by Adhikari et al with 0.32% elective case and 1.47% emergency respectively.⁸ The rate of GA in elective and emergency cases varied from 3.44% to 30.10% and 2.63% to 42.60% respectively in other studies.^{15,11} Recommended rate of GA for CS below 5% and 15 % for elective and emergency cases respectively¹⁶ was obtained in our study. Less frequency of GA for CS in our study may be due to the expertise available, small study population, lesser duration of study. Most of the cases were performed under subarachnoid block 99.27% similar to past studies.¹⁸

The commonest cause associated with GA in CS in our study was Eclampsia 5(55.56%). Obstetrics comorbidities was the most common cause for GA in CS similar to our study.^{19,20} The second common cause of GA in CS in our study was failure of subarachnoid block 3(33.33%). Studies

by Palanisamy Et al and Cool E et al also show failed spinal as the cause of GA in CS but with varied incidence of <4% and 22 % respectively.^{19,20}

This study was done in a single institution over a period of one year. So, further research with a larger and diverse study population, longer duration study and multicentric study are needed for generalization.

Conclusion

With the results of this study, we can conclude that prevalence of GA in CS is low. Eclampsia is the commonest reason associated with GA in CS. Periodic and further study in larger population is required for generalization of the study.

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