

# A Snapshot of Adverse Effects of General and Spinal Anaesthesia during Caesarean Section

Sheikh Rukun Uddin Ahmad<sup>1\*</sup>

## ABSTRACT

**Background:** The number of caesarean section is increasing both in developed and developing countries. Anesthesia is must in cesarean delivery. This study aims to analyze the adverse effects of general and spinal anesthesia during cesarean section.

**Materials and methods:** This prospective observational study included 60 pregnant women who had underwent cesarean section in IAHS Hospital, Chattogram. The ladies were categorized in two equal groups. One group included patients undergone general anesthesia and other group undergone spinal anesthesia during cesarean section. Data regarding socio demographic profile and adverse effects during cesarean section were recorded in a structured questionnaire and analysis was done by SPSS version 23.

**Results:** The study revealed that majority 21(35%) and 18(30%) of the expectant mother who had undergone cesarean section with general anesthesia and spinal anesthesia respectively belonged to age group 18-25 years. Regarding adverse effects while using general anesthesia, out of 30 pregnant women, 6(20%) experienced hypotension, 20(66%) pain, 4(13.3%) infection, 14(46.6%) headache, 5(16.6%) vomiting and 4(13.3%) experienced fever. In case of using spinal anesthesia, out of 30 patients 8(26.6%) experienced hypotension, 14(46.6%) pain, 5(16.6%) infection, 20(66.6%) headache, 4(13.3%) vomiting and 4(13.3%) experienced fever.

**Conclusion:** There are some unavoidable adverse effects in both general and spinal anesthesia while performing cesarean operation.

**Key words:** Adverse effects; Caesarean section; General anesthesia; Spinal anesthesia.

## Introduction

In modern era, more than 20% of the pregnant women underwent cesarean section. Anesthesia is mandatory in cesarean delivery. Cesarean section are done as either elective or emergency surgery under general, spinal, epidural or as combined anesthesia.<sup>1</sup> Depending on country, areas, hospital and patients, various differences are observed regarding side effects and complication due to anesthesia.<sup>2</sup> Cesarean section is sometimes done for non medical purposes which increases the overall use of this surgical approach. Several studies revealed that elective cesarean section have attributed hugely to increase delivery by cesarean section.<sup>3</sup> In USA, from 1998 to 2001 due to 13% increase of medically indicated primary CS and 53% increase in elective

primary CS, the overall prevalence of CS has raised by 14%.<sup>4</sup> Due to worldwide increase in CS rates, more emphasis should be given on outcome of CS. General anesthesia along with spinal anesthesia are best choices for cesarean surgery. Both this anesthesia has merits and demerits. Although in many countries regional anesthesia is the best choice, it still has several controversies. Only a 44.5% of the patients were given regional anesthesia revealed by a study of Turkey, whereas in USA, this rate was 80%.<sup>5,6</sup> Anesthesia is given to reduce pain during cesarean operation. This is achieved by giving general, spinal or epidural anesthetics. Sometimes combination of anesthetic is used.<sup>7</sup> General anesthesia is applied using a combination of drugs which are injected into the mother and inhalation of gases that mother breathe. It helps to keep the mother in unconscious state in a controlled way. Despite being safe, general anesthesia is less commonly used compared to spinal anesthesia for cesarean surgery.<sup>8</sup> This study aims to analyze the adverse effects of general and spinal anesthesia during cesarean section.

## Materials and methods

This prospective observational study was conducted in a tertiary hospital (Institute of Applied Health Sciences-IAHS) of Chattogram from January 2025 to June 2025.

1.  Associate Professor of Anesthesiology & ICU  
 Institute of Applied Health Sciences (IAHS Chattogram).

\*Correspondence :  Dr. Sheikh Rukun Uddin Ahmad  
 Cell : +88 01919 33 09 78  
 Email : sheikhahmed.19161@gmail.com

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60 pregnant women who had underwent cesarean section surgery were included in this study. This 60 expectant mothers were divided in two groups. One group included 30 women who had undergone cesarean section using general anesthesia and another group included 30 women in whom spinal anesthesia was applied. All the study subjects were included randomly irrespective of their age, religion and caste. General examination as prerequisite was performed properly before surgery. Information regarding age, type of anesthesia, decision maker for anaesthesia, history of previous cesarean section, side effects following operation were collected using structured questionnaire and by reviewing patients clinical record file. Pregnant women height less than 180 cm and weight less than 100 kg and absence of spinal deformities were included in this study. Pregnant women with contraindications to spinal anesthesia, presence of hemo-dynamically relevant cardiovascular comorbidities, weight more than 100 kg, height more than 180 cm, spinal deformities, known hypersensitivity to anesthetic, history of eclampsia, fetal or placental abnormalities and those not willing to give consent were excluded from the study. Collected data were processed, analyzed and disseminated by using SPSS version 23.0 program.

**Results**

**Table I** Age of the expectant respondents (n=60)

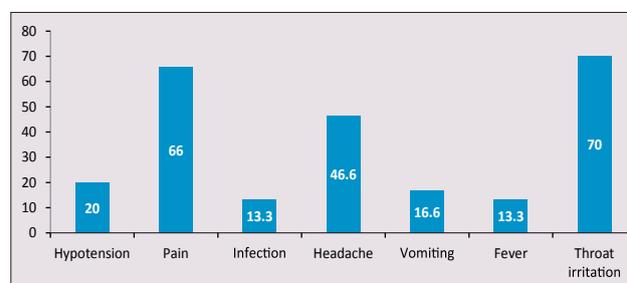
Age group (Years)	Type of anaesthesia		Total
	Spinal	General	
18-25	18(30%)	21(35%)	39
26-33	07(11.66%)	05(8.33%)	12
34-41	05(8.33%)	04(6.44%)	09
Total	30	30	60

39 respondents were of 18-25 years, out of which 18(30%) had operated by spinal anaesthesia and 21(35%) were operated by general anaesthesia. Among the pregnant ladies, 05(8.33%) who had undergone LSCS by general anaesthesia belonged to age 26-33 years and same 05(8.33%) who had undergone LSCS by spinal anaesthesia belonged to 34-41 years age group.

**Table II** Decision making for the LSCS anaesthesia type (n=60)

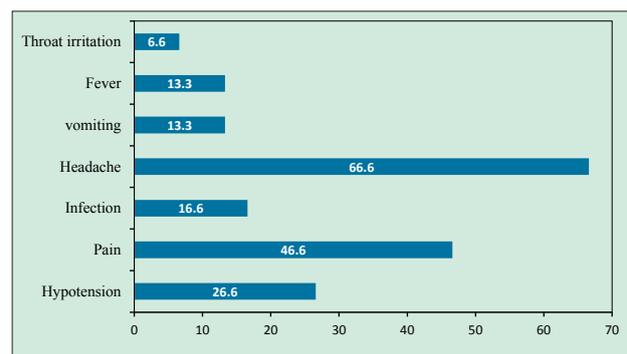
Types of anaesthesia	Decision maker		Total
	Medical professionals	Respondents/ party	
General anaesthesia	08(26.6%)	22(73.4%)	30(50%)
Spinal anaesthesia	20(66.66%)	10(33.33%)	30(50%)
Total	28(46.67%)	32(53.3%)	60

Above Table reflects that Medical Professionals were the decision makers for LSCS in 28(46.67%) cases, whereas 32(53.3%) cases the decision takers were either the client or their attendants or guardians. Out of 30 spinal anaesthesia, 20(66.66%) cases decision providers were medical personnel whereas in case of general anaesthesia 22(73.4%) decision providers were clients or attendants.



**Figure 1** Adverse effects due to general anesthesia (n=30)

From the above figure it was observed that out of 30 clients undergone CS with general anesthesia, 6(20%) experienced hypotension and 21(70 %) had throat irritation.



**Figure 2** Adverse effects due to spinal anesthesia (n=30)

Above figure reflects that out of 30 pregnant ladies who had underwent CS with spinal anaesthesia, 20(66.6%) developed headache and only 2(6.6%) throat irritation.

**Discussion**

This study aimed to understand adverse effects of general and spinal anesthesia during caesarean section. 60 ladies under cesarean section were included in the study. The age of the women ranged from 18 to 41 years. Majority 39(65%) belonged to age group 18-25 years, 12(19.99%) belonged to 26-33 years and 9(14.77%) belonged to age group 34-41 years. Mean while in another similar study with 100 women of which 26 belonged to the age group of 20-25 years, 65 belonged to the age group of 26-30 years and 9 belonged to the age group of 31-35 years.<sup>9</sup>

In another similar study, by Afroz et al. (2003) the age range of the pregnant ladies were between 20-40 years.

Majority (62%) were from  $\leq 30$  years and the rest 38% were from  $>30$  years of age.<sup>10</sup> In the current study, it is observed that majority 22(73.4%) clients had taken the decision to general anesthesia by themselves and in case of spinal anesthesia, out of 30 pregnant women 20(66.6%) patients decision to take spinal anesthesia was made by medical professionals. Meanwhile in the study of Afroz in Bangladesh, it is seen that in group of general anesthesia, majority (83%) decision was taken by the attendant party and in other group, majority (87%) to use spinal anesthesia, the decision was made by treating doctors.<sup>10</sup> Regarding the side effects of anesthesia, out of 30 pregnant cases undergone cesarean section with general anesthesia, 6(20%) experienced hypotension, 20(66%) pain, 4(13.3%) infection, 14(46.6%) headache, 5(16.6%) vomiting and 4(13.3%) fever. In case of 30 ladies those undergone cesarean operation with spinal anesthesia, 8(26.6%) experienced hypotension, 14(46.6%) pain, 5(16.6%) infection, 20(66.6%) headache, 4(13.3%) vomiting and 4(13.3%) experienced fever. Drop in blood pressure was observed in both general and spinal anesthesia. Patients who has undergone cesarean section with spinal anesthesia were monitored carefully by the anesthetist. Decrease in blood pressure was observed in both groups in another similar study.<sup>3</sup> In the current study, pain was experienced in both groups. Low back pain is usually common following spinal anesthesia. Meanwhile in another similar study done in Dhaka on pregnant cases with general anesthesia 27% experienced vomiting, 40% had headache and 50% cases experienced pain as more frequent side effects and in case of spinal anesthesia, 27% experienced headache, 47% experienced back pain and 37% experienced hypertension.<sup>10</sup> Fever was observed in both groups. In the current study throat irritation was seen in case of general anesthesia 21(70%). Meanwhile in another study, 60% of the patients experienced throat infection in general anesthesia.<sup>11</sup> A particular type of headache which is popularly termed as post spinal headache can occur after spinal injection, which can be mild or even severe which usually resolves spontaneously within 1 to 3 weeks.<sup>12</sup> In another research it was seen that, there is a chance to experience temporary deafness after spinal anesthetic.<sup>13</sup> Vomiting and infection was observed in both groups. The findings of this study will helpful for future similar studies.

#### Limitation

This study was conducted at a single center with small sample size. For that reason, it is not possible for generalization.

#### Conclusion

Both general and spinal anesthesia has some adverse effects. It is wise to allow the Anaesthetist to take decision regarding type of anesthesia to be used depending on patients clinical parameters.

#### Disclosure

The author declared no competing interest.

#### References

1. Kan RK, Lew E, Yeo SW, Thomas E. General anesthesia for cesarean section in a Singapore maternity hospital: A retrospective survey. *International journal of obstetric anesthesia*. 2004;13(4):221-226.
2. Loo CC, Dahlgren G, Irestedt L. Neurological complications in obstetric regional anaesthesia. *International Journal of Obstetric Anesthesia*. 2000 ;9(2):99-124.
3. Alnour TM, Shaktur AT, Ayyad RA, Alhewat MM, Shaban EH, Abdelfatah AA. Comparison between the side effects of spinal and general anesthesia during caesarean section in tripoli-libya. *J Anesth Clin Res*. 2015;6(9):560.
4. Marc C. Norris. *Handbook of Obstetric Anesthesia*.2000.
5. Gadsden J, Hart S, Santos AC. Post-cesarean delivery analgesia. *Anesthesia & Analgesia*. 2005;101(5S):S62-69.
6. Cardoso MM, Carvalho JC, Amaro AR, Prado AA, Cappelli EL. Small doses of intrathecal morphine combined with systemic diclofenac for postoperative pain control after cesarean delivery. *Anesthesia & Analgesia*. 1998;86(3):538-541.
7. Ong BY, Cohen MM, Palahniuk RJ. Anesthesia for cesarean section—effects on neonates. *Anesthesia & Analgesia*. 1989;68(3):270-275.
8. Graham D, Russell IF. A double-blind assessment of the analgesic sparing effect of intrathecal diamorphine (0.3 mg) with spinal anaesthesia for elective caesarean section. *International journal of obstetric anesthesia*. 1997;6(4):224-230.
9. Tomar S, Sawale DS, Sawale DS. A Study of Comparative Efficacy Analysis of Spinal and General Anaesthesia in Caesarean Section Procedures. 2024;13(4): 797-800.
10. Afroz A, Khan RU, Kormokar CS. Evaluation of Side Effects of General and Spinal Anesthesia during Caesarean Section. *SAS J Med*. 2023;1:47-51.
11. Batool S, Malik AS. Comparison of spinal versus general anesthesia for patients undergoing lower segment cesarean section. *Pafmj*. 2010;60(3):439-445.
12. Solangi S A, Siddiqui S M, Khaskheli M S & Siddiqui M A. Comparison of the effects of general vs spinal anesthesia on neonatal outcome. *Anaesth Pain Intens Care*. 2012;16: 18-23.
13. Afolabi BB, Lesi FE. Regional versus general anaesthesia for caesarean section. *Cochrane database of systematic reviews*. 2012;10.