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Maternal Experience of Spinal Anesthesia for Cesarian Section, A Cross-Sectional Study

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ABSTRACT

Background: Cesarian section, an increasingly popular obstetric procedure, can be performed under general and regional anesthesia. Spinal anesthesia, a form of regional anesthesia has gained popularity over time due to its overall safety.
Objectives: To study the maternal experience after going through cesarian under spinal anesthesia.
Material and Methods: This was a cross sectional study carried out on admitted patients in Lady Reading Hospital, MTI, Peshawar. About 196 post-op admitted patients were selected by non-probability convenience sampling from 1st November 2023 till 15th December 2023. They were assessed with the help of questionnaire on their experience of spinal anesthesia on 3rd post cesarian day. Patents having had surgery under general anesthesia, primarily or secondarily, and those who had any additional procedure post operatively after cesarian were excluded. Data was analyzed on SPSS v23. Frequency and percentages were determined for categorical variables. Chi square test was applied for categorical variables with p value of <0.05 taken significant.
Results: Of 196 patients, mean age of the participants was 29 ± 6 years, of whom 74 (37%) had elective and 122 (63%) had emergency cesarian section. Parity ranged from 1 to 13, with most parturients having parity in the range of 1-6. 90% of patients were satisfied with preoperative information provided. About 55% had nausea, 15% had dyspnea while 39% (n=77) had palpitation during the surgery. Nearly 18% did not like the feeling of being aware intraoperatively. However 98% (n=193) of patients were satisfied with responsiveness of anesthesia staff to their situation. About 105 (53%) patients affirmed that would like to have spinal anesthesia again in future if needed, 39% were unsure and 14 (7%) patients did not like it.
Conclusion: Spinal anesthesia is an effective way of providing surgical anesthesia while maintaining high level of maternal satisfaction.
Keywords: Cesarian section, Maternal satisfaction, Spinal anesthesia.

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INTRODUCTION

Cesarian section, delivery of the fetus through incision in the anterior abdominal and uterine wall, is a procedure that is increasingly popular these days. It has contributed a lot to safe delivery of the baby in situations where mother and/or child health would be jeopardized otherwise. In addition to obstetric indications that necessitate the need for cesarian section, other factors have also emerged as reasons for its global rise. Cesarian section on maternal wish is no longer an unknown indication.[1] To the other extreme, there is increasingly lower threshold for cesarian sections by healthcare professionals, especially in private set ups.[2] Incidence of cesarian delivery has risen from 7 % in 1990 to 21% today.[3] The rate is variable across the globe ranging from 5% in Africa to 42.8% in Latin America and the Carribean, with the Dominican Republic taking the lead at 59.3%.[3] The problem didn't go unnoticed by WHO which recommends a rate of 10-15% for cesarian deliveries in any set up.[4]

Among many factors, a significant contributory factor to increase in healthcare professional's and patient's interest in cesarian sections is the increasing safety of anesthesia and varied options available for anesthesia.

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The procedure can be performed under general as well as regional anesthesia. Regional anesthesia may be in the form of epidural or spinal anesthesia. Spinal anesthesia, also known as spinal block involves injecting local anesthetic in the subarachnoid space. Being regional anesthesia, it lets the surgical procedure to be performed while the patient is awake and capable of communicating throughout the surgery. The patient does not need assisted ventilation and so does not require intubation, a feature that makes it a more desired option for patients having pulmonary issues. Anestheic effect lasts for 1-3 hours, saving the patient from abrupt return of surgery related pain as soon as procedure ends, contrary to what patient experiences with general anesthesia. Additionally, this type of anesthesia does not cause depression of the newborn's respiratory system,[5] a quality that is desired of an ideal anesthetic agent. Owing to these features, spinal anesthesia is increasingly favoured option these days due to its overall safety.[6,7]

Like any other medication and procedure, spinal anesthesia is not without adverse effects and complications. The most frequently documented among these is the post dural puncture headache, hypotension, and nausea/vomiting.[7] Anticipated pain at the time of injection,[8] being fully awake and aware may not be welcomed by some patients. Patients also frequently complain of pain at injection site and backache. Hence patient's opinion vary after having gone through spinal anesthesia. In addition to varied opinion, there is limited local data on this topic, for which the study was decided.

This study is designed to study the maternal experience after going through cesarian under spinal anesthesia. This will also look into factors contributing to increased maternal satisfaction and reasons for any dissatisfactions mentioned. This will help in formulating strategies to improve patient satisfaction and address concerns that they may have pre-operatively about spinal anesthesia. The study presented here is original and not published anywhere else.

MATERIAL AND METHODS

It was an observational cross sectional study carried out in Lady Reading Hospital, MTI, Peshawar. Ethical approval was taken from institutional ethical review board (Ref No 1027/LRH/MTI Dated 27th Oct, 2023). With patient's satisfaction documented at about 70-90%[7] in studies, sample size came out to be 196 with 95% Confidence interval keeping anticipated frequency at 85%. Admitted patients were recruited from 1st November 2023 till 15th December 2023. Informed consent was taken at the time of inclusion into the study. Patients were selected by non-probability convenience sampling. Patients having had cesarian section under spinal anesthesia were included in the study. Patents switched to general anesthesia for any reason from spinal anesthesia as well as those having had any additional procedure post operatively after cesarian during post operative course were excluded. Patients with altered mental status at the time of surgery, e.g. in pre eclampsia/eclampsia were also excluded from the study. Data was collected on a pretested structured questionnaire (Annexure: I) consisting of 25 questions in 3 subheadings (pre-operative, per-operative and post-operative). Pain was scored on VAS from 1-5. Participants were then assessed by a trained data collector, not related to anesthesia provision, on their experience of undergoing spinal anesthesia on 3rd post op day.

Data was analyzed on of SPSS v23. Frequency and percentages were determined for categorical variables. Chi square test was applied for categorical variables. p value of <0.05 was taken significant.

RESULTS

A total of 196 patients were included in the study. Mean age of the paticipants was 29 ± 6 years, of whom 74 (37%) had elective and 122 (63%) had emergency cesarian section. Parity ranged from 1 to 13, with most parturients having parity in the range of 1-6. Data was collected in 3 sub headings, as follows.

Preoperative Care

Responses of the participants in the pre-operative section were as under (Table 01).

Table 01. Pre-operative Care Responses

Item	Response	Frequency	Percentage (%)
Prior idea about anesthesia	No	89	45
	Yes	107	55
Informed about type of anesthesia pre-op	No	42	21
	Somewhat	91	46
	Yes adequately	63	32
Satisfied with information given	No	21	11
	Somewhat	102	52
	Yes adequately	73	37
Told about being awake during surgery	No	35	19
	Yes	161	81
Was information understandable	No	26	13
	Somewhat	114	58
	Yes adequately	56	29
Preloading	No	17	10
	Yes	179	90

80% of patients (n=160) said that they were told about when to start oral intake.

Peroperative Care

When asked to grade pain experienced during administration of spinal anesthesia on a VAS scale of 1-5, most frequently reported score was 3 (moderate intensity, 26.5%). Rest of responses were as in Figure 01.

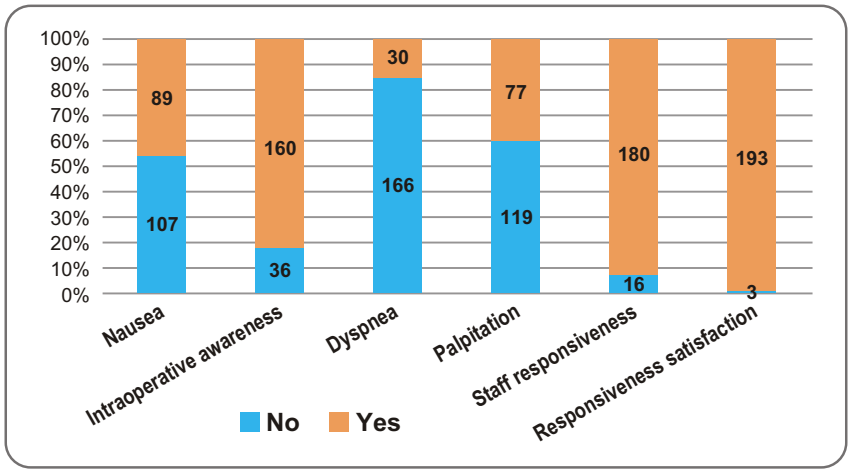


Figure 01. Per-operative Care Responses

Postoperative Care

Postoperatively, on an average they were pain free for 4 hours, 94 patients (48%) had nausea, most of these were those who had intraoperative nausea (Table 02).

Table 02. Intra-op vs post-op nausea

		Postop Nausea		Total
		No	Yes	
Intraoperative Nausea	No	62	27	89
	Yes	40	67	107
	Total	102	94	196

P=.000

Post-operatively 98(50%) had headache. About 35 % (n=70) had moderate headache (score of 3 and 4 on VAS) while 5 (2.6%) patients had severe headache. (Figure 01) Similarly, 132 patients (67%) had pain at spinal anesthesia injection site, mostly being of mild to moderate intensity (53%) while only 3 patients complained of severe pain (1.5%). (Table 03)

Table 03. Post-operative care responses

Item	Response	Frequency	Percentage
Shivering	No	32	17
	Yes	164	83
Capable of taking care of baby	No	20	11
	Somewhat	114	58
	Yes adequately	62	31

Most (81%) of the patients started taking orally about 6-8 hours after surgery. Finally when asked if they would like to have same type of anesthesia for surgery if needed next time, 105 (53%) patients affirmed while 39% (n=77) were unsure if they would chose it again. 14 (7%) patients did not want to go through it again and these were predominantly those who did not like the feeling of being aware during the procedure (p=0.000).

DISCUSSION

This study was conducted to study various elements that contribute to overall satisfaction of a pregnant female undergoing cesarian section under spinal anesthesia. The study showed that nearly half of patients had no prior idea about spinal anesthesia. Hence preoperative information given to them was their first encounter with the idea of having spinal anesthesia. Most of the patients in our study were satisfied with information given to them pre-operatively. Another study showed that 63% of their patients were very satisfied while 32% were somewhat satisfied with the information given to them preoperatively.[9] A study by Sadeghi et al showed that about 59.7% of patients were dissatisfied with the information given.[10] Such information has been shown to affect patient's choice and hence satisfaction from spinal anesthesia.[11] In our

study about 19% of patient said that they were not told that they would be awake during the procedure while a similar percentage (20%) were not told when to start oral intake postoperatively. This emphasizes the need of having a standardized approach to information provision that can minimize lapses and improve patients' satisfaction.

Most of our patient stated up to moderate or moderately severe pain at the time of administration of spinal anesthesia. In our study, proportion of patients experiencing nausea was high (55%), 15% reported dyspnea and 18% did not like awareness during operative procedure. In the study by Sadeghi et al, 13% had nausea, 8.3% had dyspnea while 28.6% patients did not like being aware during the surgery.[9] Another study also stated nausea and vomiting of 12 % preoperatively, which was significantly lower than our study.[12] While lesser number of patients were not happy with intraoperative awareness in our study, the greater incidence of nausea and dyspnea indicated need of improved care for optimizing patients' experience. However, about 98 % of patients were satisfied by anesthesia staff responsiveness to their needs which was reassuring.

Postoperatively, greater number of patients experienced nausea and shivering in our study. A Cochrane review indicated that post operative nausea and vomiting (PONV) occurs in upto 30% of patients after spinal anesthesia.[13] Farman et al from Peshawar reported it to be 43.1% in their study.[14] Headache was again reported to be high in our studied sample, found in 50% of the patients with 37.6% reporting moderate to severe pain. About two third of our patients reported pain at injection site. In the study by Sadeghi et al, post operative headache was similar to our study, reported by 46.4% of the patients while pain at injection site was lower at about 40.5%.[10] We also looked into patients' perception at taking care of baby, to which about 89% responded that they were somewhat or adequately capable of taking care of baby. This has to be viewed in light of the fact that this data was collected on 3rd post op day and also that patients are mostly supported by their carers from home during their hospital stay in our set up.

In our study 7 % 0f patients stated that they did not want to go through spinal anesthesia again, similar to that reported by Ikram et al (7.8%)[15] In our study it was mainly due to state of awareness during surgery. In another study, 8% of participants stated that they would not like to have spinal anesthesia again, stating awareness and failed attempts at spinal as the main cause.[16] Study by Idris et al also showed awareness during surgery as a predominant cause for refusal in most of their patients.[17] Finally, about 39% of our study participants were unsure if they would go for spinal anesthesia if needed next time. The proportion of unsure patients is significantly lower (3.5%) in study by Dharmalingham et al.[16] The higher number in our sample could be due to incomplete information sharing and greater incidence of complaints regarding nausea, vomiting, headache and shivering.

The study has certain limitations and potential sources of error. Many of our patients were illiterate, needing help to fill out the questionnaire. This can affect the quality of information gained. Experience of anesthetist in providing spinal anesthesia was not assessed. Since data was collected om 3rd post op day, there may be some element of recall bias. Furthermore, the number of emergency and elective cesarian section was not equal, which certainly affected the results of the study and needs consideration in future studies.

CONCLUSION

Spinal anesthesia provides an effective method of surgical anesthesia for cesarian section which maintains high level of maternal satisfaction, despite being associated with minor complaints like nausea, shivering, dyspnea and headache. Pre operative adequate information provision and maintaining support by anesthesia staff during surgery are key to effective service provision.

Ethical Consideration

This study was approved by the ethical board of Lady Reading Hospital, MTI, Peshawar, Pakistan.

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This study did not receive any funding.

Conflict of Interest

Authors declared no conflict of interest.

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DATA SHARING STATEMENT: The data that support the findings of this study are available on request from the corresponding author. The data is not publicly available due to privacy or ethical restrictions.

AUTHORS' CONTRIBUTION

The following authors fullfill authorship criteria as per ICMJE guidelines;

Hayat N:	Substantial contribution to conception and design, drafting the manuscript, final approval, agreed to be accountable for all the work.
Syed W:	Substantial contribution to conception and design, data acquisition, drafting the manuscript, final approval, agreed to be accountable for all the work.
Zeb L:	Analysis and interpretation of data, drafting the manuscript, final approval, agreed to be accountable for all the work.
Yousafzai S:	Analysis and interpretation of data, critical revision,final approval, agreed to be accountable for all the work.

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