

# Maternal Satisfaction after Spinal Anaesthesia for Caesarean Deliveries

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## ABSTRACT

**Objective:** To determine the level of satisfaction in terms of intra-operative pain and postoperative nausea, vomiting and backache among patients receiving spinal anaesthesia for caesarean section.

**Study Design:** Cross-sectional survey.

**Place and Duration of Study:** Department of Anaesthesia and Intensive Care at the Combined Military Hospital, Bahawalpur, from August 2005 to June 2007.

**Methodology:** A total of 246 pregnant patients undergoing caesarean section under spinal anaesthesia were surveyed. Postoperatively, a questionnaire was given to the patients to score their satisfaction on a four-point visual analogue scale regarding pain during surgery, Postoperative Nausea and Vomiting (PONV), and postoperative backache. The average of response to the questions in each of these three areas was taken as the Fundamental Area Score (FAS) and the average of all these individual area scores was taken as the Patient Satisfaction Score (PSS).

**Results:** There was high satisfaction score for PONV (98.17%); but the satisfaction regarding intra-operative pain/discomfort and postoperative backache was low as shown by a decrease in satisfaction score in these areas (74.09% and 76.83%). Patient's overall level of satisfaction with spinal anaesthesia was 81.40%. Patients (53.66%) would opt for spinal anaesthesia in future, if required, 90 (36.59%) would not and 8 patients (9.8%) were not sure.

**Conclusion:** Most of the patients were satisfied with their experience with spinal anaesthesia although there was a higher frequency of postoperative backache.

**Key words:** Spinal anaesthesia. Caesarean section. Patient satisfaction. Backache.

## INTRODUCTION

The choice of anaesthesia for any caesarean section depends on multiple factors like the indication of surgery, the urgency of the operation, and patient's as well as surgeon's desire. Anaesthesiologists always choose the method that is believed to be safest and most comfortable for the mother, least depressant to the newborn and provides the optimal working conditions for the obstetrician. The regional anaesthesia fulfills all these criteria. The advantages of regional anaesthesia include an awake mother, minimal depression of the newborn, and avoidance of the risks of general anaesthesia (especially failed intubation and aspiration pneumonia); and spinal anaesthesia specifically has the advantages of its simplicity, small drug dose, low failure rate (about 3%) and rapid onset.<sup>1</sup>

Survey data from the United States, from 1982 to 1992, revealed that less than 60% of caesarean deliveries

were performed with regional anaesthesia compared to the figures from 1992 onwards, where regional anaesthesia was being used in 78-85% caesareans.<sup>2</sup> Similarly, 25 years ago, 79% of women in the UK received general anaesthesia for caesarean section but now the figure is barely 10%.<sup>3,4</sup> Unfortunately, no such survey data is available in Pakistan, however, studies favour spinal anaesthesia for caesarean section in normal as well as patients with co-morbidities.<sup>5,6</sup> A review of 4 databases by searching the Cochrane Pregnancy and Childbirth Group's Trials Register (30 December 2005), the Cochrane Central Register of Controlled Trials (The Cochrane Library 2005, Issue 1), MEDLINE (1966 to December 2005), and EMBASE (1980 to December 2005) revealed no evidence to show that regional anaesthesia was superior to general anaesthesia in terms of major maternal or neonatal outcomes.<sup>7</sup> The authors recommended further research to evaluate neonatal morbidity and maternal outcomes, such as satisfaction with the technique used.<sup>7</sup>

This study was carried out to determine patients' perspective regarding spinal anaesthesia, their level of satisfaction and the factors of dissatisfaction during caesarean deliveries.

## METHODOLOGY

This cross-sectional survey was carried out at the Department of Anaesthesiology and Intensive Care at

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Combined Military Hospital, Bahawalpur. After approval from the Hospital Ethics Committee, 246 females, aged 22-40 years, were included in the study scheduled for an elective caesarean section. Patients undergoing emergency caesarean section for fetal distress or any other reason, patients with coagulation disorders, mentally handicapped, cardiovascular diseases, and the ones not consenting to participate were excluded.

All patients were selected from anaesthesia outpatient during pre-operative visit and informed consent was obtained. Each patient was asked to come to the Operation Theatre with 6-8 hours of fasting and then pre-loaded with 1000 ml of lactated Ringer's solution. Patient was placed in left lateral decubitus position and after identification of L<sub>4-5</sub> inter-vertebral space, local anaesthetic was infiltrated, using 1% plain lignocaine. Lumbar puncture was done with midline approach, using 25-gauge Quincke-Babcock spinal needle. Sitting position was used for the cases where lumbar puncture was not possible in lateral position due to difficulty in positioning or obesity. One point five (1.5) ml of 0.75% hyperbaric bupivacaine was injected intrathecally after free-flow of CSF was confirmed. Patient was immediately placed supine with 20° left-tilt position. After effective block, the surgery was started. Any discomfort during surgery was treated with sedo-analgesia, using injection ketamine 20 mg and midazolam 2 mg, intravenously.

All patients were shifted to the postoperative intensive care unit for next 24 hours and every patient received 75 mg injection diclofenac sodium intra-muscularly immediately on arrival and 100 mg injection tramadol (via intravenous infusion) 8 hourly. All patients were shifted to obstetric ward after 24 hours.

At the time of discharge from hospital, each patient was given a proforma/questionnaire in which she was asked to score her experience of spinal anaesthesia. The questionnaire was filled by the patient herself if she was literate, otherwise a nurse, who was not directly involved in patient care, interviewed her in the language she understood and filled out the response to each question. The questions covered three fundamental areas of patients' intra-operative and postoperative experience i.e. pain during surgery; Postoperative Nausea and Vomiting (PONV); and postoperative backache. Supplemental question was asked at the end if the patient would opt for spinal anaesthesia in the future.

A four-point Visual Analogue Scale was used to rate responses to the questions in areas of intra-operative pain and postoperative backache; where '1' was taken as worst (severe pain) and '4' the best (no pain). For PONV, 1 point was given for vomiting more than 2 or more times, 2 points for vomiting once, 3 points for only nausea and 4 points for no nausea or vomiting. Results for each of the measures of all the included patients

were added up, then an average was calculated and scaled to a score out of 100. In this way, the respondent's level of satisfaction was measured from least satisfied (0%) to most-satisfied (100%). The demographic profile of the patients including their level of education was also recorded. The average of the responses to the questions in each of the three areas was taken as the Fundamental Area Score (FAS) and the average of all these individual area scores was taken as the Patient Satisfaction Score (PSS).<sup>8</sup>

## RESULTS

The results were available for all 246 patients (response rate of 100%). The average age of the patients was 27.49±4.1 years. In 2 obese patients, the lumbar puncture was not possible in lateral position and was, therefore, done in sitting position. No other co-morbid condition was found.

Three patients (1.21%) complained of severe pain and discomfort during surgery and required sedo-analgesia. None of the patient complained of postoperative vomiting, 18 patients (7.32%) complained of mild nausea while rest of them had no PONV. Eighteen patients (7.32%) complained of severe postoperative backache, 39 (15.85%) moderate, 96 (39.02%) mild and 93 (37.8%) had no backache. Only 2 patients (0.81%) complained of post-dural puncture headache that was effectively treated with analgesics, stool softeners and ensuring good hydration and none of them required epidural blood patch.

Fundamental Area Score (FAS) and Patient Satisfaction Score (PSS) in these patients were calculated. Patient's overall level of satisfaction was 83.02% after spinal anaesthesia. One hundred and thirty two patients (53.66%) would opt for spinal anaesthesia in future, if they required, and 90 (36.59%) would not, whereas 8 patients (3.25%) were not sure.

## DISCUSSION

Exploring "patient satisfaction" is intuitively appealing as one-way to understand the patient experience and to help guide healthcare providers to improve healthcare. Experts, however, differ in the methodology of satisfaction surveys in terms of means of communication (like telephonic interview, e-mails and questionnaires); consideration of demographic factors; and focusing on "satisfaction" or "dissatisfaction".<sup>9</sup> A lot of studies have been carried out in the recent past, auditing satisfaction amongst indoor as well as outdoor patients.<sup>8,10-12</sup>

After its introduction in 1898, spinal anaesthesia quickly gained popularity and despite undergoing highs and lows of time, became a favoured anaesthesia technique for caesarean section worldwide. On one hand, when there are reports of inexplicable complete failure of

intrathecal anaesthesia for caesarean deliveries,<sup>13</sup> there are studies in its favour also. A recent randomized control trial describes benefits of earlier intravenous cannulae removal, ambulation, breast-feeding initiation and potential for shorter hospitalization after caesarean delivery under spinal anaesthesia.<sup>14</sup> Despite increased nausea in those taking solids earlier (but not feeds), maternal satisfaction rated higher in the early-fed group. In Pakistan, spinal anaesthesia remains popular amongst the anaesthetists owing to its cost-effectiveness.<sup>6</sup>

The advantages of regional anaesthesia (and the risk of general anaesthesia) are recognized not only by anaesthesiologists but also by the obstetricians. In the 1992 Committee Opinion publication "Anaesthesia for Emergency Deliveries," the risks of failed intubation and aspiration pneumonitis were recognized as serious complications of general anaesthesia.<sup>15</sup> This publication describes the goals to promote the use of regional anaesthesia and minimize the need for general anaesthesia in obstetric cases. These include patients in whom emergency induction of general anaesthesia would be particularly hazardous, should be counseled for regional anaesthesia; and those at risk for caesarean delivery should have an establishment of intravenous access and an epidural catheter placed and tested early in labour. It should be recognized that caesarean delivery for a non-reassuring fetal status does not necessarily preclude the use of regional anaesthesia. The role of regional anaesthesia in management of pre-eclamptic patients cannot be underrated.<sup>16</sup>

Epidural anaesthesia is commonly used in developed countries for analgesia during labour and can, therefore, easily be used to induce anaesthesia for caesarean sections with larger doses of local anaesthetic. However, epidurals are technically more difficult to perform than spinal anaesthesia and more importantly, are not cost-effective. On the other hand, spinal anaesthesia is inexpensive and appropriate for virtually all cases except those with unresuscitated pre-operative hypovolemia and those with the specific contraindications (like bleeding disorders, lumbar puncture site sepsis, raised intra-cranial pressure etc.).<sup>17</sup> Combined Spinal Epidural Anaesthesia (CSE) has recently gained popularity owing to its greater efficacy and fewer side effects than epidural or spinal alone.<sup>18</sup>

Attempt in getting patient's satisfaction level with anaesthetic care has given varied results. A higher rate of dissatisfaction was found in women than in men; and in spinal anaesthesia than in general anaesthesia.<sup>19</sup> The authors found that the most common dissatisfactory factor in anaesthesia care was the use of spinal anaesthesia, followed by epidural anaesthesia, postoperative pain, vomiting/nausea and memory of tracheal extubation. Studies conducted to find out

patient's dissatisfaction after spinal anaesthesia implicate factors like the increasing number of attempts of spinal block, pain during spinal block, inadequate analgesia, and postoperative urinary retention.<sup>20</sup> Factors associated with refusal to have spinal anaesthesia for similar surgery were: female gender, low body weight, intra-operative vomiting, and low satisfaction score.

Most of the studies for caesarian section have compared spinal anaesthesia with epidural anaesthesia and have described no difference in either the fetal outcome or the level of maternal satisfaction.<sup>21-23</sup> Similarly, no difference was found in patient satisfaction score with general, spinal or epidural anaesthesia,<sup>24</sup> while the cost-effectiveness of spinal over epidural anaesthesia overshadows the advantages of the latter.<sup>25</sup>

The questionnaire used was either filled by the patient herself or was completed after an interview by a nurse who was not directly involved in that patient's care. A 100% response rate was achieved due to the fact that questionnaire was filled at the time of patient's discharge from hospital, as compared to other studies where 60-80% response rate was achieved with postal/email surveys.<sup>26-28</sup> There was a significantly higher satisfaction score with spinal anaesthesia regarding intra-operative pain control and slightly better score regarding PONV; but the frequency and severity of post-operative backache was higher after spinal anaesthesia as shown by a decrease in satisfaction score in this area.

Although the overall satisfaction score of 83.03% was almost similar to the Visual Analogue Scale (VAS) score of 8.2 in the study of Bhattarai *et al.*,<sup>29</sup> the cause of dissatisfaction was quite different. Most of the dissatisfied patients in their study had intra-operative discomfort (27.4%), tolerable pain (10.8%), or required general anaesthesia (4.9%) as compared to mild discomfort (18.29%), moderate pain (4.88%) and requiring sedo-analgesia (1.22%) in this study.

The higher incidence and severity of backache with spinal anaesthesia is similar to studies by Krobbuaban, Wilder-Smith and Dahl.<sup>30-32</sup> Ninety patients (36.59%) in the studied population refused to opt again for spinal anaesthesia in future.

## CONCLUSION

There was a higher number of patients who were satisfied with their experience with spinal anaesthesia compared to general anaesthesia. Patients satisfaction score was higher for intra-operative pain control and PONV with spinal anaesthesia; but lower for post-operative backache. Significant failure or unacceptability for spinal anaesthesia in the future (approximately in

36%) along with a high incidence of preventable discomforts requires improvement in patient education, pre-operative counseling and intra-operative care to improve the quality and satisfaction level in patients.

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