

ORIGINAL RESEARCH

Medicine Science 2017;6(2):229-32

## Assessment of satisfaction and anxiety levels of the patients who had cesarean section with general and spinal anesthesia

Basak Altiparmak<sup>1</sup>, Sezen Bozkurt Koseoglu<sup>2</sup>

<sup>1</sup>Mugla Sitki Kocman University Training and Research Hospital, Department of Anesthesiology and Reanimation Mugla, Turkey

<sup>2</sup>Mugla Sitki Kocman University Training and Research Hospital, Department of Gynecology and Obstetrics Mugla, Turkey

Received 04 September 2016; Accepted 01 November 2016

Available online 21.11.2016 with doi: 10.5455/medscience.2016.05.8544

### Abstract

The primary aim in our study is to obtain the most objective result by comparing the anesthesia satisfaction of women who had cesarean section both under general and spinal anesthesia. Our secondary aim is to assess the relation between patients' preference of anesthesia technique and anxiety level. Total number of 94 ASA II women who had cesarean section under general anesthesia within 5 years and scheduled to have elective cesarean section under spinal anesthesia, were included into the study. After 48 hours, all of the patients were asked to compare their previous general anesthesia experience with spinal anesthesia in regard of satisfaction and anxiety. Satisfaction scores were as "bad", "average", "good", "very good" while patients were asked to use numbers from 1 to 10 to score their anxiety level. The mean age of the patients was  $26.1 \pm 4.5$  when they had general anesthesia and it was  $29.7 \pm 4.6$  when they had spinal anesthesia. When the satisfaction scores of anesthesia techniques were compared, spinal anesthesia was found to be statistically significantly high ( $p < 0.05$ ). No difference was obtained between the anesthesia techniques in regard of anxiety level ( $p > 0.05$ ). The patients who had cesarean section under both of the anesthesia techniques were more satisfied by spinal anesthesia. While no difference was found between preoperative anxiety levels.

**Keywords:** General anesthesia, satisfaction, cesarean, spinal

### Introduction

The anesthesiologists try to maintain the best health state for both mother and fetus during cesarean section. That's why anesthetic management of obstetric surgery has a different importance from other procedures [1]. Regional anesthesia practice has increased significantly all over the world for the last 25 years. The preference of regional instead of general anesthesia for obstetric surgery is also strongly recommended in the guidelines published by American Society of Anesthesiologists [2]. However, in the presence of any contraindications or emergency state, general anesthesia are mains to be the most common choice for many anesthesiologists [3].

Although regional anesthesia practice has also rapidly increased in our country in the recent years, patient refusal is still one of the most common contraindications leading to lower regional anesthesia ratios [4].

There are some studies comparing regional and general anesthesia in regard of patient satisfaction in the current literature [5], nevertheless no study has been conducted on the same group of patients who has experienced cesarean section under both general and regional anesthesia, yet.

The primary aim in our study is to obtain the most objective results by comparing the anesthesia satisfaction of women who had cesarean section both under general and spinal anesthesia. Our secondary aim is to assess the relation between type of anesthesia technique and preoperative anxiety level.

### Materials and Methods

After receiving hospital ethic committee approval and patients' informed consent, the study was conducted in Biga State Hospital between January 2012- December 2014 in accordance with the Helsinki declaration. Total number of 94 ASA II women who had cesarean section under general anesthesia within 5 years and scheduled for elective cesarean section under spinal anesthesia, were included into the study. The exclusion criterias were presence of relative or absolute contraindication for regional anesthesia, patient refusal to participate into the study, story of first cesarean section earlier than 5 years, unable to remember the first anesthesia experience, additive anesthetic agent requirement intraoperatively, story of emergency cesarean section due to fetal distress and failed spinal anesthesia. After 48 hours, all of the patients were asked to compare their previous general anesthesia experience with spinal anesthesia in regard of satisfaction and anxiety. Satisfaction scores were given as "bad", "average", "good", "very good" while patients were asked to use numbers from 1 to 10 to score their anxiety

\*Corresponding Author: Basak Altiparmak, Mugla Sitki Kocman University Training and Research Hospital, Department of Anesthesiology and Reanimation  
E-mail: [drsezenkoseoglu@gmail.com](mailto:drsezenkoseoglu@gmail.com)

level. All of the datas were recorded. Besides, all of the patients' ages, comorbidities, story of gravity and parity, psychiatric disorders and indications of first cesarean section were also recorded.

SPSS 22.0 (Statistical Package for Social Sciences) package program was used for the statistical analysis of the datas (SPSS Inc., Chicago, IL, USA). Normality of the variables were analyzed by Kolmogorow-Smirnov test. Student's t test and Mann Whitney U test were used to evaluate associations between categorical and continuous variables. Pearson correlation analysis was used to find the correlation between variables. P values were considered statistically significant at  $p < 0.05$ .

## Results

The mean age of the patients was  $26.1 \pm 4.5$  when they had general anesthesia and it was  $29.7 \pm 4.6$  when they had spinal anesthesia (Table 1). Indications of cesarean section with general anesthesia were listed in Table 2. The most frequent indication of cesarean was cephalopelvic disproportion.

When the satisfaction scores of anesthesia techniques were compared, spinal anesthesia was found to be statistically significantly higher than general anesthesia ( $p < 0.05$ ). Patients' responses for satisfaction were shown in Table 3. When we look at general anesthesia, 24.4% of patients were 'very pleased' with the procedure, while this ratio was 68% with spinal anesthesia. No difference was obtained between the anesthesia techniques in regard of anxiety level ( $p > 0.05$ ). Patients' responses for anxiety were shown in Table 4. There was no correlation between age and satisfaction scores and anxiety level ( $p > 0.05$ ).

**Table 1.** The mean ages of patients according to the type of anesthesia

| Anesthesia Type    | Age            | p value |
|--------------------|----------------|---------|
| General Anesthesia | $26.1 \pm 4.5$ | 0.927   |
| Spinal Anesthesia  | $29.7 \pm 4.6$ |         |

The data is given as mean  $\pm$  standart deviation

**Table 2.** Indications of cesarean with general anesthesia

| Indication                  | Number (n) | Ratio (%) |
|-----------------------------|------------|-----------|
| Cephalopelvic disproportion | 48         | 51        |
| Arrest of active labor      | 28         | 29.7      |
| Breech presentation         | 18         | 19        |
| Transvers presentation      | 6          | 6.3       |

**Table 3.** Satisfaction scores of patients according to the type of anesthesia

| Satisfaction level | General Anesthesia |           | Spinal Anesthesia |           | P value |
|--------------------|--------------------|-----------|-------------------|-----------|---------|
|                    | Number (n)         | Ratio (%) | Number (n)        | Ratio (%) |         |
| Bad                | 10                 | 10.6      | 0                 | 0         | 0.000   |
| Average            | 21                 | 22.3      | 3                 | 3.1       |         |
| Good               | 40                 | 42.6      | 27                | 28.5      |         |
| Very good          | 23                 | 24.5      | 64                | 68.4      |         |

**Table 4.** Preoperative anxiety levels of patients according to the type of anesthesia

| Anxiety level | General anesthesia |           | Spinal anesthesia |           | p value |
|---------------|--------------------|-----------|-------------------|-----------|---------|
|               | Number (n)         | Ratio (%) | Number (n)        | Ratio (%) |         |
| 1             | 0                  | 0         | 0                 | 0         | 0.500   |
| 2             | 0                  | 0         | 0                 | 0         |         |
| 3             | 0                  | 0         | 0                 | 0         |         |
| 4             | 0                  | 0         | 0                 | 0         |         |
| 5             | 4                  | 4.2       | 5                 | 5.3       |         |
| 6             | 10                 | 10.6      | 11                | 11.7      |         |
| 7             | 20                 | 21.3      | 18                | 19.1      |         |
| 8             | 20                 | 21.3      | 31                | 32.9      |         |
| 9             | 19                 | 20.2      | 8                 | 8.6       |         |
| 10            | 21                 | 22.4      | 21                | 22.4      |         |

## Discussion

The patients who had cesarean section under both of the anesthesia techniques were more satisfied with spinal anesthesia. While no difference was found between groups in regard of preoperative anxiety levels.

As the anesthesiologists' knowledge and skill improved and new equipments were introduced into markets with technological progression, regional anesthesia became more preferable in the recent years [6]. General anesthesia for obstetric surgery has maternal risks such as difficult intubation and gastric aspiration, and it is well known to cause lower APGAR scores of the fetus [7, 8]. Through the end of pregnancy, mucosal edema of upper airways and increase in breast sizes make intubation challenging. Increased intraabdominal pressure and decrease in the tonus of lower esophageal sphincter due to circulating prostaglandins, increase the risk of gastroesophageal reflux [9]. While regional anesthesia helps preventing these risks, it has also advantages such as decreased stress response, minimal depressant effect on fetus and early breastfeeding [10]. In a recent study, cesarean section under regional anesthesia was reported to provide a higher regional cerebral oxygen saturation of newborn than general anesthesia did [11]. Considering the favorable effects on mother and fetus, regional anesthesia is accepted as the gold-standard technique for obstetric surgery [12]. But even regional anesthesia has disadvantages. The most important one is hypotension frequently seen during spinal anesthesia [13]. Hypotension which occurs due to sympathetic blockage, is seen approximately 50% of obstetric cases [14]. The sudden decrease in arterial blood pressure causes nausea-vomiting, regurgitation and changes in consciousness of mother [15], while it may lead to fetal hypoxia, acidosis and newborn depression due to corrupted uterine blood flow [16]. The presence of complications decreases anesthesia satisfaction significantly [17]. Despite all the advantages, regional anesthesia ratio in our country remains lower than the rations in the world [18, 19]. In the previous years, the most important reason was the co-decision of surgeon, anesthesiologist and patient, however patient's refusal to procedure became the most frequent reason nowadays [6].

In the current study, all the patients had their first cesarean section under general anesthesia with their own demand. Increased preference of general anesthesia can be a result of lower socio-cultural level and poor knowledge about regional anesthesia in rural places. In a previous survey, it was shown that while deciding the anesthesia technique, patients were significantly influenced by satisfaction levels of other patients who had the same operation previously [20]. Whereas “satisfaction” is a subjective concept on its own. Comparing the satisfaction levels of patients who know only one of the choices, increases the limitation of a study. Studies comparing anesthesia techniques for obstetric surgery in regard of patient satisfaction were done before, but different patient groups were selected for different anesthesia techniques in all of these studies (5, 20]. Patients’ previous experiences or knowledge about the anesthesia techniques were not mentioned in these studies, either. On the other hand in the current study, more objective and realistic results were intended by assessing the satisfaction levels of patients who experienced different anesthesia techniques for the same operation in a short time period. In the study of Lertakyamanee et al in 1999, spinal, epidural or general anesthesia techniques were compared and no significant difference was found [5]. Whereas, we found statistically significantly high scores at spinal anesthesia group in our study. Technical progression and innovation throughout the years in regional anesthesia field might be the reason for this difference. New spinal and epidural sets improved the comfort of anesthesiologist and patient during the procedure [6]. The increase in the anesthesiologists’ experience and skill may also explain the increased satisfaction scores. In a study in 2013 a very high ratio, 97%, of patients were found to be satisfied by regional anesthesia [17]. But there was no control group in this study.

When we look at the secondary inference of our study, there was no difference between spinal and general anesthesia in regard of anxiety levels. There was no correlation between age and anxiety, either. These results are similar with previous studies in the literature. Eley et al. made patients undergoing cesarean watch a video type introducing regional anesthesia and then assessed the preoperative anxiety levels. They couldn’t find a statistical difference [21]. Similarly, Kumar et al. reported that the information given by health personal couldn’t decrease anxiety of patients preoperatively [22]. In this survey it was determined that patients were much more relaxed by intraoperative communication and seeing the baby rather than preoperative information [22].

The major limitation of our study is the time period between two cesareans of the patients. We determined “5 years” as the longest duration between two cesareans to be able to reduce this limitation and have a more standardized sample group. And also we excluded the patients who could not remember the first cesarean experience. However evaluation of the cesarean under general anesthesia had be

made after a time period. This is still the major limitation of this study.

In conclusion, we found that the patients who had cesarean section under both of the anesthesia techniques were more satisfied by spinal anesthesia, while no difference was found between preoperative anxiety levels. We believe this study provides the most objective and realistic data ever.

## References

1. Purluolu T, Ozkan S, Teksöz E, Dere K, Şen H, Yen T, Dağlı G. Elektif sezaryen uygulanan olgularda genel ve spinal anestezi maternel ve fetal etkilerinin karşılaştırılması. *Gülhane Tıp Dergisi*. 2008;50(2):91-7.
2. American Society of Anesthesiologists Task Force on Obstetric Anesthesia. Practice guidelines for obstetric anesthesia: an updated report by the American Society of Anesthesiologists Task Force on Obstetric Anesthesia. *Anesthesiology*. 2007;106(4):843-63.
3. Campbell J, Sultan P. Regional anaesthesia for caesarean section: a choice of three techniques. *Br J Hosp Med (Lond)*. 2009;70(10):605.
4. Gülhaş N, Şanlı M, Özgül Ü, Begeç Z, Durmuş M. Sezaryenlerde Anestezi Yönetimi: Retrospektif Değerlendirme. İnönü Üniversitesi Tıp Fakültesi Dergisi. 2012;19(3):142-5.
5. Lertakyamanee J, Chinachoti T, Tritrakarn T, Muangkasem J, Somboonnanonda A, Kolatat T. Comparison of general and regional anesthesia for cesarean section: success rate, blood loss and satisfaction from a randomized trial. *J Med Assoc Thai*. 1999;82:672-80.
6. Kocamanoglu İS SB, Şener B, Tür A, Şahinoğlu H, Sunter T. Sezaryen Operasyonlarında Uygulanan Anestezi Yöntemleri ve Komplikasyonları: 3552 Olgunun Retrospektif Değerlendirilmesi. *Türkiye Klinikleri J Med Sciences*. 2005;25(6):810-6.
7. Günüşen İ, Karaman S, Akercan F, Fırat V. Elektif sezaryenlerde farklı anestezi yöntemlerinin yenidoğan üzerine etkileri: retrospektif çalışma. *Ege Tıp Dergisi*. 2009;48(3):189-94.
8. Toker K, Yılmaz AS, Gürkan Y, Baykara N, Canatay H, Özdamar D, Yıldız TS. Anaesthesia for caesarean operations; a retrospective analysis of five years. *Türk Anest Rean Cem Mecmuası*. 2003;31(1):26-30.
9. Uysalel A, Ibrahim A, Çakar KS. Obstetrik ve jinekolojik cerrahide anestezi. *Türkiye Klinikleri J Surg Med Sci*. 2006;2(6):81-93.
10. McDonnell NJ, Paech MJ, Clavisi OM, Scott KL; ANZCA Trials Group. Difficult and failed intubation in obstetric anaesthesia: an observational study of airway management and complications associated with general anaesthesia for caesarean section. *Int J Obstet Anesth*. 2008;17(4):292-7.
11. Ozgen ZS, Toraman F, Erkek E, Sungur T, Guclu P, Durmaz S, Bilgili CO. Cesarean under general or epidural anesthesia: does it differ in terms of regional cerebral oxygenation? *Acta Anaesthesiol Taiwan*. 2014;52(4):159-62.
12. Afolabi BB, Lesi FE. Regional versus general anaesthesia for caesarean section. *Cochrane Database Syst Rev*. 2012;17:10:CD004350.
13. Desalu I, KUSHIMO OT. Is ephedrine infusion more effective at preventing hypotension than traditional prehydration during spinal anaesthesia for caesarean section in african parturients? *Int J Obstet Anesth*. 2005;14(4):294-9.
14. Klöhr S, Roth R, Hofmann T, Rossaint R, Heesen M. Definitions of hypotension after spinal anaesthesia for caesarean section: literature

- search and application to parturients. *Acta anaesthesiol Scand*. 2010;54(8):909-21.
15. Langesaeter E, Rosseland LA, Stubhaug A. Continuous invasive blood pressure and cardiac output monitoring during cesarean delivery: a randomized, double-blind comparison of low-dose versus high-dose spinal anesthesia with intravenous phenylephrine or placebo infusion. *Anesthesiology*. 2008;109(5):856-63.
  16. Reidy J, Douglas J. Vasopressors in obstetrics. *Anesthesiol Clin*. 2008;26(1):75-88.
  17. Dharmalingam TK, Ahmad Zainuddin NA. Survey on maternal satisfaction in receiving spinal anaesthesia for caesarean section. *Malays J Med Sci*. 2013;20(3):51-4.
  18. Sahin S, Owen M. Obstetric Analgesia and Anaesthesia in Turkey and in the World. *Anest Rean Cem Mecmuası*. 2002;30(2):52-9.
  19. Töre G Gurbet A, Şahin Ş, Türker G, Yavaşcağlu B, Korkmaz S. Türkiye'de Obstetrik Anestezi Uygulamalarındaki Değişimin Değerlendirilmesi. *Türk Anest Rean Cem Mecmuası*. 2009;37(2):86-95.
  20. Tekin İ, Laçın S, Arıcan İ, Ok G. Sezaryen Operasyonu Geçirmiş Olguların "Anestezi Yöntemi"nin Seçimi Üzerine Etkileri. *Türkiye Klinikleri J Anest Reanim*. 2005;3(1):1-6.
  21. Eley VA, Searles T, Donovan K, Walters E. Effect of an anaesthesia information video on preoperative maternal anxiety and postoperative satisfaction in elective caesarean section: a prospective randomised trial *Anaesthesia and intensive care*. 2013;41(6):774-81.
  22. Hemanth Kumar V, Jahaqirdar SM, Athiraman UK, Sripriya R, Parthasarathy S, Ravishankar M. Study of patient satisfaction and self-expressed problems after emergency caesarean delivery under subarachnoid block. *Indian J Anaesth*. 2014;58(2):149-53.