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Choice of anesthesia method in cesarean delivery: Communication between anesthesiologist and obstetrician

Sezaryen doğumunda anestezi metodu seçimi: Anestezi doktoru ve kadın doğum uzmanı arasındaki iletişim

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Abstract

Introduction: Both regional anesthesia (RA) and general anesthesia (GA) can be used in cesarean delivery (CD). In this study, anesthesia methods of CD patients were examined and the anesthesia preferences of the physicians participating in the operation were investigated.

Methods: All CD files between March and August 2018 were retrospectively reviewed. Because RA was contraindicated, patients who were treated with GA and had missing data in their files were excluded from the evaluation. Five women diseases and obstetricians performing operations were coded as A, B, C, D and E, while anesthesiologists were coded as X, Y and Z. The demographic data of the patients and the names of gynecologists, obstetricians and anesthesiologists were recorded. The effects of anesthesia and gynecologists and obstetricians on anesthesia alone and together were investigated.

Results: A total of 346 CD files were evaluated. 66.5% of the patients (230 patients) had RA and 33.5% (116) GA. There was no significant difference between the mothers' age ($p>0.05$) and gestational weeks ($p>0.05$). When the CDs were compared with the active women in which the obstetricians and obstetricians were actively participating, the lowest RA rate was Doctor D with 40.00% and the highest Doctor C with 87.10%. Anesthesia specialists compared between themselves; The RA ratio was the lowest for Doctor Z, 0% for Doctor X and 76.20% for the highest. When we evaluated the active practitioner anesthesiologists and obstetricians for each CD; In the CD operations of Obstetrician Doctor C and Anesthetist Doctor X, RA was found to be 91.70% and a statistically significant difference was found ($p<0.05$).

Discussion and Conclusion: The coordinated studies of anesthesiologists and obstetricians who are active practitioners in the operation of CDs are effective in determining the most suitable anesthesia methods.

Keywords: Anesthesia methods; cesarean delivery; anesthesiologist; general anesthesia; obstetrician; regional anesthesia.

Özet

Amaç: Sezaryen doğumunda (SD) hem bölgesel anestezi (BA) hem de genel anestezi (GA) kullanılabilir. Bu çalışmada SD hastalarının anestezi yöntemleri incelenmiş ve operasyona katılan hekimlerin anestezi tercihleri araştırılmıştır.

Gereç ve Yöntem: Mart ve Ağustos 2018 arasındaki tüm SD dosyaları geriye dönük olarak incelendi. BA kontrendike olduğundan, GA ile tedavi edilen ve dosyalarında eksik veriler bulunan hastalar değerlendirme dışı bırakıldı. Operasyonları gerçekleştiren 5 kadın hastalıkları ve doğum uzmanı A, B, C, D ve E olarak, anestezi uzmanları ise X, Y ve Z olarak kodlandı. Hastaların demografik verileri ve ameliyatı yapan kadın hastalıkları ve doğum uzmanı ve anestezi uzmanının adları kaydedildi. Anestezi ve kadın hastalıkları ve doğum uzmanlarının anestezi üzerine tek başına ve birlikte etkileri araştırıldı.

Bulgular: Toplam 346 SD dosyası değerlendirildi. Hastaların %66.5'ine (230 hasta) BA, %33.5'ine ise (116) GA uygulanmıştı. Annelerin yaşı ($p>0.05$) ve gebelik haftaları ($p>0.05$) arasında anlamlı bir fark bulunmadı. Kadın hastalıkları ve doğum uzmanları aktif olarak katıldıkları SD'ler karşılaştırıldığında, en düşük BA oranı %40.00 ile Doktor D ve %87.10 ile en yüksek Doktor C idi. Anestezi uzmanları kendi aralarında karşılaştırıldığında; BA oranı, Doctor Z %0 için en düşük, Doctor X için %76.20 ile en yüksek idi. Aktif pratisyen anestezi uzmanlarının ve her SD için kadın hastalıkları ve doğum uzmanlarını değerlendirdiğimizde; Kadın hastalıkları ve doğum uzmanı Doktor C ve Anestezi uzmanı Doktor X'in SD operasyonlarında BA %91.70, istatistiksel olarak anlamlı bir fark bulundu ($p<0.05$).

Sonuç: SD'lerin operasyonunda aktif pratisyen olan anestezi ve kadın hastalıkları ve doğum uzmanlarının koordine çalışmaları en uygun anestezi yöntemlerinin belirlenmesinde etkilidir.

Anahtar Sözcükler: Anestezi yöntemleri; sezaryen doğum; anestezi uzmanı; genel anestezi; doğum uzmanı; bölgesel anestezi.

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Cesarean delivery (CD) is the most frequently performed main operation in the world.[1,2]

During CD, both regional anesthesia (RA) and general anesthesia (GA) can be used.[3] Which technique will be used in which a patient is of great importance. For the mother, the anesthesia method should be applied which is the safest and the most comfortable for the newborn.[4,5]

The choice of anesthesia method for each patient should be made according to the patient's preference and the experience of the anesthesiologist, taking into account the patient's clinical and laboratory findings.[6]

Both anesthesia methods have advantages and disadvantages compared to each other. The main advantages of the GA method include fast induction, less hypotension, fewer cardiovascular depression, better airway control. Increased incidence of intubation difficulty due to physiological changes in pregnancy, the risk of pulmonary aspiration, and lower neonatal Apgar scores due to intravenous anesthetics passing from placenta to fetus are the major disadvantages of GA.[7]

The patient's awareness is open, does not carry the risk of aspiration, do not breathe depression in the newborn, provide easier post-operative pain control, provide the mother and baby early contact, provide better lactation advantages of the RA method. The major disadvantages of the RA method are the development of local anesthetic allergy and toxicity, inadequate analgesia, headache, back pain and hypotension.[5,7–10]

In recent years, due to the presence of advanced maternal age, obesity and other accompanying diseases, the choice of anesthesia method in operations has gained more importance.[11]

It is generally accepted that RA as an anesthetic method in CD patients provides more favorable conditions for mother and newborn. In recent years, it has been argued that RA should be chosen even in placenta previa cases.[12] The recommended anesthesia method is RA, except for the contraindications.[13]

However, in appropriate indications, the patient's choice, anesthesiologist and obstetrician's opinions and experiences are also important in the selection of anesthesia. The prevalence of RA is directly related to the preferences of physicians and to informing patients about regional anesthesia. Depending on the communication between the anesthetist and obstetrician, the preferences of the anesthetic method may vary. The aim of this study was to determine the effect of communication between anesthesiologists and obstetricians on anesthesia methods in CDs where both methods could be applied.

Materials and Method

The files of all patients (372 patients) who had undergone CD in hospital automation program between March-August 2018 were retrospectively analyzed. As the RA was contraindicated, 19 patients who had been treated with GA and 7 patients with missing data in their files were disabled. The study included 346 patients in which both methods could be applied. The demographic data of the patients, anesthesia methods and the names of anesthesiologists and obstetricians participating in the operation were recorded. Physicians were informed about this study and then permission was obtained from Meltem Hospital local ethics committee (15.09.2018/31). Anesthesia methods were recorded as GA and RA. RA was divided into subgroups of Spinal Anesthesia (SA), Epidural Anesthesia (EA) and Combined Spinal Epidural Anesthesia (CSEA). 5 obstetrician, respectively, A, B, C, D, E; 3 anesthetists were named Doctor X, Y, Z respectively. First of all, the effects of all physicians on anesthesia methods alone were examined. The applied anesthesia methods were evaluated together with the active practitioner physicians (anesthesiologists and obstetricians) for each CD.

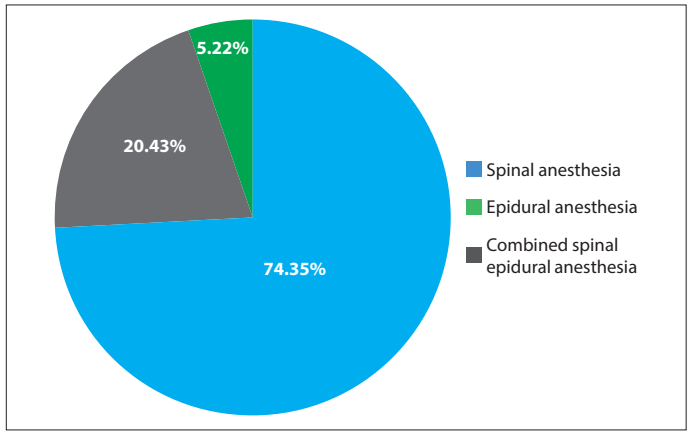

Figure 1. Distribution of regional anesthesia techniques.

IBM SPSS Statistics 23 package program was used to evaluate the data. Number, percentage and mean values were given as descriptive statistics. Statistical analyzes were performed using chi-square and independent T-test. $p<0.05$ was considered statistically significant.

Results

A total of 346 CD files were included in the study within 6 months of the hospital automation program. 230 patients (66.50%) had RA and 116 (33.50%) patients had GA. The mean age of patients who underwent RA was 30,20±6.69, and the mean age of patients who underwent GA was 29,50±5,87. The median gestational age of mothers during CD was 37.87±1.68 weeks in RA and 37.87±1.65 weeks in patients with GA. There was no significant difference between RA and GA and between mothers age ($p>0.05$), and pregnancy weeks ($p>0.05$).

The distribution of applied RA techniques is presented in Figure 1. The most commonly used regional anesthesia method was SA (74.35%) (Fig. 1).

When the obstetricians were compared to the anesthesia methods in the CDs in which they were active participates, the lowest RA ratio was Doctor D with 40.00% and the highest with 87.10% was Doctor C. a significant relationship was found between the anesthetic methods in the CDs that they participated with obstetricians ($p<0.001$) (Fig. 2).

When anesthesiologists are compared to the anesthesia meth-

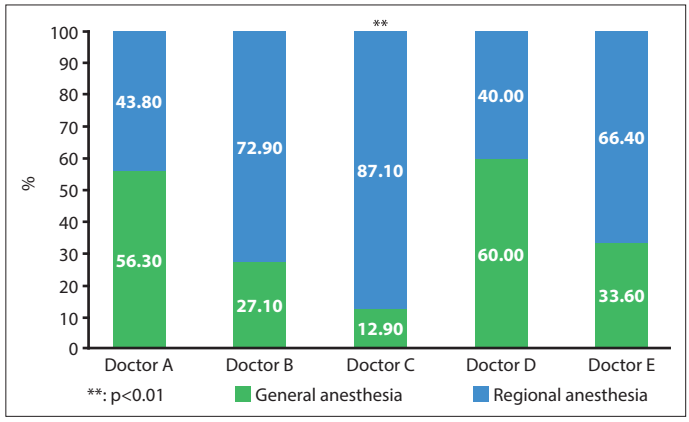

Figure 2. Distribution of the anesthesia method in cesarean delivery as percentage of active practitioner obstetricians.

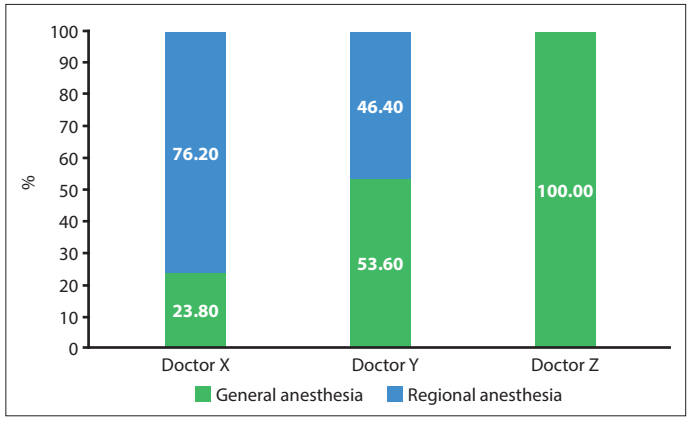

Figure 3. Distribution of the anesthesia method in cesarean section as an percentage of active practitioner anesthesiologists.

ods in the CDs in which they were active participates; RA ratio Doctor X 76.20%; Doctor Y was found to be 46.40%. It was observed that Doctor Z applied GA in all CDs in which that participated as an active practitioner. A significant relationship was found between the anesthetic methods in the CDs that they participated with the anesthesiologists (p<0.001) (Fig. 3).

Anesthesiologists evaluated the effects of anesthesia, Doctor X (p<0.01) and Doctor Z (p<0.001), while the significant relationship is found between the methods of anesthesia; Doctor Y (p>0.05), there was not a significant correlation. Obstetricians evaluated the effects of anesthesia, Doctor A (p<0.01), Doctor C (p<0.05), Doctor D (p<0.01) and Doctor E's (p<0.01), while significant relationship is found between the methods of anesthesia; Doctor B (p>0.05), there was not a significant correlation.

When the active anesthesiologist and obstetricians are evaluated together for each CD; Anesthesiologist Doctor X and Obstetrician Doctor C joined together with the RA rate increased to 91.7% and reached the highest rate. The rate of RA was 25% in the CDs in which the anesthesiologist Doctor Y and obstetrician Doctor D were involved. A statistically significant difference was found (p<0.05). In all CDs where the anesthesiologist Dr. Z has participated as an active practitioner; GA was applied as the anesthesia method (Table 1).

Discussion

With the information available in recent years, the majority of anesthesiologists prefer RA for CD patients if there is no contraindication as anesthesia method. In our study, RA was more preferred in patients with CD. When we examined the anesthesia methods applied, it was determined that the preferences of the physicians who participated in the surgery as an active practitioner were effective in the anesthesia method. We think that this difference is due to the professional tendencies and experiences of both obstetricians and anesthesiologists.

In a study of the effects of anesthesia methods on mother and baby, the maternal mortality rate due to GA was 16.7 times higher than maternal mortality due to RA.[14] In a study where

Table 1. Distribution of anesthesia methods when combined with obstetrician and anesthetist are evaluated (p<0.001)

Anesthetist	Obstetrician	General anesthesia		Regional anesthesia		
		n	%	n	%	
Doctor X	Doctor A	12	50	12	50	
	Doctor B	12	21.82	43	78.18	
	Doctor C	5	8.30	55	91.70	0.001*
	Doctor D	3	25	9	75	
	Doctor E	30	27.52	79	72.48	
Doctor Y	Doctor A	4	30.77	9	69.23	
	Doctor B	7	46.67	8	53.33	
	Doctor C	4	40	6	60	0.105
	Doctor D	9	75	3	25	
	Doctor E	13	68.42	6	31.58	
Doctor Z	Doctor A	11	100	0	0	0.000**
	Doctor D	6	100	0	0	

*:p=0.001; **:p=0.000.

epidural anesthesia was applied to all pregnant women, no maternal mortality was reported.[15] It was reported that more surgical site infections were seen in CD patients with GA and the probability of stroke was increased in preeclamptic pregnant with GA.[16,17]

The choice of anesthesia method depends on maternal factors and the condition of the fetus in the first plan.[18]

Both anesthesia methods have no significant advantages in terms of maternal hemodynamics and fetal well-being. Both have advantages and disadvantages. Factors such as the pathologies present in the patient, the urgency of the operation, the experience of the anesthesiologist, obstetrician and patient and his / her preference should be decided. In recent years, the preferred anesthesia method is RA.[3] In Taiwan, the study of 303.834 patients was performed with 4.1% GA and 95.9% RA was preferred. It is reported that the most commonly used anesthesia method in CD in Germany is SA with 90.8%.[19] The rate of use of RA in Spain is 98%, among which the utilization rate of SA is 75%.[20]

In our country, the rate of anesthesia methods in CD's were investigated in studies %51.6, %69, %75.2, %89 as reported in different values. In a study in which RA rate was reported as 75.2%; the rate of RA in elective surgery is 82% and in emergency surgeries it is 65.2%.[6,7,21,22]

In the CD patients included in our study, GA was 33.5%; the rate of RA was 66.5%. The rates of anesthesia methods in our study are suitable for literature review.

In order to minimize the risk of hypotension, patients who will be treated with RA in our clinic are given 1.000 ccs 5% Dextrose Lactate Ringer's Solution half an hour before the operation. In spinal anesthesia, we prefer to use 26 gauge spinal needle (pencil point) and 12 mg hyperbaric bupivacaine as the local anesthetic.

In one study, 16.1% SA, 18.6% EA and 65.3% CSEA were reported to be in the form of a distribution of RA techniques applied to CD patients.[23] In another study, the distribution was 58.57% SA, 2.86% EA, 38.57% CSEA.[6] In our study group, the rates were 74.35% SA, 5.22% EA, 20.43% CSEA.

In different centers, there are undoubtedly many factors in the emergence of different rates. In our study, the main reason for the lower rate of RA application as the anesthesia method than the developed countries was the insufficiency of patient information about regional anesthesia methods. It was observed that patients preferred GA because of fear of permanent nerve damage and anxiety of pain during surgery.

In an epidemiological study, it was determined that it would be more accurate to rely on medical indications and clinical practice guidelines in the determination of anesthesia preferences; it is stated that the individual preferences of anesthetists and / or obstetricians sometimes prevent clinical indications.[17]

In a study in which the preferences of the anesthesia method were asked without a prior information during the preoperative examination of elective CD patients, 42.7% of pregnant women preferred RA. Anesthesiologists reported that they increased this rate to 74.66% with the information they made.[23]

In our literature review, we observed that the studies which examined the anesthesia method preferences of the physicians who were active as active practitioners in CDs were always surveying studies. In our study, anesthesia methods used in the CD operations of the physicians who participated as active practitioners were compared.

In our study, a significant relationship was found between the attending physicians and anesthesia methods in CD operations ($p<0.000$). Among the obstetricians included in the study, the RA ratio was as follows: Rates from the highest to the lowest; Doctor C, 87.10%, Doctor B 72.90%, Doctor E 66.40%, Doctor A 43.80%, Doctor D 40.00% were listed in the form (Fig. 2). The RA rates of the anesthetists included in the study were as follows; the highest to lowest, Doctor X 76.2%, Doctor Y 46.40%, Doctor Z was 0% (Fig. 3). We attribute such different rates to the fact that the tendencies of active practitioners in CDs have influenced the methods of anesthesia.

In our study, a significant relationship was found between the anesthesia methods applied in the CD operations in which 6 of the 8 physicians were as active practitioners. In our study, it was found that there was a significant relationship between the anesthesiologist Doctor X ($p<0.01$) and Doctor Z ($p<0.001$) and the anesthesia methods used in the CD operations. No significant relationship was found for Doctor Y ($p> 0.05$) (Table 1).

When the effects of obstetrician alone on anesthesia methods were evaluated, it was found that there was a significant relationship between Doctor A ($p<0.01$), Doctor C ($p<0.05$), Doctor D ($p<0.01$), and Doctor E ($p <0.01$) anesthesia methods. No significant relationship was found for Doctor B ($p>0.05$). In a study in which anesthesia methods were applied in obstetric patients, it was stated that communication and coordination between anesthesiologist and obstetrician were very important in the successful application of RA methods.[24]

In a study in which the preference of anesthesia method in the CDs who are active practitioners working in the Department of Anesthesia and Obstetrics and Gynecology Department, and the rate of obstetricians who prefer RA were 18.2%, the rate of anesthesiologists was 62.5%.[25] When they were asked about the reasons for not preferring RA, they stated that the patients who had undergone RA had not enough muscle relaxation in the surgical field and prolonged the operation time. In the study, it was shown that the use of SA in CD did not prolong the use of operating room.[26]

Anesthesiologists and obstetricians, openly reveal the problems experienced during the surgery, to work together to find solutions; the level of synergy and communication between them will be more useful in determining the most accurate anesthesia method.[25]

Anesthesiologists and obstetricians who participated in CD surgery were evaluated together; obstetricians Doctor C and anesthesiologist Doctor X were preferred as an anesthesia

method in 91.7% of the surgeries they participated together (Table 1). The rate of RA was 87.10% in surgeries attended by obstetricians doctor C; the rate of RA was 76.20% in surgeries attended by anesthesiologist doctor X, and the rate of RA increased to 91.7% in surgeries attended together. When the physicians were evaluated as a combination, a significant relationship was found between the anesthesia methods ($p<0.05$).

The results are consistent with the literature. All the patients were evaluated together with the tendency of the physicians working in our clinic to be in the same approach in emergency and elective surgery except in medical necessities. The lack of an equal number of CDs of the physicians included in the study was the limitation of the study.

Conclusion

It was observed that the coordinated study and the synergy between the anesthetists and obstetricians participating in the operation as active activators in CDs were effective in determining the most suitable anesthesia methods for the patients.

Conducting multicentre studies will provide more information about the effect of coordination level between physicians in determining anesthesia methods in operations.

Conflict of interest: There are no relevant conflicts of interest to disclose.

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