



Effect of Anaesthesia Methods for Regaining Daily Life Activities in Cesarean Patients

Canan Gürsoy¹, Gülay Ok¹, Demet Aydın¹, Erhan Eser², Koray Erbüyün¹, İdil Tekin¹, Yeşim Baytur³, Yıldız Uyar³

¹Department of Anaesthesiology and Reanimation, Celal Bayar University Faculty of Medicine, Manisa, Turkey

²Department of Public Health, Celal Bayar University Faculty of Medicine, Manisa, Turkey

³Department of Obstetrics and Gynaecology, Celal Bayar University Faculty of Medicine, Manisa, Turkey

Objective: Postpartum period is physically, socially and emotionally a difficult time for the parents and the baby to become a family. We tried to investigate how the anaesthesia method affects patients who underwent cesarean delivery, as a factor which also affects this period.

Methods: Two hundred and six parturients, who underwent elective cesarean delivery in Celal Bayar University Hafsa Sultan Hospital were recruited for our study. After demographic data and anaesthesia methods were noted, an EQ-5D health survey and Katz ADL scale were evaluated face to face 24 hours postoperatively, and by telephone on the 5th postoperative day.

Results: The percentage of patients who had general anaesthesia was 35.2% (n=71), while 19.8% (n=40) had epidural anaesthesia and 45% (n=91) had spinal anaesthesia. Among -these three methods, the EQ-5D health survey revealed that the outcome at postoperative 24 hours was best in epidural anaesthesia and that general anaesthesia outcome was the worst (p=0.007). The Katz ADL scale at postoperative 24. hours showed that epidural anaesthesia was better than the other methods for regaining daily life activities (p<0.05).

Conclusion: Our study showed that epidural anaesthesia had the most effective role among the methods in regaining daily life activities after elective cesarean delivery, which was demonstrated using the EQ-5D health survey and Katz ADL scale.

Key Words: Cesarean sectio, anaesthesia, quality of life

Introduction

Postpartum period, in which physical, social and emotional changes occur, is a compelling period that brings along a complex transition for the parents and the baby to become a family (1-3). In addition to many factors that influence the adaptation of the mother to this period, returning back to daily living activities in a short time protects the mother from postoperative complications and the mother takes an active role in caring the baby.

Postpartum period is a sensitive period for women, in which the risk of psychiatric disorders increase (4, 5). A new mother may feel lonely and isolated, and may experience a depressive mood due to repetitive nature of daily activities, fear of not being a good mother, and the conflicts with the role of maternity (6, 7). Contrary to normal vaginal delivery, a women undergoing caesarean section is exposed to surgical stress. Difficulty in performing daily activities due to surgery, being dependent to someone for her basic needs such as having a bath, dressing, ability to go to toilet and eating, certainly exclude the woman from her social place before pregnancy. Thus, the woman will have a tendency to be in a depressive mood (8-10).

Studies have suggested that quality of life is enhanced after elective caesarean section in cases, in which successful postoperative pain control has been achieved (11). Because, women want to be attentive, energetic and active in this period, in which women take the role of maternity that includes many new activities such as nursing and baby care. Considering the entire process, it is clear that early return to the daily activities after caesarean is important. However, the number of studies on the factors that influence returning to the activities of daily living show that it is not sufficient. In the present study, we aimed to investigate whether anaesthesia technique has a role in returning back to activities of daily living in patients who gave birth by caesarean section.

Methods

After obtaining approval (20.06.2012/209) from the Ethics Committee of Celal Bayar University Faculty of Medicine, 206 cases aged between 18 and 40 years that underwent elective caesarean section at Celal Bayar University Faculty of Medicine Hospital were included in the study. Emergency caesarean section cases, morbid obese patients, patients with a history of concomitant disease that may hinder daily activities and those with a history of psychiatric disease were excluded.

The cases received intramuscular diclofenac sodium for postoperative analgesia with 12 hour intervals, and oral diclofenac sodium was prescribed for each patient during discharge from hospital, to be received as 1 tablet in the morning and 1 tablet in the evening.

At postoperative 24 hours, after obtaining written consent from study participants, they were questioned about anaesthesia experience, type of anaesthesia, concomitant diseases, medications used, if any, and history of smoking, and the answers were recorded.

“Katz Activities of Daily Living (Katz ADL) Scale, which is the most appropriate scale for assessment of activities of daily

living, was used to determine dependence or independence of patients to another subject in their daily activities (Figure 1) (12, 13). Questions that assess the ability to perform basic activities for bathing, dressing, toileting, mobilization, incontinence, and feeding were asked. In Katz ADL questionnaire, each question includes answer choices of “independent-partially dependent-dependent”. The subject was given 1 point, if she was able to perform daily living activities independently or partially dependently and -0- point if the subject was not able to perform activities of daily living. In the assessment of Katz ADL index; 0 is considered completely dependent and 6 is considered independent, and the scores in-between are evaluated as follows: 2 and lower scores; functional inability, 3-4; moderate inability, 5 and higher scores good functionality (14, 15).

“EQ-5D General Health Scale” (EQ- 5D GHS) was used to obtain information about patients’ current health status (Figure 2). This scale is a general health questionnaire used to measure quality of life (16). It consists of five dimensions; Mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Answers given to each question have three options as “no problem, moderate problem and extreme problem”. As the consequence, the questionnaire defines 243

Patient's Name and Last name:		
Activities Point (1or 0)	Independence (1 Point)	Dependence (0 Point)
Point: Bathing	Bathes herself completely or needs partial help while cleaning her back or genital region	Needs help while getting in or out of the tub or shower, and while cleaning more than one part of the body
Point: Dressing	Dress herself completely. May sometimes need help when tying shoes.	Completely needs help while dressing
Point: Toileting	Goes to toilet, gets on and off, cleans genital area and puts on her clothing without help	Needs help while going to the toilet, cleaning self, and dressing
Point: Mobilization	Gets up from the bed and chair on her own. May need help for carrying loads	Needs help while getting up from bed to the chair
Point: Incontinence	May control herself while urination and defecation	Partially or completely incontinent of bowel or bladder
Point: Feeding	Gets food from plate into mouth without help. May need help while preparing food	Needs complete or partial help with feeding or requires parenteral nutrition
		Total Score:

Figure 1. Katz activities of daily living scale

(35=243) different probable health outcomes. An index score changing between -0.59 and 1 is calculated from 5 dimensions of the scale. In the score function, 0 represents death and 1 represents perfect health, whereas negative scores represents living unconscious or bedridden, etc. Answers given to EQ- 5D GHS were recorded in the questionnaire form. The index score for EQ-5D was calculated using coefficients produced in the study by Dolan et al. (16).

The participants were asked how they feel themselves at that day. They were asked to score themselves as “worst: 1 and best: 5”. Scores were marked on the ruler in the questionnaire form (Figure 3).

Contact numbers of the participants were obtained and they were called at postoperative 5 days to complete Katz ADL index and EQ-5D GHS. In the same interview, they were asked about the time to discharge from hospital and whether they had surgery/anaesthesia-related complications. Answers were recorded in the questionnaire form.

Statistical analysis

Statistical analysis of study data was done using SPSS (Statistical Package for Social Sciences) program version 15.0. The descriptive statistics were presented by number and percentage distribution and mean and standard deviation for continuous variables. Analytic statistics were done using one way analysis

Patient Name-Last Name:	
Please mark the sentence that defines your current health status best by putting an X sign in one of the boxes in each group.	
Mobility	
I have no difficulty while walking	1
I have some difficulties while walking	2
I am confined to bed	3
Self-care	
I have no problems with self-care	1
I have some difficulty while bathing or dressing on my own	2
I am unable to bath or dress on my own	3
Usual activities (Work, Study, Housework, Leisure activities)	
I have no difficulty in performing my usual activities	1
I have some difficulties in performing my usual activities	2
I am unable to perform my usual activities	3
Pain/Discomfort	
I have no pain or discomfort	1
I have moderate pain or discomfort	2
I have extreme pain or discomfort	3
Anxiety/Depression	
I amnot anxious or depressed	1
I am moderately anxious or depressed	2
I am extremely anxious or depressed	3

Current health status

Total score:

Figure 2. EQ-5D general health scale

of variance (One Way Anova) for the relation of dependent variables (consists of 3 factors) with independent continuous variables, whereas Post-Hoc Tukey test was used to determine which group differ. The significance of difference between the percentages of categorical dependent variable and categorical independent variable was analysed using the Chi-square test, whereas relation between continuous variables was analysed using correlation analysis. Results were evaluated within 95% confidence interval and the level of significance was set at $p < 0.05$.

Results

The study included 206 cases that underwent elective caesarean surgery at Celal Bayar University Faculty of Medicine Hospital. Three cases that received spinal anaesthesia developed postpartum headache. One case developed serious wound infection. Considering that these conditions would influence activities of daily living, these 4 cases were excluded from the study.

Study participants were similar in terms of demographic characteristics (Table 1). The mean time to discharge from hospital was 45.2 ± 3.4 hours. However, it was determined that the group, which was discharged from the hospital in the shortest time, were the patients that received epidural anaesthesia ($p < 0.001$) (Table 1). Of the study participants, 22.3% were primary school graduates or had lower education levels, whereas 77.7% were secondary school graduates or had higher levels of education. It was determined that 15.3% of the participants had smoked cigarettes over the course of pregnancy, whereas 84.7% did not (Table 2). Of the cases, 7.4% had preeclampsia and 5% had concomitant disease not related to pregnancy (DM, Hyperthyroidism, HT, etc.).

During surgery, 35.2% (n=71) of the cases, received general anaesthesia, 19.8% (n=40) received epidural anaesthesia, and 45% (n=91) received spinal anaesthesia. It was determined that 41.1% had received anaesthesia in the past, of which 56.6% had undergone surgery under general anaesthesia,

PATIENT NAME/ LAST NAME:	DATE:
AGE:	ANAESTHESIA TECHNIQUE: 1 () GENERAL
PROTOCOL NO:	2 () EPIDURAL
HEIGHT:	3 () SPINAL
BODY WEIGHT:	
LEVEL OF EDUCATION:	
1 () ILLITERATE	
2 () LITERATE	
3 () PRIMARY SCHOOL GRADUATE	
4 () SECONDARY SCHOOL GRADUATE	
5 () HIGH SCHOOL GRADUATE	
6 () UNDERGRADUATE	
7 () POSTGRADUATE	
GESTATIONAL WEEK:	
CONCOMITANT DISEASE:	
MEDICATIONS:	
TIME TO HOSPITAL DISCHARGE:	
PREVIOUS ANAESTHESIA: 1 () YES	
EXPERIENCE 2 () NO	
PREVIOUS CAESAREAN SECTION: 1 () YES	
2 () NO	
<u>KATZ ADL Scale</u>	<u>EQ 5D General Health Scale</u>
POSTOP 24 HOURS:	POSTOP 24 HOURS:
POSTOP 5 DAYS:	POSTOP 5 DAYS:

Figure 3. Effect of anaesthesia techniques on returning back to the daily living activities in cases undergoing caesarean section

22.9% had received epidural anaesthesia and 20.5% had received spinal anaesthesia (Table 3).

When the calculations were done considering the EQ-5D GHS score coefficients, the mean EQ-5D GHS score at postoperative 24 hours was 0.419 ± 0.02 , while the mean score was 0.975 ± 0.004 at postoperative 5 days. In all anaesthesia techniques, the 5th day scores were higher than the 24th hour scores and the difference was statistically significant ($p < 0.005$) (Table 3). Comparing three anaesthesia techniques based on EQ-5D GHS scores, it was determined that the 24th hour scores of general anaesthesia group were the lowest, while the

scores of epidural anaesthesia group were higher than that of the other groups ($p = 0.007$). Although the scores of spinal anaesthesia group were lower as compared to that of the epidural anaesthesia group, no significant difference was found between the two groups. The 5th day EQ-5D GHS scores were similar in the three anaesthesia groups (Table 3). When the mean EQ-5D GHS scores at 24 hours and 5 days were compared according to the education level of participants, it was found that the scores were significantly lower in the group that consisted of primary school graduates and those with lower education levels as compared to secondary school graduates and those with higher education levels ($p < 0.001$) (Table 4).

	General anaesthesia	Epidural anaesthesia	Spinal anaesthesia
Age (years)	24.67 ± 3.24	26.03 ± 3.90	25.41 ± 3.08
Height (cm)	160.45 ± 7.07	161.57 ± 6.75	161.84 ± 7.23
Body weight (kg)	73.62 ± 7.57	75.37 ± 7.51	75.52 ± 7.57
Gestational week	38.40 ± 1.54	38.07 ± 0.79	38.23 ± 0.98
Time to hospital discharge (hour)	46.69 ± 2.85	$42.87 \pm 3.81^*$	45.19 ± 3.13

* $p < 0.05$

		n	%
Level of education	Primary school and lower	45	22.3
	Secondary school or higher	157	77.7
Anaesthetic technique	General anaesthesia	71	35.2
	Epidural anaesthesia	40	19.8
	Spinal anaesthesia	91	45
History of smoking	Yes	31	15.3
	No	171	84.7
Previous anaesthesia experience	Yes	83	41.1
	No	119	58.9
Previous anaesthesia technique used	General anaesthesia	47	56.6
	Epidural anaesthesia	19	22.9
	Spinal anaesthesia	17	20.5

In comparison of the EQ-5D GHS scores according to patient age, it was determined that answers were improved as the age increased and the scores were higher. Whilst this improvement made no difference at 5th day scores, there was a statistically significant difference between the 24th hour scores ($p < 0.05$). No significant difference was determined in terms of 24th hour EQ-5D GHS scores among smokers. However, a statistically significant difference was noted in 5th day scores between the groups although the answers were close to each other ($p < 0.001$); but the difference was not considered to be of clinical significance (Table 5).

When the EQ-5D GHS scores were compared according to the history of previous anaesthesia experience, it was found that 24th hour scores were higher in the group that received anaesthesia in the past, whereas the 5th day scores were similar in both groups ($p > 0.05$) (Table 5).

Based on the 24th hour results of Katz ADL index, 59.9% of the cases were capable of independently performing activities of daily living, while 14.7% were partially dependent and 25.4% were completely dependent on someone. All cases were considered to be capable of independently performing daily living activities on the 5th day (Table 6). Katz ADL index demonstrated that the rate of participants who were capable of performing daily living activities at 24 hours of anaesthesia was higher in the group that received epidural anaesthesia as compared to the other anaesthesia groups, followed by the spinal anaesthesia group (Table 7). According to the 5th day Katz ADL index scores; all groups were capable of

		Min	Max	Mean \pm SD	p value
EQ-5D GHS scores Postoperative 24 hours	General anaesthesia	0.230	0.402	0.316 ± 0.04	0.007**
	Epidural anaesthesia	0.396	0.631	$0.513 \pm 0.05^*$	
	Spinal anaesthesia	0.388	0.526	0.457 ± 0.03	
EQ-5D GHS scores Postoperative 5 days	General anaesthesia	0.956	0.986	0.971 ± 0.00	0.736
	Epidural anaesthesia	0.962	0.997	0.979 ± 0.00	
	Spinal anaesthesia	0.964	0.990	0.977 ± 0.00	

* $p < 0.05$, **Comparison of Epidural anaesthesia by EQ-5D GHS

Table 4. Comparison of EQ-5D GHS scores according to education levels

		Mean±SD	P value
EQ-5D GHS scores at postoperative 24 hours	Primary school and lower	0.234±0.42*	<0.001
	Secondary school or higher	0.472±0.31	
EQ-5D GHS scores at postoperative 5 days	Primary school and lower	0.943±0.08*	<0.001
	Secondary school or higher	0.985±0.04	

*Comparison of EQ-5D GHS with the education status of secondary school and higher

Table 5. Comparison of EQ-5D general health scale scores according to smoking status and prior anaesthesia experience

		Mean±SD	p value
EQ-5D GHS scores at postoperative 24 hours	Smoking Yes	0.329±0.37	0.152
	Smoking No	0.435±0.35	
EQ-5D GHS scores at postoperative 5 days	Smoking Yes	0.948±0.08	<0.001*
	Smoking No	0.980±0.05	
EQ-5D GHS scores at postoperative 24 hours	Anaesthesia experience Yes	0.465±0.30	0.001**
	Anaesthesia experience No	0.386±0.38	
EQ-5D GHS scores at postoperative 5 days	Anaesthesia experience Yes	0.979±0.55	0.125
	Anaesthesia experience No	0.978±0.65	

*Comparison EQ-5D GHS with nonsmokers,**Comparing EQ-5D GHS with those without anaesthesia experience in the past

Table 6. Results of Katz ADL index scores at postoperative 24 hours and 5 days

		n	%
Katz ADL index scores at postoperative 24 hours	Dependent	51	25.2
	Partially dependent	30	14.9
	Independent	121	59.9
Katz ADL index scores at postoperative 5 days	Dependent	0	0
	Partially dependent	0	0
	Independent	202	100

independently performing the activities of daily living. Based on Katz ADL index, primary school graduates and those with lower education levels were dependent or partially dependent in returning back to the activities of daily living, whereas 67.8% of secondary school graduates and those with higher education levels independently returned back to the activities of daily living (p<0.001) (Table 8). Comparing 5th day scores

in terms of education status, dependency or partial dependency in returning back to the activities of daily living was not determined in any of the groups and independence in returning back to the activities of daily living was considered to be statistically significant (p=0.001)

No significant difference was determined in the 24th hour and 5th day Katz ADL scores in terms of age (p>0.05) (Table 9). When the anaesthesia techniques were compared according to the health status of the participants on the day of interview, no significant difference was found between the groups (p>0.05).

Discussion

The present study found that the anaesthesia technique used in patients undergoing caesarean section has an influence on the patients returning back to the activities of daily living. It was determined that epidural anaesthesia enables patients to return to daily living activities earlier than general anaesthesia while general anaesthesia prolonged this duration.

Caesarean section is one of the common surgical procedures performed in Turkey. Different from other surgeries, the anaesthesiologist have to choose the technique with the least depressant effects for the infant, that is the safest and the most comfortable for the mother, and that enabling the most appropriate working conditions for the surgeon considering the pregnancy-related physiological and anatomical changes in mother and assessing the factors that might influence postpartum maternal adaptation period. The superiority of regional anaesthesia and general anaesthesia to each other has been discussed in the studies for years (17).

Eren et al. (18) in a study performed in a training and research hospital found that 66% of their participants were primary school graduates or had a lower level of education and 34% were secondary school graduates or had a higher level of education. In the present study, the corresponding rates were 23% and 77%, respectively. This difference was attributed to the patient populations of the hospitals.

In their study, Günüşen et al. (19) stated that out of 157 caesarean section cases, 40.1% underwent spinal anaesthesia, while 22.3% received general anaesthesia and 37.6% received epidural anaesthesia. In the study conducted by Tekin et al. (20), general anaesthesia was performed in 55.5% of the cases and regional anaesthesia (54.4% spinal anaesthesia, 25.6% epidural anaesthesia 20%. combined spinal and epidural anaesthesia) was performed in 44.5% of the participants, In the present study, it was observed that elective caesarean section cases mostly underwent spinal anaesthesia (45%) followed by general anaesthesia (35.2%) and epidural anaesthesia (19.8%). The rates of women receiving different anaesthesia techniques in the previous studies were similar to those in the present study, which is associated with regional anaesthesia's being a more applicable method and becoming

more reliable along with enhanced experience of anaesthesiologists, advanced techniques, and the information that pregnant women obtain on this subject (21).

Postoperative pain control has become a more important issue in the postpartum period as well as after other operations. Because uncontrolled pain may not only hinder optimal care of the mother with her baby, but also may unfavourably influence the interaction between the mother and baby in the early postpartum period (17). İsmail et al. (11) stated that successful postoperative pain control after elective caesarean sections increase the quality of life. Because, women want to be attentive, energetic and active in this period, in which they undertake the role of maternity that consists of many new activities such as nursing and baby care. Considering the entire process, the importance of patients' achieving the capabilities of returning to the activities of daily living becomes clear. Although the factors that influence the activities of daily living in postpartum period are still debatable, the present study was planned considering that anaesthesia techniques performed during caesarean surgeries might also have an influence during postpartum period.

With regard to the problems encountered after caesarean section, whilst pain in the surgical area and standing up the first rank, there are also other problems including passing gas, inability to nurse, nausea-vomiting, and lack of personal hygiene (22). Among these problems encountered, EQ-5D GHS and Katz ADL questionnaires include questions on standing up, personal hygiene and pain parameters. Considering the high scores obtained in groups receiving regional anaesthesia, particularly in the group receiving epidural anaesthesia, it was observed that regional anaesthesia reduced the problems to the minimum.

Saraçoğlu et al. (23) performed patient-controlled analgesia for postoperative pain control in caesarean section cases that underwent spinal or general anaesthesia and found the time to hospital discharge to be shorter in the patients in spinal anaesthesia group. Samaali et al. (24), in inguinal hernia surgery, also found the time to hospital discharge to be shorter in those who underwent spinal anaesthesia in comparison to those receiving general anaesthesia. Early discharge from hospital both enables the mother to take the responsibility of the baby and makes her independent in the activities of daily living. In the present study as well, the time to hospital discharge was found to be shorter in the patients that underwent regional anaesthesia, particularly epidural anaesthesia, indicating that patients receiving epidural anaesthesia are able to return to daily living activities easily.

Afolabi et al. (25) stated that the amount of bleeding was lower in the group that received regional anaesthesia in comparison to the group that received general anaesthesia for caesarean section. Lertakyamane et al. (26) also determined higher amount of blood loss and lower postoperative hematocrit levels in the group undergoing caesarean section under

Table 7. Comparison of Katz ADL index scores at postoperative 24 hours according to anaesthetic techniques

	Partially Independent	Partially dependent	Dependent	p value
General anaesthesia	44.8%**	19.4%	35.8%	0.034*
Epidural anaesthesia	71.8%**	12.8%	15.4%	0.034*
Spinal anaesthesia	65.9%**	12.1%	22.0%	0.016*

*p<0.05, **Comparison of cases who were dependent with those who were partially dependent

Table 8. Comparison of Katz ADL questionnaire scores at postoperative 24 hours according to the education levels of the participants

	Partially Independent	Partially dependent	Dependent	p value
Primary school and lower	33.3%*	13.3%	53.4%	<0.001
Secondary school and higher	67.8%*	15.1%	17.1%	<0.001

*Rates of education status and results of independence

Table 9. Correlation of the effects of different anaesthetic techniques on Katz ADL and EQ-5D HS scores with age

Group	Variables	r*	p**
General anaesthesia (n=71)	Age-Katz 24 th h	0.29	0.07
	Age-EQ-5D	0.09	0.42
	Age-EQ-5D 5 th day	0.08	0.47
Spinal anaesthesia (n=91)	Age-Katz 24 th h	0.29	0.12
	Age-EQ-5D	0.24	0.02
	Age-EQ-5D 5 th day	0.22	0.03
Epidural anaesthesia (n=40)	Age-Katz 24 th h	0.54	0.00
	Age-EQ-5D	0.20	0.19
	Age-EQ-5D 5 th day	0.14	0.36
The whole group	Age-Katz 24 th h	0.36	0.06
	Age-EQ-5D	0.02	0.00
	Age-EQ-5D 5 th day	0.16	0.02

*r=Pearson correlation coefficient;**p<0.05 according to Pearson correlation test

general anaesthesia in comparison to regional anaesthesia. Since higher amount of blood loss may lead to fatigue, tendency to sleep and tiredness in a period in which physiological changes are still on-going, this may explain the higher percentages of women being dependent to someone while achieving the capability of performing daily living activities in the general anaesthesia group. As EQ-5D GHS also assesses mobility and daily activities (16), the 24th hour scores of EQ-5D GHS might be lower in those who received general anaesthesia as compared to those who received regional anaesthesia accordingly.

In the *Cochrane* database, postoperative analgesia requirement appeared later in the epidural anaesthesia group when compared to that of the general anaesthesia group (25). Based on the 24th hour EQ-5D GHS scores, we as well think that early achievement of the ability to perform the activities of daily living in the epidural anaesthesia group might be associated with longer time to requirement of postoperative analgesics.

Tekin et al. (20) compared patient satisfaction in cases that underwent regional and general anaesthesia and concluded that the cases receiving regional anaesthesia were highly satisfied. Whilst the patients that preferred general anaesthesia were satisfied, dissatisfaction rates were equal in the two groups (20). In the present study, as a measure of satisfaction, the patients were questioned how they felt themselves concerning health. It was determined that patients in the epidural anaesthesia group, who were capable of performing the activities of daily living earlier, felt healthier.

In the "Life Model" developed by Roper, sociodemographic data, cultural status and experience of the subjects gain importance in involving the activities of daily living (27, 28). Awareness of the subject that would take the role of maternity about the seriousness of condition, trying to adapt faster, and accordingly the desire for early returning back to the activities of daily living such as meeting her own care, toileting and feeding are enhanced by the experiences that come with age. In the present study, involvement in daily activities, assessed by the 24th hour EQ-5D GHS scores, was higher as age increased, which was supported by higher scores.

König et al. (29) conducted a study in 6 European countries using EQ-5D GHS, and EQ-5D GHS scores were found to be higher, as was in the present study, as education level increased. Again, the same study found increased expectations about quality of life with increased age and EQ-5D GHS scores were inversely proportional to age (29). In the present study, age distribution was equal and it was determined that younger patients had more difficulty in performing daily living activities.

In the literature, studies that evaluated quality of life using EQ-5D GHS found lower scores in smokers in comparison to nonsmokers (30, 31). In the present study, the scores of smokers were lower than that of non-smokers, with no statistically significant difference between the two groups. This might be associated with the subjects', who were smokers before pregnancy, quitting or decreasing the daily amount of cigarette smoking during pregnancy.

"Katz ADL Scale" assesses the dependency of subjects while performing activities of daily living and is used by clinicians to recognize problems encountered in these activities (2, 15). In the present study, based on 24th hour Katz ADL scale scores, education status of the subjects was considered as an important factor while performing activities of daily living. Life Model of Roper is sufficient to explain this situation (27, 28).

Chung et al. (32) found a strong correlation between postpartum depression and low education level, which explains the effect of education level on the ability of returning back to the activities of daily living. Nandakumar et al. (33) in a study on elder patients mentioned about increasing dependency with age in performing daily living activities because of existing concomitant diseases. In the present study, all cases were capable of independently performing daily living activities at postoperative 24 hours and 5 days. Considering that the mean age of the participants were low in the present study, it might be thought that they would be more sensitive about taking the role of maternity and would involve in the activities of daily living faster and more independently.

In the *Cochrane* database, Afolabi et al. (25) determined that previous anaesthesia experience is effective on the choice of anaesthesia technique in caesarean section and that the patients are prone to general anaesthesia. Tekin et al. (20), however, found no relation between choice of anaesthesia technique and previous anaesthesia experience. In the present study, patients predominantly had undergone general anaesthesia in the past. However, the majority of patients preferred regional anaesthesia (spinal and epidural anaesthesia). Thus, we determined that patients were not influenced by their previous experiences while choosing the method of anaesthesia. The conflict between *Cochrane* database and our results might be due to the limited patient number in the present study and the detailed information given to the patients about anaesthesia techniques by focusing on the advantages of regional anaesthesia.

Study limitations

In caesarean section surgeries, our clinic, our patients and obstetricians predominantly prefer regional anaesthesia. The number of patients that undergo general anaesthesia is quite low. In the present study, we increased the number of general anaesthesia applications to keep the distribution equal; nevertheless, the number of patients that underwent general anaesthesia remained limited.

Conclusion

Whilst it was determined that epidural anaesthesia enhances the early achievement of the capabilities to perform the activities of daily living in comparison to general anaesthesia in obstetric anaesthesia practice, we think that general anaesthesia would further lose its popularity because it causes prolongation of this period. Today, although debates about the optimal technique in obstetric anaesthesia is ongoing, the anaesthetist, who faces with the patient and assesses the technique that will be performed, should try to choose the method that would enable the patient's safe and fast return back to the activities of daily living without ignoring the problems that expectant mother might encounter during the postpartum period.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Celal Bayar University Medical of Faculty (20.06.2012/209).

Informed Consent: Written informed consent was obtained from patients who participated in this study.

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References

- Ching K, Hsiao Ling C, Shu Hsin L. Parenting confidence and Needs for parents of newborns in Taiwan. *Iran J Pediatr* 2012; 22: 177-84.
- Levitt C, Shaw E, Wong S, Kaczorowski J, Springate R, Sellers J, et al. Systematic review of the literature on postpartum care: methodology and literature search results. *Birth* 2004; 31: 196-202. [CrossRef]
- Yelland J, McLachlan H, Forster D, Rayner J, Lumley J. How is maternal psychosocial health assessed and promoted in the early postnatal period? Findings from a review of hospital postnatal care in Victoria, Australia. *Midwifery* 2007; 23: 287-97. [CrossRef]
- Chaudron LH, Jefferson JW. Mood stabilizers during breastfeeding: a review. *J Clin Psychiatry* 2000; 61: 79-90. [CrossRef]
- Bashiri N, Spielvogel AM. Postpartum depression: a cross-cultural perspective. *Obs Gyns* 1999; 6: 82-7.
- Mauthner N. Postnatal depression. The significance of social contacts between mothers. *Women's Studies International Forum* 18 1995: 311-23. [CrossRef]
- Small R, Brown S, Lumley J, Astbury J. Missing voices: what women say and do about depression after childbirth. *Journal for Reproductive and Infant Psychology* 1994; 12: 89-103. [CrossRef]
- Atar Gurel S, Gurel H. The evaluation of determinants of early postpartum low mood: the importance of parity and inter-pregnancy interval. *Med J* 1993; 146: 122-4.
- Boyce PM, Todd AL. Increased risk of postnatal depression after emergency caesarean section. *Med J Aust* 1992; 157: 172-4.
- Gottlieb SE, Barrett DE. Effects of unanticipated caesarean section on mothers, infants and their interaction in the first month of life. *J Dev Behav Pediatr* 1986; 7: 180-5. [CrossRef]
- Ismail S, Shahzad K, Shafiq F. Observational study to assess the effectiveness of postoperative pain management of patients undergoing elective cesarean section. *J Anaesthesiol Clin Pharmacol* 2012; 28: 36-40. [CrossRef]
- Patricia P. Katz for the Association of Rheumatology Health Professionals Measures of Adult General Functional Status. *Arthritis & Rheumatism (Arthritis Care & Research)* Vol. 49, No. 5S, October 15, 2003, 15-27.
- Claudia L, Maria C. Sleep quality of elders living in long-term care institutions. *Rev Esc Enferm USP* 2010; 44: 615-22.
- Katz S, Downs TD, Cash HR, Grotz RC. Progress in development of the index of ADL. *Gerontologist* 1970; 10: 20-30. [CrossRef]
- Mary Shelkey. Katz Index of Independence in Activities of Daily Living (ADL), Issue Number 2, Revised 2012.
- Dolan P, Roberts J. Modelling valuations for Eq-5d health states: an alternative model using differences in valuations. *Med Care* 2002; 40: 442-6. [CrossRef]
- Er A, Takmaz SA, Göktuğ AO, Başar H. Sezaryen sonrası epidural analjezide sürekli levobupivakain infüzyonuna üç farklı dozda fentanil ilavesi. *Türk Anest Rean Der Dergisi* 2007; 35: 430-7.
- Eren T. Postpartum depresyon. İstanbul, Uzmanlık Tezi, 2007; 16-8.
- Günüşen İ, Karaman S, Akercan F, Fırat V. Elektif sezaryenlerde farklı anestezi yöntemlerinin yenidoğan üzerine etkileri: retrospektif çalışma. *Ege Tıp Dergisi* 2009; 48: 189-94.
- Tekin İ, Laçın S, Arıcan İ, Ok G. Sezaryen operasyonu geçirmiş olguların anestezi yönteminin seçimi üzerine etkileri. *Türkiye Klinikleri Anesteziyoloji Reanimasyon Dergisi* 2005; 3: 1-6.
- Kocamanoglu S, Sarıhasan B, Tür A ve ark. Sezaryen operasyonlarında uygulanan anestezi yöntemleri ve komplikasyonları: 3552 olgunun retrospektif değerlendirilmesi *Türkiye Klinikleri Tıp Bilimleri Dergisi* 2005; 25: 810-6.
- Pınar G, Doğan N, Algier L, Kaya N, Çakmak F. Annelerin doğum sonu konforunu etkileyen faktörler. *Dicle Tıp Dergisi* 2009; 36: 184-90.
- Saracoglu KT, Saracoglu A, Cakar K, Fidan V, Ay B. Comparative study of intravenous opioid consumption in the postoperative period. *Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub* 2012; 156: 48-51. [CrossRef]
- Samaali I, Ben Osman S, Bedoui R, Bouasker I, Chaker Y, Slama A, et al. [Spinal anesthesia versus general anesthesia for inguinal hernia repair: propensity score analysis]. *Tunis Med* 2012; 90: 686-91.
- Afolabi BB, Lesi FE, Merah NA. Regional versus general anaesthesia for caesarean section. *Cochrane Database Syst Rev* 2006; 4: 350.
- 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.
- Ay F, Ertem, Ü, Özcan, N, Işık RD, Savran S. Temel Hemşirelik Kavramlar, İlkeler, Uygulamalar. İstanbul: Medikal Yayıncılık, 2007.
- Demir M. kalp yetmezliğinde yaşam kalitesi ve günlük yaşam aktivitelerinin değerlendirilmesi, yüksek lisans tezi, 2008.
- König HH, Bernert S, Angermeyer MC, Matschinger H, Martinez M, Vilagut G, et al. Comparison of population health status in six european countries: results of a representative survey using the EQ-5D questionnaire. *Med Care* 2009; 47: 255-61. [CrossRef]
- Koçkaya G, Akbulut A, Baran M, Yıldırım F, Vural M, Akar H, ve ark. İlaç ve eczacılık genel müdürlüğü çalışanlarının EQ-5D formu ile yaşam kalitesi değerlendirme çalışması, 2010.
- Franks P, Hanmer J, Fryback DG. Relative disutilities of 47 risk factors and conditions assessed with seven preference-based health status measures in a national U.S. sample: toward consistency in cost-effectiveness analyses. *Med Care* 2006; 44: 478-85. [CrossRef]
- Chung EK, McCollum KF, Elo IT, Lee HJ, Culhane JF. Maternal depressive symptoms and infant health practices among low-income women. *Pediatrics* 2004; 113: 523-9. [CrossRef]
- Nandakumar AK, El-Adawy M, Cohen MA. Perception of Health Status and Limitations in Activities of Daily Living Among the Egyptian Elderly. Harvard School of Public Health, Boston, MA. 1998.