# Patient Care with Same Anesthesist During Perioperative Period, Increases Patient's Satisfaction and Knowledge About Anesthesia, Reduces the Level of Anxiety

## Perioperatif Dönemde Aynı Anestezist ile Hasta Bakımı, Hastaların Memnuniyetini ve Anestezi Hakkındaki Bilgisini Artırır ve Anksiyete Seviyelerini Azaltır

Zeynep AKOĞUL,[a]
Berin ÖZCAN,[a]
Esra MERCANOĞLU,[a]
Belgin YAVAŞCAOĞLU,[a]
Fatma Nur KAYA,[a]
Elif BAŞAĞAN MOĞOL,[a]
Ali ANIL[a]

[a]Department of Anesthesiology and Reanimation,
Uludağ University Faculty of Medicine, Bursa

Geliş Tarihi/*Received:* 01.10.2012
Kabul Tarihi/*Accepted:* 07.02.2013

*Bu çalışma Anestezi 18. Kış Sempozyumu (1-4 Mart 2012, Bursa)'nda poster olarak sunulmuştur.*

Yazışma Adresi/*Correspondence:*
Esra MERCANOĞLU
Uludağ University Faculty of Medicine, Department of Anesthesiology and Reanimation, Bursa, TÜRKİYE/TURKEY
esramercan76@yahoo.com

**ABSTRACT Objective:** The aim of this study is to find out whether a new anesthesia care model affects patient's satisfaction and knowledge about anesthesia and anxiety or not. **Material and Methods:** After approval of Local Ethical Committee and written informed consent, ASA (American Society of Anesthesiologists) I-II 200 patients were included into the study who would be electively operated in Uludag University Medical Faculty Hospital. The patients were randomized into two groups equally. While patients'; peroperative care was being made by the same anesthetists in Group A, it was made by different anesthetists in Group B. In both groups STAI (Spielberger State-Trait Anxiety Inventory) estimating was made in preoperative and postoperative visits and patient satisfaction was evaluated by a questionnaire in postoperative visit. **Results:** While the answers of 1st, 2nd, 3rd, 5th, 8th, 9th, 10th questions were being found significantly high in Group A ($p<0,001$), there wasn't any significant difference in the answers of 4th, 6th, 7th questions between both groups. While the total scores of STAI in preoperative period was being found significantly different ($p=0,023$), in posto-perative period there was not any significant difference between both groups. In current anesthesia care of our university we observed that patients did not recognize their anesthetists and have enough opportunity to ask questions and express their concerns to them but with our study we found out that peroperative anesthesia care made by same anesthetist was very useful for all patients. **Conclusion:** We believe that this new model providing maintenance on the anesthesia care will improve patient's satisfaction and knowledge about anesthesia, reduce level of anxiety.

**Key Words:** Anesthesia; questionnaires; patient satisfaction; anxiety

**ÖZET Amaç:** Bu çalışmanın amacı yeni bir anestezi bakım modelinin hastaların memnuniyetini, anestezi hakkındaki bilgilerini ve anksiyetelerini etkileyip etkilemediklerini araştırmaktır. **Gereç ve Yöntemler:** Lokal etik komite ve yazılı onam alındıktan sonra Uludağ Üniversitesi Tıp Fakültesi Hastanesi'nde elektif olarak opere edilecek ASA (American Society of Anesthesiologists) I-II olan 200 hasta çalışmaya dahil edildi. Hastalar rastgele eşit iki gruba ayrıldı. Grup A'daki hastaları anestezi bakımı tek anestezist tarafından yapılırken Grup B'dekilerin ise farklı anestezist tarafından yapılmıştır. Her iki grupta da STAI (Spielberger State-Trait Anxiety Inventory) ölçümü pre and postoperatif vizitlerde yapılmıştır ve hasta memnuniyeti postoperatif vizitlerde bir anket ile ölçülmüştür. **Bulgular:** Grup A'da 1, 2, 3, 5, 8, 9 ve 10. soruların cevapları anlamlı olarak yüksek bulunurken ($p<0,001$), 4, 6 ve 7. soruların cevaplarında her iki grup arasında anlamlı bir farklılık saptanmamıştır. STAI toplam sonuçları her iki grup arasında preoperatif dönemde anlamlı farklı bulunurken ($p=0,023$), postoperatif dönemde farklılık saptanmamıştır. Hastanemizde uygulanan anestezi bakımında hastaların anestezistlerini tanımadıklarını ve soru sorma ve düşüncelerini ifade etmek için yeterli imkan bulamadıklarını gözlemledik fakat aynı anestezist ile yapılan perioperatif bakımın tüm hastalar için çok faydalı olduğu sonucuna vardık. **Sonuç:** Anestezi bakımında devamlılık sağlayan bu yeni anestezi bakım modelinin hasta memnuniyetini ve anestezi hakkındaki bilgilerini arttıracağına ve anksiyete seviyesini azaltacağına inanmaktayız.

**Anahtar Kelimeler:** Anestezi; anketler; hasta memnuniyeti; anksiyete



**Turkiye Klinikleri J Anest Reanim 2013;11(1):11-9**

Patient satisfaction is the coordination between medical care and expectation of the patient.[1] In recent years, there has been so many studies that investigated patient satisfaction in anesthesia, evaluated and found out the level and the reasons of the preoperative anxiety but there are few reports about patient satisfaction because there are some problems about the knowledge of satisfaction, the coordination between methods and researches. There are some expectations of patients before anesthesia care but after the care, the level of patient satisfaction changes individually according to his experience and expectetions.[2-5]

Preoperative anxiety is described as an unpleasent state of uneasiness or tension that is secondary to a patient being concerned about a disease, hospitalization, anesthesia and surgery, or the unknown.[6] Preoperative anxiety and stress are common in patients awaiting surgical procedures. In particular, anxiety of postoperative pain, intraoperative awareness, waiting for operation, foolish, and venous cannulation are common reasons for anxiety in the preoperative period.[7]

Patient's knowledge about anesthesia was found so low that it should have been increased. In recent studies it was reported that 68% of patients knew the duty of anesthetists, 58% of patients knew that anesthetists were doctors and the value given to anesthesiology and anesthetists were increasing but the knowledge about anesthesia was stil unsufficient.[2,8] We aimed to evaluate the effectiveness of a new anesthesia care model that is a patient care with the same anesthetist during perioperative period on patient's anxiety with Spielberger State-Trait Anxiety Inventory (STAI)[9] and on patient's satisfaction, knowledge about anesthesia with a questionnaire in this randomized prospective study.

## MATERIAL AND METHODS

After approval hospital's ethics committee and written informed consent from patients, 200 patients who would undergo elective surgical procedures, were in ASA I-II status and graduated at least from primary school were included into this randomized, prospective study in Uludag University Medical Faculty Hospital, Anesthesiology Department. The exclusion criterias were the ones more than in ASA II status, were non-literate, drug addicts and had psychiatric diseases.

Patients were randomly assigned to one of the following groups equally, using a closed envelope technique. While in Group A, peroperative care was being given by the same anesthetist, it was given by different anesthetists in Group B.

Preoperative first assessments were made the night before and postoperative visits on the 1st day of the surgical procedure. During preoperative visits, all patients were informed about anesthesia technique that would be administered on the next day and during postoperative visits they were asked to fill a questionnaire (Table 1) in the aim of evaluating their satisfaction and knowledge. And their level of anxiety was measured objectively by using STAI in both pre and postoperative visits. STAI (Table 2), is a general tool to assess anxiety levels and consists of two 20-item questionnaires for state and trait anxiety where high scores (minimum 20, maximum 80) indicate increased anxiety. The questions in STAI were translated into Turkish before given to the patients.

### STATISTICAL ANALYSIS

Analysis of the study was performed using SPSS 13.0 (Chicago, IL.) programme. The values of continuous variables were expressed with median (minimum and maximum) values. Categorical variables were expressed with number and percentage of their values. Mann-Whitney U test was used for comparisons of continuous variables and Chi-square test was used for comparisons of categorical variables between groups. $p < 0.05$ was considered as statistically significant.

## RESULTS

There was not any significant difference in gender, age, marital status and education level between both groups (Table 3).

**TABLE 1: Questionnaire.**

**Patient satisfaction questionnaire**

- Age:
- Gender: F M
- Marital Status: Married Single
- Education level:

Please cross (X) your answer below:

| | | Extra information |
|---|---|---|
| 1-Do you know your anesthetist? | Yes | No |
| 2-Did same anesthetist care about you peroperatively? | Yes | No |
| 3- Could you find opportunity ask questions and tell him about your anxiety? | Yes | No |
| 4- Do you prefer the same anesthetist care about you intraoperatively? | Yes | No |
| 5-Did your anesthetist (same one) make a visit to you in the postoperative period? | Yes | No |
| 6- Might a care with the same anethetist from the beginnig make you feel beter? | Yes | No |
| 7-Did you have some troubles after the procedure because of anesthesia? | Yes | No |
| 8- Is it important for you that the anesthetist made preoperative assessment also care about you in the operating theatre? | Yes | No |
| 9-Is this system useful for patients according to your oppinion? | Yes | No |
| 10-If you need another operation in the future would you prefer this hospital again? | Yes | No |

**TABLE 2:** STAI (State Trait Anxiety Inventory).

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1. I feel calm | ☐ | ☐ | ☐ | ☐ |
| 2. I feel secure | | | | |
| 3. I am tense | ☐ | ☐ | ☐ | ☐ |
| 4. I feel strained | | | | |
| 5. I feel at ease | ☐ | ☐ | ☐ | ☐ |
| 6. I feel upset | | | | |
| 7. I am presently worried over misfortunes | ☐ | ☐ | ☐ | ☐ |
| 8. I feel satisfied | | | | |
| 9. I feel frightened | ☐ | ☐ | ☐ | ☐ |
| 10. I feel comfortable | | | | |
| 11. I feel self-confident | ☐ | ☐ | ☐ | ☐ |
| 12. I feel nervous | | | | |
| 13. I am jittery | ☐ | ☐ | ☐ | ☐ |
| 14. I feel indecisive | | | | |
| 15. I am relaxed | ☐ | ☐ | ☐ | ☐ |
| 16. I feel content | | | | |
| 17. I am worried | ☐ | ☐ | ☐ | ☐ |
| 18. I feel confused | | | | |
| 19. I feel steady | ☐ | ☐ | ☐ | ☐ |
| 20. I feel pleasent | | | | |

**TABLE 3:** Demographic data.

| | Group A (n=100) | Group B (n=100) | p |
|---|---|---|---|
| Gender (F/M) | 45/55 | 48/52 | 0,769 |
| Age (year) | 49,0 (19–75) | 47,5 ( 20–77) | 0,325 |
| Marital Status (married/single) | 68/32 | 65/35 | 0,727 |
| Education Level (primary,secondary, high,university) | 32/15/30/23 | 23/18/34/25 | 0,556 |

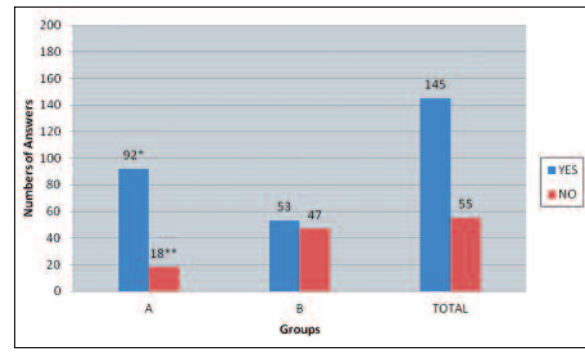


**FIGURE 1:** The distribution of the answers of question 1.
*significantly different from Group B in 'yes' answers
** significantly different from Group B in 'no' answers
(See for colored form http://anestezi.turkiyeklinikleri.com/)

## THE RESULTS OF THE QUESTIONNAIRE

While the answers of 1st,2nd,3rd,5th,8th,9th,10th questions were being found significantly high in Group A (p<0,001) (Figures 1, 2, 3, 5, 8, 9, 10), there wasn't any significant difference in the answers of 4th,6th,7th questions between both groups (p=1.000, p=0.703, p=1.000 respectively) (Figures 4, 6, 7).

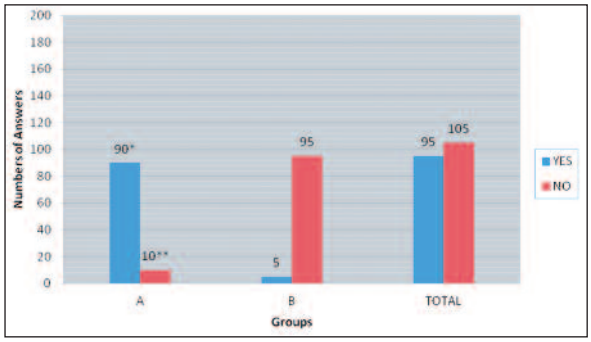


**FIGURE 2:** The distribution of the answers of question 2.
*significantly different from Group B in 'yes' answers
** significantly different from Group B in 'no' answers
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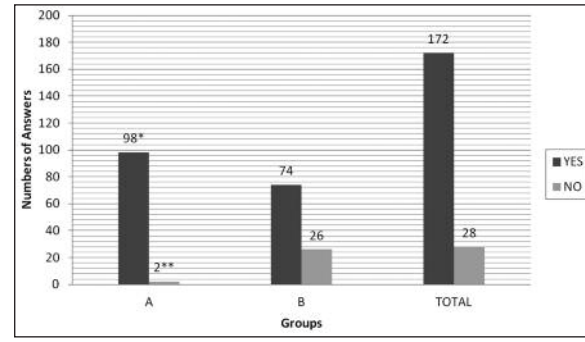


**FIGURE 3:** The distribution of the answers of question 3.
*significantly different from Group B in 'yes' answers
** significantly different from Group B in 'no' answers

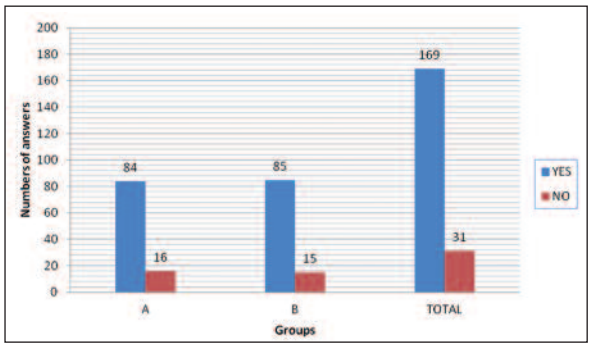


**FIGURE 4:** The distribution of the answers of question 4.
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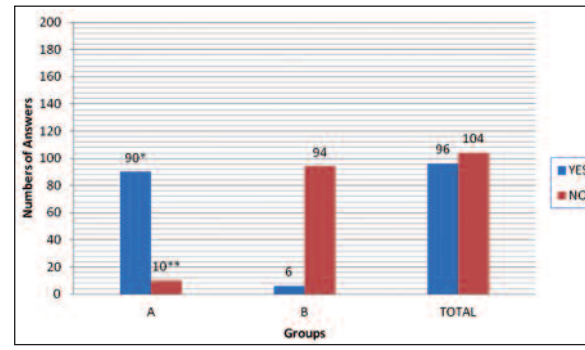


**FIGURE 5:** The distribution of the answers of question 5.
*significantly different from Group B in 'yes' answers
** significantly different from Group B in 'no' answers
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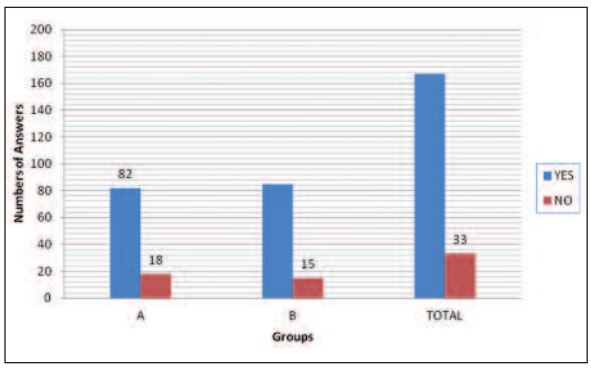


**FIGURE 6:** The distribution of the answers of question 6.
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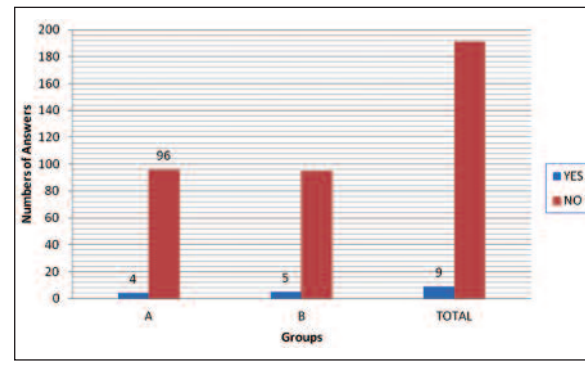


**FIGURE 7:** The distribution of the answers of question 7.
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While the total scores of STAI in preoperative period was being found significantly different (p=0.023), in postoperative period there was not any significant difference between both groups (p=0.835) (Table 4).

There wasn't any significant difference between both groups according to their pre and postoperative scores. Preoperative scores were substracted from postoperative scores in the aim of finding out the difference between two periods and no significant difference could be found between both groups (p=0.835) (Table 5).

## DISCUSSION

With our study, we found out that, patients were more satisfied with the anesthesia care, they felt

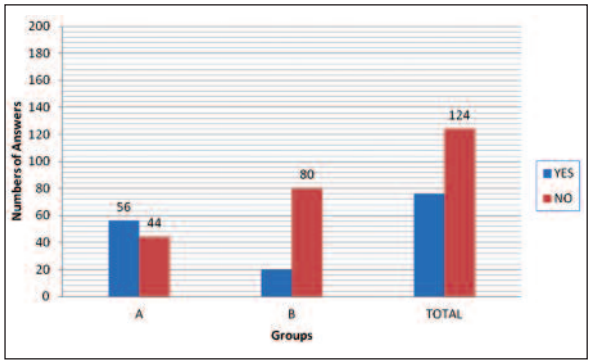


**FIGURE 8:** The distribution of the answers of question 8.
*significantly different from Group B in 'yes' answers
** significantly different from Group B in 'no' answers.
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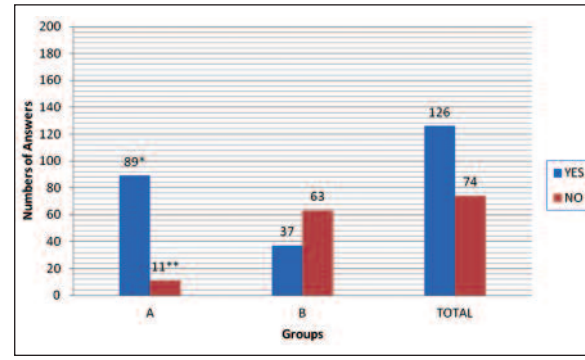


**FIGURE 9:** The distribution of the answers of question 9.
*significantly different from Group B in 'yes' answers
** significantly different from Group B in 'no' answers
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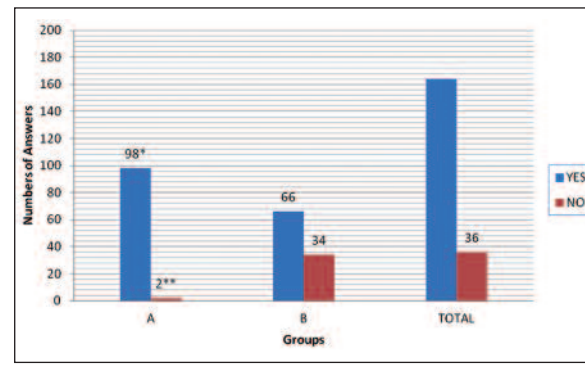


**FIGURE 10:** The distribution of the answers of question 10.
*significantly different from Group B in 'yes' answers
** significantly different from Group B in 'no' answers
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more comfortable to express their feelings and their anxiety level reduced when they were given anesthesia care by the same anesthetist during perioperative period.

For increasing the quality of hospital care, investigating patient satisfaction has a very important role. If patient is satisfied with the medical care it means that his expectations could have been covered. There are some standards for patient satisfaction like humanity, quality and accessibility but giving information plays the most important role of all.[10]

Preoperative anxiety is a main problem of most of the patients. Stress and anxiety are so discomfort situations that both of them affect intraoperative and postoperative periods negatively.[3]

STAI is an international scale that was developed by Speilberg and Gorsuch in 1964 in the aim of measuring the level of intermittent or continuous anxiety in the normal or anormal ones and today it is gold standard for measuring the anxiety.[11] This not only measures the anxiety but also discovers underlying anxiety disorders.[12] Total STAI score range is between 20 and 80.[13] More than 75 means very high anxiety, between 25 and 75 means high anxiety and less than 25 means low anxiety.[7,14] Domar et al.[15] and Kim et al.[13] found mean of STAI scores 45 in 523 patients and 43.8 in 120 patients respectively in their studies. We also used this scale in the aim of measuring the anxiety level in our study. While STAI was higher in Group A (49) than Group B (47) which was paralel to other studies, the difference between pre and post-operative period STAI was similar between both groups.

**TABLE 4:** The answers of STAI in both preoperative and postoperative period.

| STAI | Group A | Group B | P |
|---|---|---|---|
| Preoperative | 49 (32–71)* | 47 (36–59)* | 0.023 |
| Postoperative | 49 (38–61) | 47 (35–59) | 0.835 |

*(p<0.05)Significantly different between both groups during preoperative period.

**TABLE 5:** The difference of STAI scores between postoperative and preoperative periods.

| | Group A | Group B | P |
|---|---|---|---|
| Minimum-maximum | 23-13 | 18-13 | 0.835 |

The most important preoperative factors that cause anxiety are fear of postoperative pain, being far away from family, death, awakeness during the operation and loss of independence. And history of cancer, smoking, psychiatric diseases, worry about future, bad experience have been found related to anxiety.[14] While Shevde et al.[2] were reporting that the reasons of anxiety were 45% of lack of knowledge of anesthetist, 43% of lack of experience of anesthetist, 37% of death and 34% of post-operative pain, Chew et al.[16] reported as 39,4% of pain and 18,4% of death. Kinder et al.[17] reported that young and female patients, the ones who did not have any anesthesia experiences or had bad experiences were found to have more anxiety than others.

Anxiety can be reduced with pharmacologic (benzodiazepines) and non-pharmacolgic (giving information about anesthesia relaxing and inspiring confidence to patient by anesthetist in preoperative visit) methods.[6] In our study we investigated the non-pharmacolgic method for reducing anxiety like giving anesthesia care with the same anesthetist during perioperative period. It was reported that reducing anxiety increased patient satisfaction.[18,19]

The ideal preoperative visit time for reducing anxiety of patients is still controversial. Lichtor et al.[20] found out that level of anxiety was similar between the day before in the afternoon and one hour before the operation. Badner et al.[3] reported that the most ideal preoperative visit time was the night before the operation. In our study preoperative visits were performed the night before the operation.

Patients get satisfied when they are informed well in the preoperative period for a long time. They believe that it is an important honour for them to be informed in detail by the anesthetist. Demir et al. reported that giving information to patients reduced anxiety level and analgesic requirement, thus increased patient satisfaction.[10] Hering et al.[18] found out that patients that were informed well enough got more satisfied. Detailed information was proved to reduce analgesic requirement, hospital stay and duration of treatment period.[21] Chew et al.[16] found out that 75.8% of patients wanted more detail information than general information. It was found that the patients informed by the anesthetist in preoperative period had less anxiety, more satisfaction.[22-24] Jlala et al.,[12] used a mini film for preoperative information and they found STAI score significantly low in post-operative period. But it is still controversial which type of information is more effective. In our study information was given orally during preoperative visits as usual.

Patients do not know much about anesthesia and anesthetists. Marthur et al.[8] found out that non-literate patients supposed their anesthetists as residants in surgical ward and higher educated ones do not know the duty of anesthetists exactly. Shevde et al.[2] found out that while 63% of patients were defining the duty of anesthetists as to anesthetize and reduce pain, only 5% of patients knew that anesthetists had important roles of monitoring hemodynamic parameters. Klafta et al.[21] found out that between 50% and 88,7% of patients knew that anesthetists were medical doctors. Because anesthetists do not attempt to introduce themselves to society, the ratio of people knew that anesthetists were medical doctors was found to be low.[16] If anesthetist introduces himself and his duty to the patient, the patient will understand the importance of anesthesia like surgery procedure and they will start to choose their anesthetists like they choose their surgeons. In our study 92% of patients in Group A and 53% of patients in Group B told that they knew their anesthetists. According to the results of these studies giving information not only increases patient satisfaction but also may increase knowledge about anesthesia.

Fleisher et al.,[25] found out that complication frequency is less in well informed patients and they are more satisfied with anesthesia care quality. In a study consisted of 10811 patients, postoperative severe nausea and vomiting, mild and moderate postoperative pain, intraoperative awakeness and other postoperative complications were reported to

cause dissatisfaction.[26] In our study in Group A 4% and in Group B 5% of patients told that they had some troubles because of anesthesia and postoperative complications were found similar between both groups.

There are many factors affect patient satisfaction like age, gender, expectations, physical and mental status. Female and old patients were found to be more satisfied and this situation was tought to be due to easier communication of them with their doctors.[26] But in our study age and gender were not found significantly different in affecting satisfaction. Myles et al.[27] reported that patients that were older, male and more than in ASA III status had less satisfaction. With same study it was found out that short duration of anesthesia, ambulatory surgery, late wake-up, increasing postoperative complications like pain, nausea and vomiting reduced patient satisfaction. Heidegger et al.[28] found out the factors affected patient satisfaction as pain treatment, maintenance anesthesia care, nurse care in postoperative unit, asking to patient about decisions and providing treatment on time. Place and duration of information, positive relationship between anesthetist and patient also may affect patient satisfaction.[29]

Preoperative period is very stressful for patients. Leigh et al.[22] reported that preoperative visits could reduce patient anxiety. Postoperative visits are as important as preoperative ones. Postoperative visits, may help to realize and avoid uncomfortable situations for patients and cause anesthetist and patient come closer.[22] In our study both pre and postoperative visits have been made as it was mentioned before.

In reports it is shown that anesthesia care given by the same anesthetist in perioperative period increases patient satisfaction because sense of security that is performed in preoperative visit becomes stronger when patient recognizes the anesthetist just before anesthesia induction in the operating theatre.[21] Capuzzo et al.[30] found out that patients that are visited by the same anesthetist for more than once were more satisfied than the others. In our study in Group A 90% in Group B 6% of patients told that same anesthetist took care of them and in Group A 56%, in Group B 20% of patients told that to be taken care by the same anesthetist in perioperative period was important for them because in Group A 98%, in Group B 74% of patients could find opportunity to ask questions and tell their worries to their anesthetists. Thus in Group A 84%, in Group B 85% of patients told that same situation also could make them feel better in another operation so patients in our study were more satisfied when they were visited by the same anesthetist.

When patients are satisfied with medical care, knowledge, skill and good behaviour of medical staff, they do not want to go to another hospital and they advice same hospital to the others.[31,32] Onsuz et al.[31] reported that 76.7% of patients wanted to prefer same hospital in the future in case of necessity and 70.7% of patients wanted to advice the same hospital to the others. In our study in Group A 95% and in Group B 66% of patients told that they would prefer same hospital in the future in case of necessity.

Since level of education increases, people become individuals that interrogate, investigate and give decisions deliberately. Moerman et al.[11] found out that the most common reason of preoperative discomfort was lack of knowledge. Thus, because educated patients know more than non-educated ones, their anxiety is expected to be less. But, it should be remembered that knowing more than enough about some subjects might increase the anxiety. Moreover it is suggested that high educated people have a high standard life, behave critically and selectively and evaluate the given medical care more carefully.[31,33] Although Onsuz et al.[31] found out that the most dissatisfied group was non-literate ones, they could not find out any statistically significant relation between education level and satisfaction. Tukel et al.[34] found out that university graduate ones were less satisfied with behaviour and approach of doctors. In our study there was not any significant difference in education level between both groups.

In previous studies it was reported that gender did not affect patient satisfaction.[30,31] Onsuz et al.,[31] found out that males were more satisfied with medical care but there was not any significant difference between genders. The results between gender and satisfaction are controversial and the reason of this situation is suggested to be due to the difference of medical cares or different questions in questionnaires. In our study there was not any significant difference in gender between both groups.

In our study 89% of patients in Group A that given new anesthetic care was satisfied with it, but in the other group only 34% of patients was satisfied with the care given to them and one of the reasons of this significant difference was Group A patients' opportunity to ask questions and tell their worries to their anesthetists. Thus Group A patients wanted to choose same hospital in the future in case of necessity more than Group B ones. So with our study it was found important to be taken care by the same anesthetist during perioperative period but unfortunately sufficient number of anesthetist and time was needed to give this new anesthesia care. The limitation of our study might be non-standardized patients. If they were chosen in the same education level we believe that the results would have been more expressive.

As a conclusion this new anesthesia care model that maintains anesthesia care with same anesthetist during perioperative period, is believed to increase patient's satisfaction and knowledge about anesthesia, reduce the level of anxiety effectively.

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