

# Effects of preoperative information team on postoperative pain and patient satisfaction

## *Preoperatif bilgilendirme takımının postoperatif ağrı ve hasta memnuniyeti üzerine etkileri*

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### ABSTRACT

**Objective:** Management of patient anxiety and postoperative pain are essential for patient satisfaction after surgery. Therefore, we examined the effect of information team on post-operative patient satisfaction.

**Materials and methods:** The study group consisted of 100 patients who underwent urologic surgery. The patients were randomly divided into two groups, one in which the patients received of all information from the anesthesiologist (Group 1) and another in which patients received all of their information from the surgeon (Group 2). All of the patients were asked preoperatively to complete a Visual Analog Score and State-Trait Anxiety Inventory form. They reported Visual Analog Scores immediately following surgery and at 30 minutes, 1, 6, 12, and 24 hours after surgery. The patients also completed satisfaction forms 24 hours after surgery.

**Results:** No difference was apparent between the groups concerning the patients' demographic data or type of urologic operation. The two groups reported similar Visual Analog Scores and State-Trait Anxiety Inventory scores preoperatively ( $p>.05$  for all). However, Group 1 had lower postoperative Visual Analog Score scores ( $p>.05$  for all durations) than did Group 2. The Group 1 patients reported higher patient satisfaction scores ( $p=.1$ ).

**Conclusion:** Preoperative knowledge about the surgical process must be given by the anesthesiologist or a member of the preoperative team.

**Key words:** Information team; inventory; patient satisfaction; state-trait anxiety; surgery; visual analog score.

### ÖZET

**Amaç:** Cerrahi sonrası hasta memnuniyeti için hastanın anksiyete ve postoperatif ağrı yönetimi temeldir. Sonuç olarak biz bilgilendirme takımının postoperatif hasta memnuniyeti üzerine etkisini araştırdık.

**Gereç ve yöntem:** Çalışma grubu; ürolojik cerrahi geçirecek 100 hastadan oluştu. Rastgele ikiye ayrılan hastalardan bir gruba tüm bilgi anesteziyolojist tarafından verilirken (Grup 1), diğer hasta grubuna tüm bilgi cerrah tarafından (Grup 2) verildi. Hastaların tümü preoperatif dönemde Visual Analog Score (VAS) ve State Trait Inventory formu tamamladılar. Cerrahiden sonra; cerrahiyi takiben 30. dakikada, 1., 6., 12. ve 24. saatlerde VAS dolduruldu. Ek olarak; cerrahiden 24 saat sonra memnuniyet formları dolduruldu.

**Bulgular:** Hastalar arasında ürolojik operasyonların tipi ya da demografik olarak belirgin farklılıklar yoktu. İki grup da preoperatif dönemde benzer VAS ve STAI skorları gösterdiler ( $p>.05$  tümü için). Bununla birlikte postoperatif VAS skorları açısından grup 1, grup 2'ye göre daha düşük skorlara sahipti ( $p>.05$  tüm zamanlar için). Grup 1'deki hastalar daha yüksek hasta memnuniyeti skorlarına sahipti ( $p=.1$ ).

**Sonuç:** Cerrahi süreç hakkındaki bilgi anesteziyolojist tarafından verilmeli ya da preoperatif takımın bir üyesi olmalıdır.

**Anahtar sözcükler:** Bilgilendirme takımı; cerrahi, hasta memnuniyeti; STAI; VAS.

### Introduction

Anxiety is an emotional condition that causes nervousness, fear, tachycardia, hypertension, and hemodynamic instability.<sup>[1,2]</sup> It has been well documented that surgical procedures with

general anesthesia cause anxiety in patients. High preoperative anxiety is reported in 25% of patients, the cause of which is divided into three components: fear of the unknown, fear of feeling ill, and fear for one's life. As a standard preoperative procedure, patient education is

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essential for managing medico-legal conditions and is important for decision making. Patient education is also a valuable tool for reducing preoperative anxiety.<sup>[3]</sup> The surgical team has two inseparable components, the anesthesiologist and the surgeon, but the ideal composition of the information team is still unclear. Here, we studied the effect of the information team on reducing preoperative anxiety, postoperative pain, and patient satisfaction.

## Materials and methods

Approval for the study was granted by the local research ethics committee, and written informed consent was obtained from all subjects. The study group consisted of 100 patients with American Society of Anaesthesiologists (ASA) classifications of I to III who underwent elective urologic surgery. Patients with known psychiatric illness, those with a history of anti-anxiety or antidepressant medications, and those unable to read and understand Turkish were excluded from the study.

The study was designed as a randomized, prospective study. Patients were randomly allocated into groups by the anesthesiologist or the surgeon using computerized randomization. Patients in Group 1 received all of their information from the anesthesiology team; the Visual Analog Score (VAS) and the State-Trait Anxiety Inventory (STAI) forms were completed by the anesthesiologist. Patients in Group 2 received all of their information from the surgeon; the VAS and the STAI forms were completed by the surgeon. Patients in both groups were given a questionnaire preoperatively. Patients were invited at their preoperative assessment visit (1-3 days before surgery) to take part in the study.

### The questionnaire and the forms

- The questionnaire consisted of questions concerning the patient's demographic data and possible factors that could cause preoperative anxiety about surgery.
- The STAI Form is a commonly used scale to measure patients' anxiety. The STAI consists of 20 statements; the responses to these statements are used to determine a patient's current anxiety level. To quantify the patients' responses, a 4-point scale is used (not at all, somewhat, moderately so, and very much so). This form was used at all time points for both groups in the study. The overall (total) score for STAI ranges from a minimum of 20 to a maximum of 80; STAI scores are commonly classified as "no or low anxiety" (20-37), "moderate anxiety" (38-44), and "high anxiety" (45-80).<sup>[2,4]</sup>
- The VAS assesses the intensity of pain on a scale from 0 and 10 (0=no pain and 10=worst pain).
- Patient Satisfaction Score: At 24 hours after anesthesia, the patients were interviewed again with the STAI, and postoperative pain as reassessed. Patient satisfaction was evaluated using a 5-point scale (0=not satisfied, 4=completely satisfied).

### The algorithm of the study

After the patient decided to undergo elective surgery at the urology outpatient clinic, the patient was randomly allocated to the group 1 and group 2 by computer. If the patient was allocated to the urology group, the surgical procedure was described by an urologist (B.S.). STAI and VAS scores were determined during the preoperative visit. If the patient was allocated to anesthesiology group, (s)he visited the anesthesiology outpatient clinic for education concerning procedure; the STAI and VAS scores were recorded by anesthesiologist (T.A.). Leaflets were prepared for every patient to standardize preoperative information by the urology and anesthesiology personnel. Before the study, each group also gave the information to a referee group for standardization. After surgery, another anesthesiologist (TEB) determined the VAS scores after the patient awoke and at 30 minutes, 1 hour, 6 hours, 12 hours, and 24 hours after awakening. The anesthesiologist also determined the patient satisfaction score 24 hours after the surgery.

### Statistics

Statistical analyses were performed with SPSS software for Windows (Statistical Product and Service Solutions, version 11.5, SPSS Inc., Chicago, IL, USA). Statistical analyses were made assuming a difference of 20% between STAI scores. We calculated that 50 patients in each group would be required for 80% power and significance level of .05.

- Chi-square tests were used to comparing demographic data and the patient satisfaction scores.
- Intraclass correlation coefficients were used to compare the STAI scores between groups.
- Shapiro-Wilk tests were used to determine the normal distribution of STAI scores. If the distribution was normal in the group, 1-way analyses of variance (ANOVAs) and a Tukey honestly significant difference test were used. If the distribution was not normal, Kruskal-Wallis and Dunn tests were used.
- Spearman's rank correlation coefficient was used to analyze the correlation between VAS and STAI scores.

## Results

The study population included 100 patients (18 female, 82 male; median age, 56.5 years; 25%-75% interquartile range=29.25 years). The median ages of the patients in the 2 groups were 60.5 (25%-75% interquartile range=23.75) and 56.0 (25%-75% interquartile range=33.00) for patients in group 1 and 2, respectively; however, these results were not statistically different ( $p=0.150$ ). There was no difference between groups with regard to sex ( $p=0.230$ ), educational levels ( $p=0.118$ ), or type of operation ( $p=0.342$ ). The results are summarized in Table 1.

Preoperative VAS scores also did not differ between the groups (Figure 1). However, there was a significant difference between the first postoperative VAS scores (as shown in the figure). The

score of group 1 was significantly lower than that of group 2, and this difference persisted through the 24th post-operative hour. The study ended 24 hours after surgery. After being informed by the anesthesiologist or surgeon, the STAI scores of the patients did not statistically differ from each other (with mean score of 35.5 and 36;  $p=0.288$ ). A State-Trait Anxiety Inventory score of 37 was used as cutoff value. Using this cutoff value, 23 patients in both group 1 and group 2 were found to have high anxiety. There was no difference between the groups ( $p=0.513$ ). When the patients were asked the cause of their anxiety, most patients cited death as the cause (72.7%), followed by postoperative pain (12%) and other causes (7.3%) (data not shown). When the postoperative VAS scores of these patients were compared between the groups, no statistically significant difference was found ( $p=0.949$ ). The results are summarized in Figure 2.

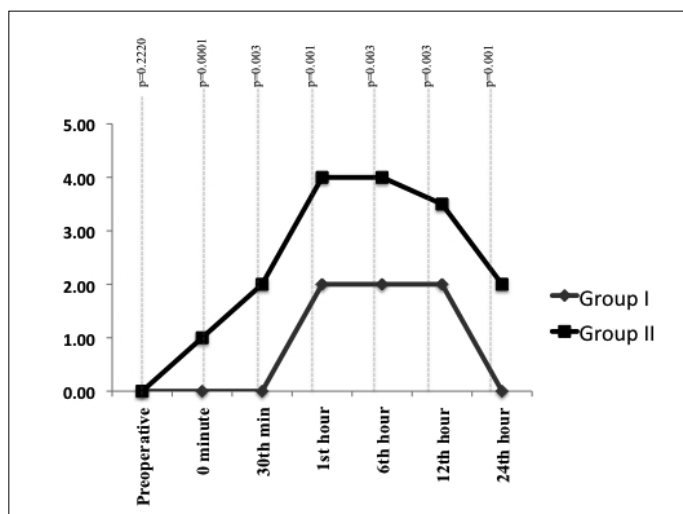


Figure 1. VASs of the two groups.

The patients in group 1 had higher satisfaction scores (mean score=3) than those in group 2 (mean score=2,  $p=0.01$ ). The results are summarized in Figure 3.

## Discussion

Preoperative information concerning the surgical process improves a patient's knowledge and helps decrease his or her anxiety. However, the mode of preoperative information and the disciplinary origin of the information influence the effectiveness of such information delivery. In 2004, Wisselo and associates reported that 24% of the patients wanted to be informed by a specialist, while 80% of the patients wanted to be informed by the anesthesiologist.<sup>[3,4]</sup> In our daily practice, the two disciplines in the operative process are anesthesiology and surgery.

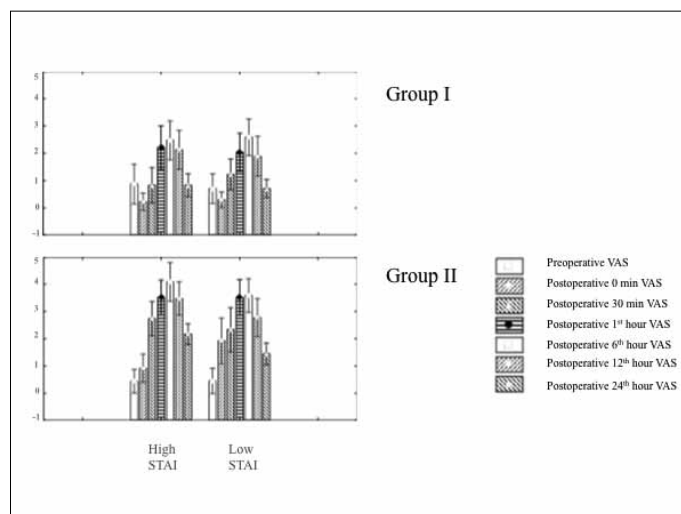


Figure 2. VASs of patients with high and low anxiety levels.

Table 1. Demographic data of the patients

Groups		Group 1		Group 2	
		n	%	n	%
Sex	Female	7	14	11	22
	Male	43	86	39	78
Educational level	Primary school	31	62	35	70
	Secondary school	3	6	3	6
	High school	10	20	8	16
	College	6	12	4	8
Surgical classification	Endoscopic surgery	15	37	17	34
	Transurethral resection	8	16	8	16
	Varicocelelectomy	10	13	9	10
	Open pelvic surgery*	8	13	6	10
	Renal surgery	9	21	10	30

\*: Open radical prostatectomy, Open radical cystectomy

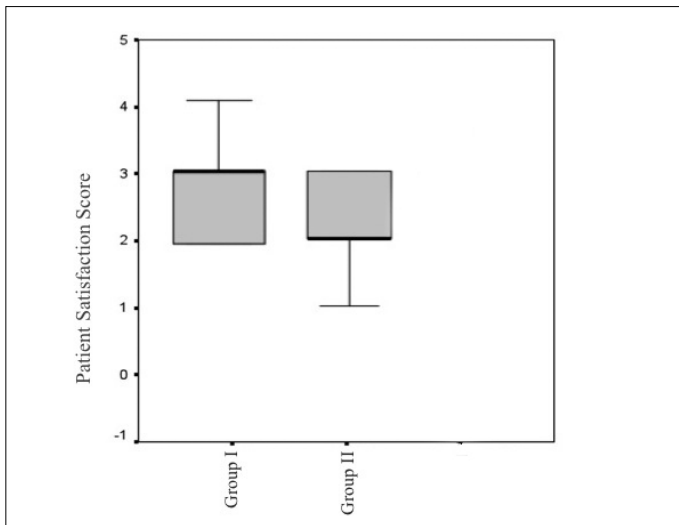


Figure 3. Patient satisfaction scores of the groups.

Therefore, we divide our study into two groups to determine which information source was optimal.

One of the factors that may have had an effect on the difference in the preoperative anxiety and postoperative VAS scores of the groups was the educational levels of the patients. However, as shown in Table 1, there was no difference between groups. Furthermore, Kiyohara and associates reported that the educational level and sex of the patients did not influence the levels of anxiety.<sup>[5]</sup> One of the limitations in this study is the different types of urologic surgery performed. However, by statistical analysis, we found no difference in operative types between the groups; therefore, this factor is unlikely to have had an effect on our results.

Although the VAS was highly correlated with the STAI, we used the STAI to measure subjective anxiety for two reasons. First, the STAI is accepted as standard criterion in measuring subjective anxiety. Additionally, we also used the VAS to determine the preoperative (baseline) pain perception. In our study, 49.3% of the patients had high anxiety levels, and there was no significant difference between the groups. Further, the incidence of patients with high anxiety in our study was higher than that reported in previous studies (with incidence rates of 25%).<sup>[3,6,7]</sup> It may be that cultural differences had an effect on this psychological response.

As expected, there was no preoperative difference between the mean VASs of the groups; all of them were zero. However, the postoperative VASs of the groups are significantly different. The mean VAS of the patients who were informed by the anesthesiologist was lower than that of the patients who were informed by the urologist in all postoperative reports. However, it is important to understand the origin of the preoperative anxiety to understand the reasons for this result. Therefore, the

anesthesiologist should be involved in giving information. We believe that focusing on the cause of the anxiety may improve postoperative pain.

Patient satisfaction scores concerning their surgical procedure should be accepted as one of the variables of the surgical outcome. The use of multi-item questionnaires is recommended to make a clear distinction between the components of procedure, including anesthetic management, satisfaction with the surgical procedure, and postoperative care giving.<sup>[3,8]</sup> We used a single item form to determine patient satisfaction, which represents a limitation of our study. However, for our endpoint, we wanted to obtain a global score for all components of the procedure. Our results demonstrated that when the anesthesiologist is involved in communicating preoperative information, patient satisfaction improved.

## Conclusion

Preoperative knowledge is an ethical necessity and is essential for medico-legal management and decision making. To decrease postoperative pain and improve patient satisfaction, the anesthesiologist should be involved in delivering preoperative information.

## Conflict of interest

No conflict of interest was declared by the authors.

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