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RESEARCH

PREOPERATIVE ANXIETY AND POSTOPERATIVE PAIN LEVELS IN PATIENTS UNDERGOING TONSILLECTOMY

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SUMMARY

Objective: To determine whether psychological variables such as preoperative anxiety can serve as predictors for the postoperative pain response.

Methods: Thity two consecutive patients who undergoing tonsillectomy were evaluated in the pre- and postoperative periods. Preoperative anxiety was assessed by the Spielberger State-Trait Anxiety Index. The severity of pain was recorded with a ten-point Visual Analog Scale at the immediate postoperative and at late postoperative period.

Result: The mean Spielberger STAI score was 44.2 ± 9.86 (range: 29?69). The mean VAS score was 4.33 ± 1.9 in the immediate postoperative period and 3.95 ± 1.8 in the late postoperative period. State anxiety and postoperative pain were positively correlated. Preoperative state anxiety significantly (positively) predicted immediate postoperative pain.

Conclusion: We found that it was important to pay attention to the psychological characteristics of patients for whom tonsillectomy was planned. Patients exhibiting high-level anxiety should be identified preoperatively, and their anxiety levels reduced via anxiolytic premedication.

Keywords: Tonsillectomy, anxiety, visual analog scale, questionnaire, STAI

TONSİLLEKTOMİ UYGULANAN ERİŞKİN HASTALARDA AMELİYAT ÖNCESİ ANKSİYETE VE AMELİYAT SONRASI AĞRI KORELASYONUNUN DEĞERLENDİRİLMESİ

ÖZET

Amaç: Ameliyat öncesi anksiyete gibi psikolojik değişkenlerin postoperatif ağrı yanıtı için belirleyici olup olmadığının belirlenmesi amaçlandı.

Gereç-Yöntem: Çalışmaya tonsillektomi uygulanan otuz iki hasta dahil edildi. Hastalar ameliyat öncesi anksiyete ameliyat sonrası ise ağrı yönünden incelendi. Hastalara ayrıca sosyodemografik özellikleri içeren bir anket uygulandı. Ameliyat öncesi anksiyete düzeyi Spielberger State-Trait Anxiety Index(STAI) anketi ile ölçüldü. Ameliyat sonrası ağrı şiddeti ise erken ve geç postoperatif dönemde on birimden oluşan Vizüel Analog Skala(VAS) ile kaydedildi.

Bulgular: Çalışmaya toplam 32 hasta dahil edilmiştir. Çalışmaya katılan hastaların 19 (%59,3)"u bayan 13 (%40,7) i erkekti. Yaş ortalaması erkekler için 27.1 ± 2.7 (dağılım 18-43) yıl, bayanlarda 24.7 ± 1.4 (dağılım 18-38) yıl idi. STAI skor ortalaması 44.2 ± 9.86 (29-69) idi. Ortalama VAS skoru erken postoperatif dönemde 4,33 ± 1,9, geç postoperatif dönemde ise 3,95 ± 1,8 idi.. Preoperatif anksiyete ile postoperatif ağrı arasında pozitif korelasyon bulundu. Preoperatif anksiyete skorunun erken postoperatif dönem ağrı için güçlü prediktif değeri olduğu görüldü.

Sonuç: Bu çalışma tonsillektomi uygulanacak hastaların psikolojik koşullarına daha fazla dikkat etmeyi motive etmektedir. Preoperatif değerlendirme sırasında yüksek anksiyeteye sahip hastalar belirlenmelidir. Hastalar endişelerini azaltacak yaklaşımlarla bilgilendirilmeli, ayrıca anksiyolitik premedikasyonla da anksiyete düzeyleri azaltılmalıdır. Psikolojik belirtilerin eş zamanlı tedavisinin cerrahi tedavilerin sonucunu iyileştirebileceği değerlendirilmektedir.

Anahtar Sözcükler: Tonsillektomi, anksiyete, vizüel analog skala(VAS), STAI

INTRODUCTION

Anxiety is an emotional state characterized by irritability, fear, tachycardia, hypertension, and hemodynamic instability.[1] The most important form of preoperative anxiety is the fear of death. Affected patients also fear postoperative pain, the effects of anesthesia, the inability to work, the absence of loved ones, the inability to perform normal activities, and an impaired quality of life. Anxiety and fear may reflect previous patient experience, personality traits, concerns about anesthesia, the expectation of postoperative pain, and the surgical procedure planned.[2]

Many researchers consider anxiety to be responsible for pain that does not respond to postoperative analgesics. Anxiety also triggers

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stress mechanisms, including changes in the cardiopulmonary, metabolic, and endocrine systems. Such changes may affect the surgical outcome and prolong the hospital stay.[3] Prolonged postoperative pain is associated with a higher risk of complications.[4]

Tonsillectomy is one of the most common operations performed by ear, nose, and throat (ENT) surgeons. Postoperative pain is a significant problem in such patients.[5] ENT physicians report that most tonsillectomy patients complain of postoperative pain, which is more severe in adults. Here, we used an anxiety scale to measure preoperative anxiety and evaluated the correlation between anxiety levels and postoperative pain.

MATERIAL and METHODS

Study Design

This study was performed in accordance with the Helsinki Declaration of the World Medical Association and informed consent was obtained from all participitants. The study was approved by the Research Ethics Committee of a tertiary referral center(2017/383). We included 32 patients aged 18-60 years who were scheduled to undergo elective tonsillectomy at our ENT clinic. Those who were pregnant, smokers, dependent on alcohol or illicit substances, and/or suffered from psychiatric or neurological diseases were excluded. We recorded age, gender, educational level, and prior anesthesia experience.

Surgical Technique

The indications for tonsillectomy were recurrent tonsillitis and/or tonsillar hypertrophy. We performed classical extracapsular tonsil dissection under general anesthesia in all patients. Both tonsils were removed. Perioperative bleeding was controlled with pads and bipolar cautery. All procedures were performed by the same surgeon. Oral food intake was prohibited for 6 h postoperatively. All patients received identical peri-, early post-, and late post-operative analgesic drugs. Postoperative analgesic treatment featured only paracetamol (10 mg/kg), three times daily.

Psychological Assessment

We used the most commonly employed anxiety measure, namely the State Trait Anxiety Inventory (STAI) scale of Spielberger et al.[6] The STAI is a 40-item questionnaire assessing trait (20 items) and state (20 items) anxiety; higher scores indicate greater anxiety.

Outcome Assessment

Postoperative pain was evaluated using a 10-cm visual analog scale (VAS) ranging from "no pain at all" to "the worst pain I have ever felt".[7] Pain was measured immediately after operation and 2, 4, 6, 12, and 24 h later. Postoperative pain was categorized as immediate or late. The mean pain scores at baseline, and at 2, 4, and 6 h, were defined as immediate pain, while those at 12 and 24 h were considered late pain. We calculated correlations between preoperative state anxiety and postoperative immediate and late pain scores.

Statistical Analysis

SPSS software (ver. 17.0) was used for all analyses. The normality of the distribution of the quantitative data was checked using the Kolmogorov-Smirnov test. Normally distributed data were subjected to parametric testing and data that were not normally distributed were analyzed via nonparametric tests. The Mann-Whitney U test was used to compare groups. Correlations between preoperative anxiety and postoperative pain intensity were assessed using the Pearson method. For all results (means ± standard deviations), 95% confidence intervals were calculated and a p-value <0.05 was taken to reflect statistical significance.

RESULTS

In total, 32 patients were included: 19 (59.3%) were female and 13 (40.7%) male. The mean age of the males was 27.1 ± 2.7 years (range: 18-43 years) and that of the females was 24.7 ± 1.4 years (range: 18-38 years). The sociodemographic characteristics of all patients are shown in Table 1. The mean Spielberger STAI score was 44.2 ± 9.86 (range: 29-69). The mean VAS score was 4.33 ± 1.9 in the immediate postoperative period and 3.95 ± 1.8 in the late postoperative period. Correlations between preoperative anxiety and postoperative pain

levels are shown in Table 2. State anxiety and postoperative pain were positively correlated. Figure 1 shows the association between anxiety and immediate/late postoperative pain. Preoperative state anxiety significantly (positively) predicted immediate postoperative pain.

All operations were successful; no complication developed during surgery. However, in two patients, hemorrhage developed on the 10th postoperative day and was controlled by local interventions.

Table 1. Demographic variables of all patients.

Variables		n(%)
Gender	Male	13(%40,6)
	Female	19(%59,3)
Education	Primary school	78(%21,8)
	High school	16(%50)
	University	9(%28,2)
Age	18-30	27(%84,3)
	31-45	5(%15,7)
	46-65	0(%0)

Table 2. Correlations between preoperative anxiety and postoperative (immediate/late) pain levels.

	Immediate postoperative pain, r(p value)	Late postoperative pain, r (p value)
Preoperative anxiety	0,646 (<0.001**)	0,628 (<0.001**)

*: $p < 0.05$, **: $p < 0.01$

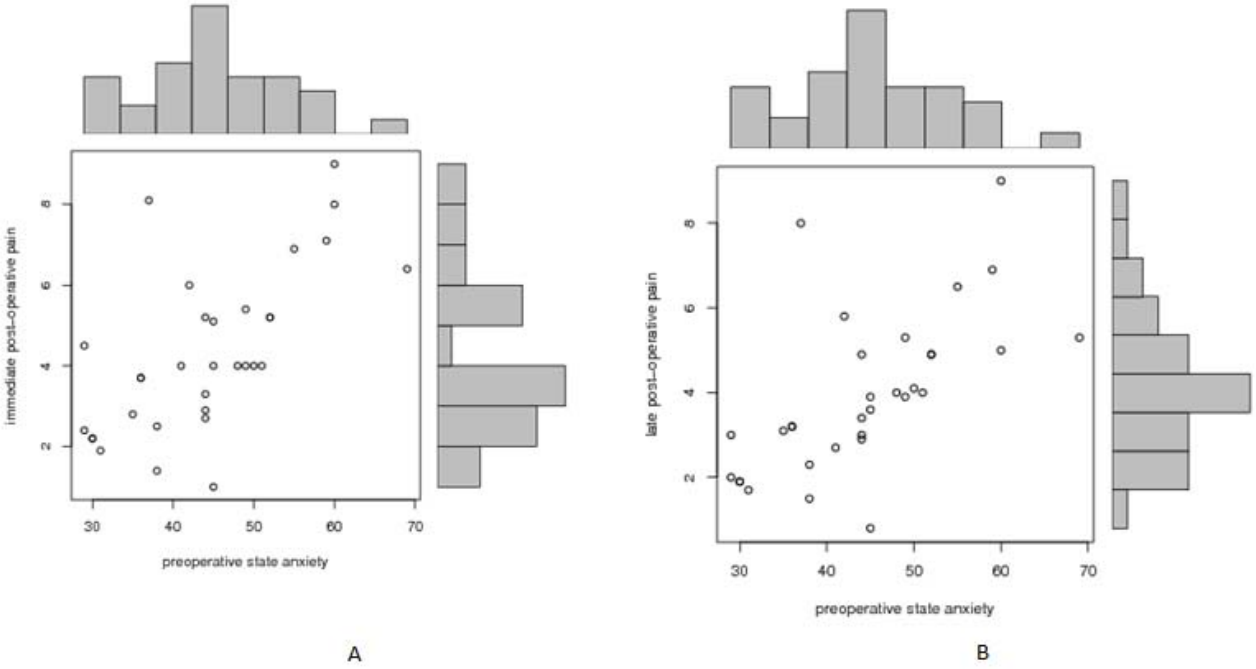

Figure 1: *The relationship between state anxiety and late postoperative pain levels.*

DISCUSSION

The prospect of surgery to be performed under general anesthesia renders patients anxious. Most patients show varying degrees of anxiety prior to surgery. The incidence of preoperative anxiety ranges from 11-80% among adults[8], where rates may vary according to the anxiety questionnaire used. The state anxiety component of the STAI test is the most frequently used instrument for assessing preoperative anxiety and represents the gold standard.[9]

Preoperative anxiety is associated with increased postoperative pain and, therefore, an increased analgesic requirement and longer hospital stay. Güz et al.[10] found that pain and anxiety were positively correlated in 92 patients. In a study on 120 patients undergoing hand surgery, depressive symptoms correlated with the intensity of pain experienced during the first 2 weeks after surgery.[11] Lobel and Gilat[12] found that moderately anxious patients were at higher risk of postoperative pain. Patients with low-level anxiety coped better with pain. However, some studies found no association between anxiety and postoperative pain.[13,14,15] Differences among the questionnaires used, the types of operations, and the sample sizes may explain such inconsistencies.

We found a positive correlation between the STAI and VAS scores. Postoperative pain scores were higher in patients with high levels of anxiety. Anxiety enhances the sensitivity to pain and tends to heighten pain perception. We found that the preoperative anxiety level predicted the postoperative pain level, consistent with the results of previous studies. However, few prospective studies have appeared to date.

Large numbers of tonsillectomy patients are referred to otolaryngologists with complaints of postoperative pain. Post-tonsillectomy recovery requires healing of an open wound; primary closure is not performed. Closure of the follicle is accompanied by scarring and formation of granulation tissue; the wound remains in contact with oral pathogens and food for a considerable time and stimulation of the exposed nerve endings causes pain, which restricts oral intake, causing dehydration and limitations to daily activities. In addition, reduced cleansing of the tonsil bed when the pain subsides can trigger infection and bleeding.[16]

Affected patients may require both anxiety-reducing strategies and analgesics. Imparting preoperative information to patients reduces anxiety and the need for analgesics, and increases subjective satisfaction.[17] Furthermore, anxiety levels fell when patients were informed regarding the surgical plan and why their procedures were necessary.[18] The postoperative outcomes (duration of hospital stay, sedative use, recovery rate, and complications) of patients receiving preoperative information were 20% better than those of patients not privy to such information.[19]

All of our patients were anxious prior to surgery, but to different extents. Anxiety is created when patients lack sufficient access to information on the planned surgical procedures. Preoperative counselling significantly reduces anxiety levels and facilitates treatment compliance. We found that it was important to pay attention to the psychological characteristics of patients for whom tonsillectomy was planned. Patients exhibiting high-level anxiety should be identified preoperatively, and their anxiety levels reduced via anxiolytic premedication. Concurrent treatment of psychological symptoms may improve surgical outcomes. Interdisciplinary pain centers advocate such treatment.[20]

Summary: We found that it was important to pay attention to the psychological characteristics of patients for whom tonsillectomy was planned. Patients exhibiting high-level anxiety should be identified preoperatively, and their anxiety levels reduced via anxiolytic premedication.

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