EurAsian Journal of Oral and Maxillofacial Surgery
Official publication of AÇBİD (Association of Oral and Maxillofacial Surgery Society)

RESEARCH ARTICLE

Dental Anxiety Affects Operation Quality and Surgeon's Comfort in Oral Surgery

Burcu BAS, DDS, PhD[1], Nukhet KUTUK DDS, PhD[2], Aysun C. TORUN, MD[1], Bora OZDEN, DDS, PhD[1], Vugar GURBANOV, DDS, PhD[1], Dilara KAZAN, DDS[1]

[1]Ondokuz Mayis University, Faculty of Dentistry, Department of Oral & Maxillofacial Surgery, Samsun
[2]Bezmialem Vakif University, Faculty of Dentistry, Department of Oral & Maxillofacial Surgery, İstanbul

Abstract

Introduction

Impacted third molar extraction generally provokes a high level of anxiety in patients, and causes stress and discomfort to the operating surgeon. The aim of this study is to evaluate the influence of anxiety on the surgery quality and surgeon's comfort in third molar surgery.

Materials and Methods

"STAI-T" and "STAI-S" questionnaires, which are used to measure anxiety, was administered to 110 patients via an interview in order to measure their levels of preoperative anxiety. The time necessary for the tooth extraction (starting from the first incision to the last suture) was recorded. After the operation, a questionnaire including eight questions was administered to surgeons who performed the third molar surgery.

Results

The results of STAI-T and STAI-S questionnaires were not statistically different between men and women ($p \rightarrow 0.05$). Trouble in pain control was seen in patients with high scores of STAI-T. Negative correlation was found between STAI-S scores and operation quality and surgeons' comfort.

Conclusion

Patient cooperation is an important factor in oral surgery procedures. Assessing the patient's anxiety level and taking necessary precautions before the operation is important for both patient and surgeon's comfort during the oral surgery operations.

Keywords: Dental Anxiety; Impacted Third Molar Surgery; Oral Surgery; STAI-T and STAI-S Questionnaires; Third Molar

Introduction

Response to a stressful dental process is defined as dental anxiety. The prevalence of dental anxiety has been reported as 20% in different studies[1]. It is a stressful condition for both patients and dental practitioners. Dental anxiety including dental phobia that avoids dental management was reported around 5%[1,2]. People with dental phobia are the most challenging patients for dentists[3]. The difficulties in those group of patients generally lead prolonged visits with a tense atmosphere during treatment. Even in some cases, patients' appointments could be canceled.

The severity of dental anxiety can be assessed by using several questionnaires[4,5]. The information obtained from these questionnaires could be helpful for identifying those patients who need special dental care due to high anxiety. Determining dental anxiety before any dental intervention is essential because it is important to assess to what extent the patient able to cop.

Impacted third molar extraction is the most common surgical procedure performed in maxillofacial surgery field. It generally provokes anxiety in patients and also causes stress and discomfort to the operating surgeon. Increased anxiety and stress substantially decrease productivity and lead to longer operation times. Phobic patients are difficult cases to manage, and this condition makes a negative effect on the operation quality and the surgeon's comfort. To identify those patients

Corresponding Author: Burcu Bas
Ondokuz Mayis University, Faculty of Dentistry, Department of Oral and Maxillofacial Surgery
55139, Kurupelit, Samsun, TÜRKİYE
E-mail: burcubas@omu.edu.tr

while giving appointment and advise, premedication and/or sedation could be better for both the patient and surgeon.

The aim of this study was to evaluate the influence of anxiety on the quality of surgery and the surgeon's comfort in third molar surgery.

Materials and Methods

Participants

This work has been carried out in accordance with the Declaration of the Helsinki on medical protocol. The procedure was approved by the Institutional Review Board at Ondokuz Mayis University in Samsun (Clinical Research Ethics Committee of Ondokuz Mayıs University Experimental Medicine Research and Application Center; 2015/357). Patients who were referred to Ondokuz Mayıs University Faculty of Dentistry, Department of Oral and Maxillofacial Surgery with the complaint of impacted third molar requiring surgical approach were included in the study. It was found that the power of the test was 0.82 for 110 patients when Power Analysis was performed with reference to the work of Kömerik et al[6]. After obtaining their consent, the patients were asked to join the study during the time they spent in the waiting room before third molar surgery. Exclusion criteria included; a previous third molar extraction, a neurological disease, taking anxiolytic medication or antidepressants. The "STAI-T" and "STAI-S" questionnaires, which are used to measure anxiety, were administered to 110 patients via an interview in order to measure their anxiety level.

Operative procedure

Third molar surgeries were performed in local anesthesia by post-graduate oral and maxillofacial surgeons at Ondokuz Mayıs University Faculty of Dentistry. All teeth were partially or completely covered by mucosa. Articaine with epinephrine (Ultracain® D-S Forte, Sanofi Aventis, Istanbul, Turkey) were used for local anesthesia. A buccal mucoperiosteal flap was raised in order to see the impacted tooth. A round bur with sterile saline irrigation was used to remove the bone over the impacted tooth. If needed, sectioning of the crown and roots was performed during removing the tooth. The mucoperiosteal flap was repositioned and sutured with 3-0 silk suture. The duration of the procedure was recorded. After the operation, a questionnaire including eight questions was administered to surgeons who performed the third molar surgery. The questions in the questionnaire were presented in Table 1.

Measures

Dental anxiety was evaluated by two tests: Spielberger State-Trait Anxiety Inventory-Trait (STAI-T) and Spielberger State-Trait Anxiety Inventory-State (STAI-S). STAI-T contains 20-item self-evaluation questions. The questions are scored using a 4-level frequency scale which ranges from "almost never" to "almost always," showing various degrees of anxiety about situations that patients perceive as threatening. The STAI-S contains 20-item self-evaluation questions that are scored using a 4-level frequency scale which ranges from 0 to 3, that evaluate transient emotional state or condition as characterized by subjective feelings of tension and apprehension that can fluctuate in time and intensity[7].

Table 1. The questions asked to the surgeons after the operation.

1.	Did you experience any trouble with pain control?
2.	Did syncope occur during the operation?
3.	Did patient feel vomiting sensation in the operation?
4.	Did you experience any co-operation problem with the patient during the operation?
5.	Did the patient try to stop the operation and extend the operation time?
6.	Did the patient do anything to affect your concentration during the operation?
7.	Did the patient do anything that affects the quality of surgery?
8.	Did you prefer to do this operation under sedation?

Statistical Analysis

SPSS 20.0 (IBM Corp. Released 2010; IBM SPSS Statistics for Windows, Version 19.0 Armonk, NY; IBM Corp.) was used for statistical analyses. Normality of the data was calculated using SaphiroWilks test. Independent Sample T-Test for numerical variables was used to analyze data. A probability value of 0.05 was considered significant. Point be-serial correlation coefficient was computed to assess the relationships between the anxiety test scores and quality of surgery-surgeon comfort (Table 2).

Results

A total of 110 patients (71 females and 39 males; mean age 25,13±4,94 and 24,17±5,38 years) were included in the study. Age and gender were not found to be correlated with anxiety levels and surgeons' questionnaire results ($p>0.05$).

There was a weak, positive correlation between the STAI-S scores of the patients and the questions 4, 5, 6, 7, 8. A week correlation was also found between the STAI-T scores and question 1 ($p<0.05$; Table 2).

Table 2: Point be-serial correlation coefficient test. (Correlations between the anxiety level of the patient and the answers of surgeons. *p<0.05, ** p<0.01, *** p<0.001)

Anxiety scale	QUESTIONS							
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
STAIT	0.179	0.126	0.022	0.202*	0.363**	0,207*	0.215*	0.285**
TRAIT	0.192*	-0.045	-0.154	0.070	0.183	0.003	0.097	0.141

Discussion

Anxiety is defined as a response to a stimulation of stress[8,9]. When a stimulus is considered as "threat" to one's well-being, a series of reaction occur in the body[10]. Spielberger, defined the difference between state and trait anxiety as follows: State anxiety is an emotional and somatic reaction towards a stimulus of threat in a particular context while trait anxiety refers to individual differences in reactions towards a perceived threat in the environment in general[7]. Many scoring systems have been used to evaluate preoperative anxiety[5]. STAI is one of the most commonly used scale for assessing anxiety[11]. The goal of the STAI was to create a series of questions that assess different types of anxiety[5]. State anxiety test can be affected by emotions, such as fear, nervousness, and discomfort. On the other hand trait anxiety test was designed to evaluate the longer period of this emotion, in other words, how the individual feels "generally." STAI score was determined as an objective, reliable and high viability scoring system in measuring anxiety by numerous clinical researches[5]. In this study, STAI-State(S) and STAI-Trait(T) scores were used in the measurement of anxiety levels of patients.

In relation to gender, the large majority of studies have found higher prevalence rates for dental anxiety in females than males[1,12]. In our study, we found no significant difference between the anxiety levels of female and male patients. According to Milgrom et al.[3], patients under 40 years old maybe 1.5 times more anxious than those over 40. Similarly, Liau et al.[13] and Sitheeque et al.[14] suggested that younger patients had higher anxiety levels. In contrast, Liddell and Locker[15] and Thomson et al.[16] found that preoperative anxiety decreased with age. In our study, we found no significant relationship between age and anxiety levels.

Patient anxiety can be a very important difficulty in third molar extraction, especially when only local anesthesia is used. Aznar-Arasa et al.[17] evaluated 108 patients who had third molar surgery and reported that impacted lower third molar extractions were significantly more difficult in anxious patients. They used two parameters for determining surgery difficulty: operation time and difficulty VAS. In our study, we prepared a questionnaire including eight questions that consist of common intra-operative complications and difficulties in surgery. Operation time was not considered as surgery difficulty because the positions and bone retention of the third molars were not standardized in our study group. We found that surgeons had experienced trouble in pain control with patients with high scores of STAI-T during the surgery. Furthermore, the surgeons generally had difficulty in cooperation with patients who had higher STAI-S scores. This group of patients tends to stop the operation during surgery which decreases the motivation of the surgeons. According to surgeons, the patients who had higher scores in STAI-S were also affecting the success of the operation. In our study, all of the surgeons were trainees in the same maxillofacial surgery department for 2 to 4 years, and the patient cooperation was far more important for inexperienced surgeons than seniors.

In general, while giving an appointment to a patient for an oral surgery procedure after a detailed explanation of the surgery, surgeons ask patients whether they prefer sedation or general anesthesia. However, patients may not always be able to determine their anxiety levels truly. Especially in some particular oral surgery procedures, the quality of surgery is directly associated with the patient's cooperation. Also, the surgeon's concentration and hand sensation are very important for the success of the operation. In our opinion, surgeons should carefully evaluate the anxiety levels of the patients to advise sedation or general anesthesia techniques more strongly in such cases. STAI-S and STAI-T are useful tools for assessing patient anxiety before the operation. In patients who suffer from mild fear or anxiety, surgeons can relax the patients with a detailed explanation of the surgery. In addition, specific techniques to reduce anxiety such as premedication can be used the night before the operation. In patients with severe anxiety, surgeons can advise conscious sedation or general anesthesia, especially if the surgery needs a strong patient co-operation.

Conclusion

Patient co-operation is an important factor in oral surgery procedures. Assessing the patient's anxiety level and taking necessary precautions before the operation is important for both patient and surgeon's comfort during the surgery.

Source of Finance

None declared.

Conflict of Interest

None declared.

Authorship Contributions

Consept: Dr. Burcu Baş
Design: Dr. Burcu Baş, Dr. Aysun Çağlar Torun, Dr. Nükhet Kütük
Supervision: Dr. Bora Özden
Resources: Dr. Bora Özden, Dr. Nükhet Kütük
Materials: Dr. Dilara Kazan, Dr. Vugar Gurbanov
Data collection/Processing: Dr. Dilara Kazan, Dr. Vugar Gurbanov

Analysis/Inerpretation: Dr. Burcu Baş, Dr. Aysun Çağlar Torun, Dr. Nükhet Kütük
Literature search: Dr. Burcu Baş, Dr. Dilara Kazan
Writing manuscript: Dr. Burcu Baş, Dr. Nükhet Kütük
Critical review: Dr. Bora Özden

References

1. Hakeberg M, Berggren U, Carlsson SG. Prevalence of dental anxiety in an adult population in a major urban area in Sweden. Commun Dent Oral Epidemiol 1992; 20: 97-101.
2. Vassend O. Anxiety, pain and discomfort associated with dental treatment. Behav Res Ther 1993; 31: 659-66.
3. Milgrom P, Fiset L, Melnick S, Weinstein P. The prevalence and practice management consequences of dental fear in a major US city. J Am Dent Assoc 1988; 116: 641-7.
4. Corah NL. Development of dental anxiety scale. J Dent Res 1969; 48(4): 596.
5. Lago-Méndez L, Diniz-Freitas M, Senra-Rivera C, Seoane-Pesqueira G, Gándara-Rey JM, García-García A. Postoperative recovery after removal of a lower third molar: the role of trait and dental anxiety. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2009; 108: 855-60.
6. Kömerik N, Muğlalı M. Ağız cerrahisinde anksiyete kontrolü: Hastaların bilgilendirilmesi. Atatürk Üniv Diş Hek Fak Derg 2005; 15(3): 25-33.
7. Miller AA. Psychological considerations in dentistry. J Am Dent Assoc 1970; 81: 941-8.
8. Berksun O. Anksiyete ve Anksiyete Bozuklukları (2nd ed.). İstanbul: Turgut Yayıncılık AŞ. 2003, pp 78-81.
9. Işık E, Taner YL. Çocuk, Ergen ve Yetişkinlerde Anksiyete Bozuklukları. İstanbul, Golden Print. 2006, pp 121-25.
10. Onem E. The relationship among state-trair anxiety, foreign language anxiety and test anxiety in an EFL setting. Dil Dergisi 2010; 148: 17-36.
11. Zeidner M. Test Anxiety-The State of Art. New York, USA, Plenum Press. 1998, pp 231-33.
12. Doerr PA, Lang WP, Nyquist LV, Ronis DL. Factors associated with dental anxiety. J Am Dent Assoc 1998; 129: 1111-9.
13. Liau FL, Kok SH, Lee JJ, Kuo RC, Hwang CR, Yang PJ, et al. Cardiovascular influence of dental anxiety during local anesthesia for tooth extraction. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2008; 105: 16-26.
14. Sitheeque M, Massoud M, Yahya S, Humphris G. Validation of the Malay version of the Modified Dental Anxiety Scale and the prevalence of dental anxiety in a Malaysian population. J Investig Clin Dent 2015; 6(4): 313-20.
15. Liddell A, Locker D. Gender and age differences in attitudes to dental pain and dental control. Community Dent Oral Epidemiol 1997; 25: 314-8.
16. Thomson WM, Locker D, Poulton R. Incidence of dental anxiety in young adults in relation to dental treatment experience. Community Dent Oral Epidemiol 2000; 28: 289-294.
17. Aznar-Arasa L, Figueiredo R, Valmaseda-Castellón E, Gay-Escoda C. Patient anxiety and surgical difficulty in impacted lower third molar extractions: a prospective cohort study.Int J Oral Maxillofac Surg 2014; 43(9): 1131-6.

*Poster Presentation - The ACBID 10th International Congress 11-15 May 2016, Antalya, TURKEY