INTRODUCTION

Chronic/recurrent tonsillitis is a persistent inflammation of the tonsils due to recurrent acute or subclinical infections. During acute tonsillitis, infection may persist in the fibrous tissue and cause another tonsillitis attack after days or weeks if proper antibiotic treatment is not provided for a sufficient time. Furthermore, inflammatory scrapings inside the crypts may cause subclinical infection and subsequent tonsillitis attacks (1). Generally, a diagnosis of chronic/recurrent tonsillitis is based on tonsillitis or throat pain that recurs three to four times a year and does not respond to sufficient antibiotic treatment (2). A recurrent throat pain is generally accompanied by fever, weakness, and arthralgia. Secondary foul breath (halitosis) that fills tonsil crypts may also be present (3, 4). Chronic tonsillitis is in fact an adult disease; however, it can be observed at all ages. Like any other chronic disease, tonsillitis can also trigger psychological disorders. Numerous studies on the relationship between chronic/recurrent tonsillitis in adults and psychological disorders and quality of life are available, which compare the quality of life of patients before and after surgery (5) or investigate the quality of life and mental health in pediatric patients (6). This study sought to understand the complex relationship between depression and anxiety and chronic/recurrent tonsillitis in adult patients, which was probably related to various psychiatric disorders owing to its symptoms (pain, weakness, fever, and halitosis).
MATERIALS AND METHOD

Inclusion criteria
The study was planned as a prospective analysis of patients with chronic/recurrent tonsillitis referred to the Selahaddin Eyyubi State Hospital between March 2015 and April 2016. The patients were asked to fill out the Beck depression and anxiety inventories (BDI and BAI), and their total scores were analyzed. Literate, not-pregnant patients, who were aged 18–40 years, had no chronic and psychiatric disease, and did not use continuous medication, were included in this study. A total of 60 male and 60 female patients and 25 healthy male and 25 healthy female controls were analyzed. This control group consisted of age- and education-matched healthy individuals. The sample group was divided into two groups for males and females, and these groups were analyzed individually. For both genders, group 1 contained healthy individuals, whereas group 2 contained patients with chronic/recurrent tonsillitis. An ethical unit approval was obtained from the Selahaddin Eyyubi State Hospital.

Psychiatric assessment
The severity of depression was assessed using BDI, which was a 21-item self-report scale developed by Beck et al. (7). Items in this scale were rated from 0 to 3 in increasing order of severity. The item scores were summed up and ranged from 0 to 63. Higher scores correlated with more severe depression. The pathologic cutoff value for the BDI score was determined to be 17 in the Turkish population, which reflected moderate and severe depressive states (8, 9). The validity and accuracy of the BDI in the Turkish population were studied by Hisli et al. (10). Anxiety was measured using the 21-item self-reported BAI (11). Each item was scored from 0 to 3 according to severity. The item scores were summed up, and higher scores indicated higher anxiety levels. The pathologic cutoff value for the BAI score was determined to be 16 in the Turkish population; scores above this value reflected moderate-to-severe anxiety states (8, 9). The validity and reliability of the Turkish version of the BAI were studied by Ulusoy et al. (12).

Statistical analyses
Statistical evaluation was carried out using the SPSS 15.0 version (SPSS Inc., IL, USA). Variables were compared using the Student’s t test. The total BDI and BAI scores and the number of patients and control individuals with higher or lower scores than the pathological cutoff values (1) were analyzed and compared. Males and females were analyzed separately.

RESULTS

Males
The average age was 27 ± 8 years in group 1 and 29 ± 12 years in group 2, with no statistically significant difference (P < 0.231). The average of total scores obtained from the BDI was 10 ± 7 in group 1 and 14 ± 6 in group 2. The average of total scores from this inventory was significantly higher in group 2 compared with group 1 (P < 0.043). Two individuals from group 1 and seven individuals from group 2 obtained higher scores than the pathological cutoff value in the BDI. The difference observed in the numbers of individuals who obtained higher scores than the cutoff value in the BDI was not significant (P < 0.076). The average of total scores in the BAI was 11 ± 5 in group 1 and 15 ± 6 in group 2. The difference between the average of total scores in the two groups was statistically significant (P < 0.019). One individual from group 1 and four individuals from group 2 obtained higher scores than the pathological cutoff value in the BAI. The numbers of individuals who obtained higher and lower scores than the cutoff value in the BAI were not significantly different between the two groups (P < 0.065).

Females
The average age was 29 ± 11 years in group 1 and 32 ± 8 years in group 2, with no statistically significant difference (P < 0.107). The average total scores obtained in the BDI was 9 ± 8 in group 1 and 13 ± 5 in group 2. The average of total scores from this inventory was significantly higher in group 2 compared with group 1 (P < 0.035). Two individuals from group 1 and six individuals from group 2 obtained higher scores than the pathological cutoff value in the BDI. The difference observed in the numbers of individuals who obtained higher scores than the cutoff value in the BDI was not significant (P < 0.191). The average of total scores from the BAI was 10 ± 6 in group 1 and 13 ± 7 in group 2. The difference between the average of total scores in the two groups was statistically significant (P < 0.027). One individual from group 1 and five individuals from
How does chronic tonsillitis affect anxiety and depression?

DISCUSSION

Databases PubMed, Medline, and Google Scholar were searched using the key words tonsillitis and depression, tonsillitis and anxiety, tonsillitis and Beck depression, and Beck anxiety, but no study on the relationship between chronic/recurrent tonsillitis and anxiety and depression was found. Thus, this study was novel in investigating the complex relationship between chronic/recurrent tonsillitis and anxiety and depression in adult patients using the BDI and BAI. The studies focusing on the effect of the quality of tonsillectomy on the number of adult patients with chronic/recurrent tonsillitis were analyzed. Removal of the symptoms of recurrent/chronic tonsillitis through tonsillectomy was shown to positively affect the quality of life of the patients (13, 14).

In this study, although the average of total scores obtained in the BDI and BAI was significantly higher in group 2 than in group 1 in males (P < 0.043 and <0.019, respectively), the number of patients who obtained higher scores than the pathological cutoff value was not significantly different in both groups (P < 0.076 and <0.065, respectively).

In females, the average of total scores obtained in the BDI and BAI were significantly higher in group 2 than in group 1 (P < 0.035 and <0.027, respectively); however, the number of patients who obtained higher scores than the pathological cutoff value was not statistically different in the two groups (P < 0.191 and <0.057, respectively).

The results of this study suggested that chronic/recurrent tonsillitis affected both depression and anxiety. However, as the number of patients who obtained higher scores than the pathological cutoff value of the Turkish population was not different in the patient and control groups for both sexes, chronic/recurrent tonsillitis alone could not be classified into depression and/or anxiety disorders, and additional factors were needed to do so.

In 2012, Harry et al. (13) demonstrated that 1 year after undergoing tonsillectomy, patients improved in many parameters related to anxiety and depression, such as physical status, emotional status, general health, mental health, and social functioning.

Richards et al. (14) showed that patients with chronic/recurrent tonsillitis had statistically significant differences in the improvement in their quality-of-life parameters after tonsillectomy.

Similarly, Schwentnera et al. (5) reported that tonsillectomy provided a significant positive effect on the quality of life of patients with chronic/recurrent tonsillitis.

Additionally, in the studies of Senska et al. (15) and Baumann et al. (16), the quality of life of patients with chronic/recurrent tonsillitis improved significantly after tonsillectomy.

Although these studies demonstrated the effect of tonsillectomy on the quality of life of the patients, this significant improvement was thought to be due to the removal of the symptoms of the disease that disturbed the quality of life of patients with...
recurrent/chronic tonsillitis. The results of this study highlighted the effect of tonsillitis on anxiety and depression, as suggested by several other previous studies.

CONCLUSIONS

This study was novel in focusing on the relationship between chronic/recurrent tonsillitis and depression and anxiety. The findings of this study might enhance the understanding on this subject using larger patient samples and serve as a valuable guidance for the interested researchers.

REFERENCES

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