TEMPS-A Temperament Scale Before and After Septoplasty in Patients with Nasal Septum Deviation

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Abstract The present study aimed to evaluate whether patients undergoing an operation for septum deviation exhibited a change in affective status. The temperament evaluation of the Memphis, Pisa, Paris, and San Diego Autoquestionnaire (TEMPS-A) was administered to all patients at the pre-operative and post-operative periods. The mean age of the patients was 32.46 ± 11.22 years. Of the patients, 34 (65.4%) were males and 18 (34.6%) were females. A significant difference was found between pre- and post-operative scores of the patients on all TEMPS-A subscales ($p < 0.05$). Patients with symptoms of upper airway obstruction may have mood disorders due to the decrease in blood oxygen levels. This condition can be corrected with septoplasty procedure. In the present study, it was demonstrated that patients had a better affective status post-operatively as compared to the pre-operative period.

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Introduction

Nasal septum supports nasal structures and regulates the airway [1, 2]. Structures that form the nasal septum are arranged to form a straight wall [3]. Nasal septum deviation, which is a common anatomic variation, is defined as a condition in which the septum is deviated to one side [1, 4]. The frequency of nasal septum deviation in populations has been reported to range from 18.8 to 75.1% [5].

Several pathologies, such as developmental disorders, recurring infections, sleep disorders, mental disorders, smell and taste abnormalities, may occur as a result of impairment in the respiratory function of the nose. In addition, it is known that the nose is not merely a canal providing passage of air to the lower respiratory tract but it is also associated with the lung functions [6].

The temperament evaluation of Memphis, Pisa, Paris and San Diego Autoquestionnaire (TEMPS-A) is used to evaluate five dominant affective temperaments, namely depressive, hyperthymic, irritable, cyclothymic, and anxious temperaments. This questionnaire is used in routine practice for patients and healthy individuals in psychiatry clinics [7]. In the present study, we aimed to investigate the change in affective status of patients undergoing nasal septoplasty for nasal septum deviation by using TEMPS-A.

Patients and Methods

Fifty-two patients, who presented with nasal obstruction and subsequently underwent an operation with the

diagnosis of septum deviation, were included in the present study. Patients with lung, cardiac, neurologic and musculoskeletal diseases or those with allergic conditions were excluded. None of the study patients had anemia.

Medical histories of the patients were obtained, and the patients were questioned with respect to complaints of nasal obstruction, nasal and postnasal drainage, and sore throat. Water's view and chest radiographs were obtained, and hemoglobin levels, blood biochemistry, prothrombin time (PT), partial thromboplastin time (PTT), and hepatitis markers were analyzed pre-operatively.

Cottle method was used in the operations. After 48 h from operation, nasal tampons were removed and the patients have been observed regularly. Nasal passages were pre- and post-operatively evaluated using 0 degree nasal endoscopy. The patients whose nasal congestion complaints were ceased and the patients who have sufficient nasal passage in endoscopic examination have been studied.

The temperament evaluation of Memphis, Pisa, Paris and San Diego Autoquestionnaire was administered to all patients pre-operatively and at the first post-operative month. TEMPS-A is used to assess the dominant affective temperaments which are depressive, hyperthymic, irritable, cyclothymic, and anxious temperaments. TEMPS-A can be used for all psychiatric patient groups, particularly for those with mood disorders, and for healthy population. This questionnaire consists of 99 items that require a "yes" or "no" response; it was designed to assess dominant depressive (18 items), cyclothymic (19 items), hyperthymic (20 items), irritable (18 items) and anxious (24 items) temperaments. Each item is scored 1 point if answered "yes" and 0 point if answered "no". Total score of the subscales are calculated by the sum of the points of the items of each subscale. A good to excellent test-retest reliability (0.73–0.91) and internal consistency (0.77–0.85) have been reported for the Turkish version of TEMPS-A [7].

Data were analyzed using the Statistical Program for Social Sciences (SPSS, Inc., Chicago, IL, USA) version 14.0. A paired *t*-test was used for analysis of data. A *p* value <0.05 was considered statistically significant.

Results

The mean age of the patients ($n = 52$) was 32.46 ± 11.22 years (range 16–70 years). Of the patients, 34 (65.4%) were males and 18 (34.6%) were females. The TEMPS-A scores of the patients that were measured pre-operatively and at the first post-operative month were compared (Table 1).

A significant difference was found between pre- and post-operative scores of the patients on all TEMPS-A

subscales ($p < 0.05$); that is, subjects showed improvement in all temperament subscales postoperatively.

Discussion

Nasal septum deviation is a commonly encountered problem in general population. Most of the studies examining the upper and lower respiratory tracts have indicated that bronchoconstrictor response caused by nasal stimulation arises from the receptors located in the nose, nasopharynx, and sinuses. Kratchmer, a French physiologist, [8] showed resistance in lower respiratory tract after nasal provocation with sulfur dioxide or ether in cats. Thereafter, Ogura and Harvey [9], confirmed the relationship between nasal resistance and asthma in animals and human subjects. These researchers [8] managed to successfully treat bronchospasm in patients with septum deviation by correcting this pathology. Schumacher et al. [8] demonstrated bronchial hyper-reactivity in lower respiratory tract following intranasal stimulation with histamine in patients with allergic rhinitis. Yan and Salome [10] obtained similar results in patients with active perennial rhinitis. In almost half of the patients, they found a significant decline in FEV1 following nasal stimulation with histamine. Based on these findings, the theory of nasal-sino-bronchial reflex has been proposed. According to this theory, the afferent pathway begins with the receptors in the nose and sinuses. These afferents project to the reticular formation and dorsal vagal nucleus in the brain within the fibers of trigeminal nerve. Efferent fibers originating from the vagal nucleus project to bronchi within the vagal parasympathetic fibers. Thus, nose and sinus infections cause bronchial hyper-reactivity through the activity of this reflex arc [11].

From the point of nasal-sino-bronchial reflex, after septoplasty procedure, bronchospasm will improve; patients will breathe more easily and feel happier and more convenient with the increase in blood oxygen levels. In order to prove this theory, our patients were administered TEMPS-A which is commonly used in psychiatry clinics to assess dominant affective temperaments (depressive, hyperthymic, irritable, cyclothymic, and anxious) and we observed statistically significant improvements post-operatively.

It is known that the blood oxygen level in patients who make oral respiration is lower than patients who make nasal respiration, consequently it is known that patients who make oral respiration felt exhausted during day time, tend to sleep and they are more forgetful [6]. Kırkcıoğlu et al. [12] determined in one of their studies that 1 month after the septoplasty operation, increase in arterial blood PaO_2 level is meaningful statistically. In accordance with the increase in blood oxygen level, improvements are expected on complaints such as forgetfulness, tiredness,

Table 1 Comparison of pre- and post-operative TEMPS-A scores of the study patients

TEMPS-A	Pre-operative scores mean $\pm$ SD	Post-operative scores mean $\pm$ SD	<i>p</i>
Depressive	6.28 $\pm$ 3.2	5.76 $\pm$ 3.1	0.013
Cyclothymic	7.73 $\pm$ 4.7	6.76 $\pm$ 4.5	0.001
Hyperthymic	11.19 $\pm$ 4.1	10.46 $\pm$ 4.2	0.027
Irritable	5.32 $\pm$ 4.8	4.48 $\pm$ 4.5	0.012
Anxious	7.82 $\pm$ 6.5	7.03 $\pm$ 6.4	0.033

and tend to sleep. As a result, we evaluated the patients' conditions.

Patients admitted to psychiatry clinics should be examined whether they have mouth breathing, and relevant cases should be referred to otolaryngology clinic.

Conclusion

The results of the present study demonstrated that septoplasty procedure improved both breathing and affective status of the patients with septum deviation.

Conflict of interest The authors declare that they have no conflict of interest.

References

1. Aktas D, Kalcıoglu MT, Kutlu R, Özturan O, Öncel S (2003) The relationship between the concha bullosa, nasal septal deviation, and sinusitis. *Rhinology* 41(2):103–106
2. Büyüktartan M, Keklikoglu N, Kökten G (2003) A morphometric consideration of nasal septal deviations by people with paranasal complaints; a computed tomography study. *Rhinology* 41(1):21–24
3. Laine FJ, Smoker WR (1992) The ostiomeatal unit and endoscopic surgery: anatomy, variations, and imaging findings in inflammatory diseases. *AJR Am J Roentgenol* 159(4):849–857
4. Uygun K, Tuz M, Dogru H (2003) The correlation between septal deviation and concha bullosa. *Otolaryngol Head Neck Surg* 129(1):33–36
5. Blaugrund SM (1989) Nasal obstruction. The nasal septum and concha bullosa. *Otolaryngol Clin North Am* 22(2):291–306
6. Apaydın HE, Andaç O (1972) Burun tıkanıklarının zamanlı vital kapasite ve vital kapasite üzerine etkileri. *Hacet Tıp Cerrahi Bül* 5:221–229
7. Vahip S, Kesebir S, Alkan M, Yazici O, Akiskal KK, Akiskal HS, Vahip S, Kesebir S, Alkan M, Yazici O, Akiskal KK, Akiskal HS (2005) Affective temperaments in clinically-well subjects in Turkey: initial psychometric data on the TEMPS-A. *J Affect Disord* 85(1–2):113–125
8. Schumacher MJ, Cota KA, Tausig LM (1986) Pulmonary response to nasal challenge testing of atopic subjects with stable asthma. *J Allergy Clin Immunol* 78:30–35
9. Ogura JH, Harvey JE (1971) Nasopulmonary mechanics-experimental evidence of the influence of the upper airway upon the lower. *Acta Otolaryngol* 71(2):123–132
10. Yan K, Salome C (1983) The response of the airways to nasal stimulation in asthmatics with rhinitis. *Eur J Respir Dis* 64:105
11. Hamilos D (1995) Gastroesophageal reflux and sinusitis in asthma. *Clin Chest Med* 16(4):683–699
12. Kurkcuoğlu S, Titiz A, Olcay I (2007) Effect of nasal septal deviation on respiratory function tests and arterial blood gases. *KBB ve BBC Derg* 15(3):134–138