OLGU SUNUMU / CASE REPORT

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Beklenmedik Bir Yan Etki: Sertralin ile Tetiklenen Tat Değişikliği

An Unexpected Side Effect: Sertraline Induced Dysgeusia

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ÖZ

İlaç kullanımına bağlı tat ve koku duyusundaki değişiklikler hastalar tarafından sıklıkla dile getirilmekte ve bu şikayetler klinik pratikte sıklıkla karşılaşılmaktadır. Enfeksiyonlar, korona virüs hastalığı 2019 (COVID-19), ilaçlar veya vitamin eksiklikleri, nörolojik bozukluklar, tümörler veya merkezi sinir sistemiyle ilgili sorunlar, psikoz, Sjögren sendromu gibi hastalıklar, yaşlanma, sigara içme gibi alışkanlıklar tat alma değişikliklerinin sebebi olarak yaygındır. Hayati tehlike oluşturmayan bu yan etki genellikle göz ardı edilebilmektedir. Yaşam kalitesini ve yeme davranışlarını olumsuz etkileyen tat kaybı, psikotrop ilaçlarla da ortaya çıkabilmektedir. Literatürde sertralinle ilişkili spesifik bir tat ve koku değişikliği bildirilmemiştir. Bu olgu sunumuyla, sertralin kullanımıyla ortaya çıkabilecek tat duyusundaki değişikliğe dikkat çekilmesi amaçlanmıştır.

Anahtar Kelimeler: tat değişikliği, tat algısı, sertralin

ABSTRACT

Changes in taste and smell due to medication use are frequently reported by patients and are frequently encountered in clinical practice. Infections, coronavirüs 2019 (COVID-19), medications or vitamin deficiencies, neurological disorders, tumors or problems with the central nervous system, psychosis, diseases such as Sjögren's syndrome, aging, and habits such as smoking are common causes of taste changes. This non-life-threatening side effect is often overlooked. Ageusia, which negatively impacts quality of life and eating behaviors, can also occur with psychotropic medications. No specific taste or smell changes associated with sertraline have been reported in the literature. This case report aims to highlight the possible alterations in taste that can occur with sertraline use.

Keywords: dysgeusia, sensation of taste, sertraline

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INTRODUCTION

Although changes in the sense of taste and smell associated with drug use are frequently seen in clinical practice, they can be ignored because they are not life-threatening. Loss of sense of taste and smell can cause changes in eating habits, decrease in social eating behavior and decrease in quality of life (1–3). Taste changes are frequently reported as case reports with Angiotensin-converting enzyme (ACE inhibitors), beta-lactam and macrolide antibiotics, biguanides, chlorhexidine, opioids, protease inhibitors, and antivirals (4).

The mechanism of drug-related changes in taste and smell can be evaluated in two classes. In the first class, there are direct effects of the drug such as changing neurotransmitter and neuron functions depending on the effect of the drug at the receptor level. In the second group, the drug prevents the taste and smell molecules from reaching the receptors by drying the mucosa, creating inflammation or reducing its secretion (5).

In a study, 5-hydroxytryptamine (5-HT) reuptake inhibitor (paroxetine 20 mg) , NA reuptake inhibitor (reboxetine 4 mg) were administrated to the healthy people, and a decrease in the threshold of sweet and bitter sensations was observed in both groups (6). It is known that there is a decreased sensitivity to sweet taste in depression (7). Sensitivity to quinine decreases in panic disorder, and sensitivity to bitter taste increases under stress in healthy controls (8). In a study investigating the causes of loss of sense of taste and smell, it was stated that taste problems were more common in the group using antidepressants (9).

In humans and other primates, taste pathways project from the nucleus of the solitary system directly to the taste thalamus and then to the taste insula. Branches of the facial, glossopharyngeal and vagus nerves transfer taste messages nucleus tractus solitarius. From here, it is transferred to the pons via the parabrachial nucleus. Then it comes to the ventrobasal nucleus of the thalamus and projects gustatory area of the insular cortex (10). It is known that serotonin and norepinephrine are located in the transmission pathways of taste receptors (11). These neurotransmitters change the function of serotonin and norepinephrine ion channels (12,13). In addition, serotonin probably modulates transmission in primary taste neurons with the 5-HT3 receptor (14). The role of serotonin and norepinephrine in the transmission of taste sensation in higher centers such as the cortex is not clear. Serotonergic transmission has been demonstrated in the tractus solitarius and taste nuclei in the thalamus (15). Inhibition of presynaptic or postsynaptic serotonin receptor with SSRI causes acute threshold changes in bitter and sweet sensation by affecting paracrine signal (16). All these show that serotonin and norepinephrine are effective in the formation of a physiological sense of taste.

In a study comparing the effects of nortriptyline and sertraline on depression in older age, when changes in taste sensation associated with the use of antidepressants were compared, it was noted that changes in taste sensation were determined in 4 (3.8%) patients with sertraline and in 10 patients (9.6%) with nortriptyline (17).

In this case report, we aimed to discuss a patient who experienced salty taste loss while undergoing sertraline 100 mg/day treatment for obsessive-compulsive disorder and comorbid anxiety disorder.

CASE REPORT

Patient in her 50s, female, married, unemployed, high school graduate, applied to psychiatry outpatient clinic within the complains of cleaning the furniture repeatedly, checking the doorknobs and stove gas frequently, anxiety, sleep disorders, widespread body tension and restlessness. She hasn’t applied to psychiatry before. Comorbid diseases include autoimmune hepatitis and thyroiditis. No regular drug use except levothyroxine. On examination, the patient's mood was euthymic, and her mood was anxious. The patient, who had increased psychomotor activity due to anxiety, had obsessions of contagion and suspicion, and compulsions to clean and control. The patient did not have delusions in her thought content. She had obsessive thoughts and anxious thoughts related to these obsessions. No perceptual pathology was detected. The patient had insight into her obsessive-compulsive symptoms. Obsessive compulsive disorder and generalized anxiety disorder were considered as diagnosis. Sertraline 50 mg was started as treatment. At the follow-up examination one month later, the patient's anxiety symptoms had decreased and her obsessive-compulsive symptoms continued. She did not describe any side effects. The sertraline dose was increased to 100 mg per day. In the follow-up examination one month later, she stated that she had difficulty in getting the salty taste, that although she added salt to the meals as usual, it was not enough and she needed to add salt. She didn't have any trouble picking up other flavors. Never had a similar complaint before. Since there was no change in her medical condition and other drugs she used, it was suggested to switch to paroxetine 20 mg treatment, considering that it might be related to sertraline use. In the next control examination, one month later, patient stated that the numbness of the salty taste disappeared and the taste in her mouth was the same as before. Although anxiety symptoms decreased, obsessive-compulsive symptoms persisted. The patient was called for a control examination, the follow-up interviews and treatment are still ongoing, with a dose increase plan.

DISCUSSION

Our findings and a review of the literature suggest that taste perception can be highly variable and may be altered by modulation of the 5-HT and/or norepinephrine systems in normal healthy individuals. In anxious and depressed individuals with altered monoamine balance, the additional use of medications that effect this balance may explain why appetite and taste parameters change in different ways.

Taste disorders associated with drugs were first discussed in detail by Griffin in 1992 and then by Henkin in 1994 (5,18). In 2004, Scully and Bagan created a more detailed review by considering both of these studies (4). Drugs often cause a disturbance in the sense of taste. Hypogeusia means a decrease in taste, and ageusia means a lack of taste at all. The term dysgeusia is also the general name for taste disorder. Drugs produce these effects by interfering with the chemical composition or flow of saliva or by affecting taste receptor function and signal transmission (19).

ACE inhibitors, anti-thyroid drugs, beta-lactam antibiotics, biguanides, chlorhexidine, opiates, and protease inhibitors are agents that are specifically accused. Up to 4% of patients treated with ACE inhibitors have dysgeusia. It has been reported that this effect is often reversible and even spontaneously resolves within a few months even if the drug is continued (20). Especially, when compared with other ACE inhibitors, captopril was found to be more risky in terms of ageusia and dysgeusia (21). Apart from these agents, analgesics, bisphosphonates, other antihypertensive drugs, antihistamines, decongestants, bronchodilators, muscle relaxants, antidepressants, anticonvulsants, antipsychotics, antimigraine specific drugs, lipid-lowering agents, chemotherapeutic agents are other drugs that may cause taste disorders (5).

Considering the psychotropic agents that can cause taste disorders, antidepressants are particularly prominent. In a study conducted by Schiffman et al. with 6 agents, amitriptyline, clomipramine, desipramine, imipramine, doxepin and trifluoperazine were examined and it was reported that they cause changes in the perception of salty and sweet (22). In the next study led by Schiffman, the data obtained showed that amitriptyline causes disturbances in all taste modalities when given regularly; however, it was observed that when given intermittently, it only caused a disturbance in the perception of salt (23) . This finding may be beneficial in terms of the underlying mechanism in drug-related taste disorders, because it suggests that drug accumulation in the lingual tissue leads to accumulation in saliva or lingual blood, which has a direct effect on taste as well as by changing the biochemical environment of taste receptors (24).

Studies conducted with benzodiazepines have also shown that they cause hypogeusia in particular. It has been reported that hypogeusia occurs as a result of the effect of their sedative effects on taste receptors, and this effect is completely reversible after drug withdrawal (25).

Many hypnotic agents have also been shown to cause dysgeusia. In the study conducted with zolpidem, dysgeusia was found to be prominent (26). Although venlafaxine acts on norepinephrine and serotonin and has no clear effect on muscarinic, histaminergic, or adrenergic receptors, it has been reported to cause hypogeusia (27). Risperidone is an effective drug through antagonism of dopamine D2 and serotonergic 5HT2, and it has been reported that it can lead to the perception of bitter taste without a bitter stimulus (28). Trazodone acts on serotonin receptors and it has been shown to cause dysgeusia, although its etiology is not clearly understood (29). It has been reported that lithium may cause taste and palatability disorders, and it has been shown that these may be dose-dependent (30).

Taste disturbance due to sertraline use has not been clearly reported in the literature; however, in a study conducted in 2000 in which sertraline and nortriptyline were compared in elderly patients with major depression, it was reported that 3.8% of patients taking sertraline had taste disturbances. In this comparative study, the mechanism of the changes in the sense of taste by the related agents was not explained (17). In addition to this, according to a case study reported by Mizoguchi et al., an elderly patient with mild depressive symptoms presenting with dysgeusia was successfully treated with sertraline. In the present case, it has been interpreted that sertraline can improve taste disorders by strengthening the serotonergic nerve conduction that causes a decrease in the taste threshold (31).

Considering the taste disorder due to drug use, other causes that are not necessarily related to medication should be examined and excluded. Ear, nose and throat examination and endoscopic examination should be performed and the sense of taste should be examined in detail. If these investigations are found to be normal, the dose of the suspected drug should be reduced or discontinued, and the patient should be followed by paying attention to oral hygiene. In studies, it has been reported that symptoms improve with zinc and alpha lipoic acid in some cases (19,32).

CONCLUSION

We described a female patient with the diagnosis of generalized anxiety disorder and obsessive compulsive disorder, who had loss of salt taste after starting sertraline and whose present complaint regressed with the change of the drug to paroxetine. As a result, drug-related taste disturbance is not a frequently observed condition. Considering how effective this situation can be in terms of quality of life, the clinician should definitely consider that the taste disorder may be related to the drugs used after doing the necessary research and should make a treatment evaluation in accordance with this situation.

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REFERENCES

1. Zabernigg A, Gamper EM, Giesinger JMet al. Taste alterations in cancer patients receiving chemotherapy: a neglected side effect? Oncologist. 2010;15(8):913-920.
2. Epstein JB, Phillips N, Parry J, Epstein MS, Nevill T, Stevenson-Moore P. Quality of life, taste, olfactory and oral function following high-dose chemotherapy and allogeneic hematopoietic cell transplantation. Bone Marrow Transplant. 2002;30(11):785-792.
3. Mattes RD, Arnold C, Boraas M. Learned food aversions among cancer chemotherapy patients. Incidence, nature, and clinical implications. Cancer. 1987;60(10):2576-2580.
4. Scully C, Bagan JV. Adverse drug reactions in the orofacial region. Crit Rev Oral Biol Med. 2004;15(4):221-239.
5. Doty RL, Bromley SM. Effects of drugs on olfaction and taste. Otolaryngol Clin North Am. 2004;37(6):1229-1254.
6. Heath TP, Melichar JK, Nutt DJ, Donaldson LF. Human taste thresholds are modulated by serotonin and noradrenaline. J Neurosci. 2006;26(49):12664-12671.
7. Steiner JE, Rosenthal-Zifroni A, Edelstein EL. Taste perception in depressive illness. Isr Ann Psychiatr Relat Discip. 1969;7(2):223-232.
8. Dess NK, Edelheit D. The bitter with the sweet: the taste/stress/temperament nexus. Biol Psychol. 1998;48(2):103-119.
9. Deems DA, Doty RL, Settle RG, et al. Smell and taste disorders, a study of 750 patients from the University of Pennsylvania Smell and Taste Center. Arch Otolaryngol Head Neck Surg. 1991;117(5):519-528.
10. Vincis R, Fontanini A. Central taste anatomy and physiology. Handb Clin Neurol. 2019;164:187-204.

11.Clapp TR, Medler KF, Damak S, Margolskee RF, Kinnamon SC. Mouse taste cells with G protein-coupled taste receptors lack voltage-gated calcium channels and SNAP-25. BMC Biol. 2006;4:7.

12. Herness S, Chen Y. Serotonin inhibits calcium-activated K+ current in rat taste receptor cells. Neuroreport. 1997;8(15):3257-3261.

13. Herness S, Zhao FL, Kaya N, Lu SG, Shen T, Sun XD. Adrenergic signalling between rat taste receptor cells. J Physiol. 2002;543(Pt 2):601-614.

14. Wang ZY, Keith IM, Olson EB Jr, Vidruk EH, Bisgard GE. Expression of 5-HT3 receptors in primary sensory neurons of the petrosal ganglion of adult rats. Auton Neurosci. 2002;95(1-2):121-124.

15. Lavoie B, Parent A. Serotoninergic innervation of the thalamus in the primate: an immunohistochemical study. J Comp Neurol [Internet]. 1991 [cited 2022 Jan 19];312(1):1–18.

16. Nagai T, Delay RJ, Welton J, Roper SD. Uptake and release of neurotransmitter candidates, [3H]serotonin, [3H]glutamate, and [3H]gamma-aminobutyric acid, in taste buds of the mudpuppy, Necturus maculosus. J Comp Neurol. 1998;392(2):199-208.

17. Bondareff W, Alpert M, Friedhoff AJ, Richter EM, Clary CM, Batzar E. Comparison of sertraline and nortriptyline in the treatment of major depressive disorder in late life. Am J Psychiatry. 2000;157(5):729-736.

18. Griffin JP. Drug-induced disorders of taste. Adverse Drug React Toxicol Rev. 1992;11(4):229-239.

19. Femiano F, Scully C, Gombos F. Idiopathic dysgeusia; an open trial of alpha lipoic acid (ALA) therapy. Int J Oral Maxillofac Surg. 2002;31(6):625-628.

20. Henkin RI. Drug-induced taste and smell disorders. Incidence, mechanisms and management related primarily to treatment of sensory receptor dysfunction. Drug Saf. 1994;11(5):318-377.

21.Boyd I. Captopril -induced taste disturbance.Lancet. 1993; 342 (8866): 304

22.Schiffman SS, Graham BG, Suggs MS, Sattely-Miller EA. Effect of psychotropic drugs on taste responses in young and elderly persons. Ann N Y Acad Sci. 1998;855:732-737.

23.Schiffman SS, Zervakis J, Suggs MS, Shaio E, Sattely-Miller EA. Effect of medications on taste: example of amitriptyline HCl. Physiol Behav. 1999;66(2):183-191.

24. Guggenheimer J. Oral manifestations of drug therapy. Dent Clin North Am. 2002;46(4):857-868.

25.Lingjaerde O. Benzodiazepines in the treatment of schizophrenia: an updated survey. Acta Psychiatr Scand. 1991;84(5):453-459.

26.Deleau VZE. Zolpidem (Ambien). In: Physicians Desk Reference. 48th ed. Montvale: Medical Economics; 1994. p. 2189–2192.

27.Deleau VZE. Venlafaxine (Effexor). Physicians Desk Reference. In: Physicians Desk Reference. 48th ed. Montvale: Medical Economics; 1994. p. 48–52.

28. Deleau VZE. Risperidone (Rispendal). In: Physicans Desk Reference. 48th ed. Montvale: Medical Economics.; p. 24–28.

29. Deleau VZE. Trazodone (Desyrel). In: Physicans Desk Reference. 48th ed. Montvale: Medical Economics; 1994. p. 514.

30.Bressler B. An unusual side-effect of lithium. Psychosomatics. 1980;21(8):688-689.

31. Mizoguchi Y, Monji A, Yamada S. Dysgeusia successfully treated with sertraline. J Neuropsychiatry Clin Neurosci. 2012;24(2):E42.

32. Naik BS, Shetty N, Maben EV. Drug-induced taste disorders. Eur J Intern Med. 2010;21(3):240-243..