



Permanent Taste and Smell Disorders Induced by Clarithromycin: A Case Report

Klaritromisin Kullanımına Bağlı Gelişen Kalıcı Tat ve Koku Bozukluğu: Olgu Sunumu

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Summary

Clarithromycin belongs to a group of medications called macrolide antibiotics. Other antibiotics in this group include erythromycin, troleandomycin, roxithromycin, spiramycin and azithromycin. The most common use of antibiotics in this group are mild to moderate infections of skin, soft-tissues, mouth and respiratory tract, caused by gram-positive bacteria. This group of antibiotics are known to have side effects such as nausea, vomiting, heartburn, gastrointestinal discomfort, diarrhea, hives, and other forms of skin rashes, drug-induced fever and anorexia when administered perorally.

In this article a case who has permanent loss of smell and taste after the clarithromycin therapy has presented. Drugs that often cause taste and smell dysfunction and mechanisms of action are discussed accompanied by literature. (Turkish Journal of Neurology 2015; 21:34-6)

Key Words: Clarithromycin, anosmia, taste disorders

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Özet

Klaritromisin makrolid grubundan bir antibiyotiktir. Bu grupta eritromisin, roksitromisin, troleandomisin, spiramisin ve azitromisin gibi diğer antibiyotikler de yer almaktadır. Bu grup antibiyotiklerin en yaygın kullanım alanları cilt, yumuşak dokular, ağız ve solunum yollarında gram pozitif bakterilerin yaptığı hafif ve orta derecedeki enfeksiyonlardır. Bu grup antibiyotiklerin peroral verildiklerinde bulantı, kusma, pirozis, gastrointestinal rahatsızlık, diyare, ürtiker ve diğer tür cilt döküntüleri, ilaç ateşi ve iştahsızlık gibi yan etkileri olduğu bilinmektedir. Bu yazıda klaritromisin kullanımını sonrası kalıcı tat ve koku duyusu kaybı gelişen bir olgu sunulmuştur. Literatür eşliğinde tat ve koku bozukluğuna sıklıkla neden olan ilaçlar ve etki mekanizmaları tartışılmıştır. (Türk Nöroloji Dergisi 2015; 21:34-6)

Anahtar Kelimeler: Klaritromisin, anosmi, tat duyusu bozukluğu

Çıkar Çatışması: Yazarlar bu makale ile ilgili olarak herhangi bir çıkar çatışması bildirmemiştir.

Introduction

Taste and smell disorders are common side effects linked to drugs. Angiotensin-converting enzyme inhibitors, beta-lactam antibiotics, biguanides, chlorhexidine, opioids, protease inhibitors and antiviral agents have been associated with such side effects.

Since they are not life-threatening conditions, taste and smell disorders are often ignored and neglected by the people who suffer from them. They do, however, significantly impair the life quality of the patients. These disorders may decrease the appetite and cause malnutrition severe enough to require hospitalization (1).

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Here we present a permanent taste and smell disorder caused by the use of clarithromycin.

Case

Fifty-year-old male patient without any preexisting condition went to the doctor with nasal congestion, fatigue, fever and coughing. He was started on clarithromycin and paracetamol with upper respiratory tract infection diagnosis. After using 500 mg clarithromycin twice a day for 6 days, the patient came back with the complaints of not having taste and smell sensations. The drugs started at the initial visit were stopped. In the routine examination of complete blood count, blood biochemistry, vitamin B12 and folic acid levels, thyroid function tests and sedimentation rate examination revealed no abnormality. Direct and indirect light reflex in the neurological examination was normal, eye movements were normal, there was no facial asymmetry, and the sensory examination of the face was natural. Uvula was at the midline and cough reflex was present. The tongue was not atrophied and its movements were normal. Deep tendon reflex (DTR) was normoactive, the muscle strength was normal and there were no pathological reflexes. The patient was unable to recognize the scent of coffee, chocolate, lemon or mint during the smell examination. Parosmia and cacosmia was not detected. Other cranial nerves were normal.

Otorhinolaryngology (ENT) examination was reported as normal by the ENT specialist. In terms of the pathologies that may cause taste and smell disorders, paranasal sinus computerized tomography (CT) and cranial magnetic resonance imaging (MRI) were scheduled and no abnormality was found. Without any treatment recommendation, the patient was followed clinically and was asked to come to periodic follow-ups in the outpatient clinic. Similar findings were found a year after the drug use. There was no reaction to irritant smells and the taste sense was also still impaired.

Discussion

There are numerous etiological causes for taste and smell disorders. The loss in the taste sensation can be complete or partial; spicy, sweet, sour and salty tastes may be selectively affected. The most common causes of the smell perception is the allergic rhinitis, chronic rhinosinusitis and upper respiratory tract infections. Other potential causes include: Head trauma, neurodegenerative diseases (Parkinson disease, Alzheimer diseases, multiple sclerosis etc.), masses in orbitofrontal cortex and drug use (2). Among etiological causes are the head traumas for younger patients and neurodegenerative diseases for the older patients. Kallman syndrome can also be counted as an etiological reason in the childhood years. Etiology is idiopathic in 10% of the cases (3). It is well-known that olfactory disorders have a significant impact on the sense of taste. Patients often report the inability to taste especially when there's an isolated smell disorder. Olfactory dysfunction is commonly thought of as conduction-type or sensory-neural (sensory type) involvement (4).

Among the neurological conditions that cause taste and smell disorders, Foster-Kennedy syndrome where loss of vision accompanies the other symptoms, should be included in the

differential diagnosis and possibility of masses taking up intracranial space in a way that interferes with the olfactory nerve should be ruled out with neuroimaging techniques (5). Episodic olfactory alterations such as hyperosmia and parosmia are seen in temporal lobe epilepsy and migraine (6,7). Especially in Parkinson and Alzheimer diseases among other neurodegenerative conditions can the olfactory loss be observed. Other concomitant neurological findings may guide differential diagnosis (8). Lauren Moo et al., reported the rare case of bilateral medial cerebral artery infarct causing taste and olfactory disorder (9).

Drug-induced taste and smell disorders are most often reported for macrolide group antibiotics. Clarithromycin is the most commonly indicated one among these drugs. It is followed by azithromycin, roxithromycin and telithromycin. The drug-induced complaints usually emerge in the first 3 days (up to 3 weeks). The condition usually improves in 35 days after stopping the treatment. Tuccori et al. reported the rare cases of 2 patients who did not regain their senses despite many months of follow-up (1).

Studies have shown that some drugs cause taste and olfactory problems more often than the others. Even though most patients improve over time, some show improvement over longer durations and some acquire permanent dysfunction. Drug-induced taste and olfactory disorders have been frequently explained by two mechanisms. The first one is the direct effect of the drug and the second one is the sensory alteration caused by the collateral effect of the drug. The specific mechanisms by which macrolides cause taste and smell disorders are still unknown. Like other antibiotics, macrolides also caused a bitter taste in mouth. When taken systemically, it diffuses onto nasal and salivary secretion. Macrolide group antibiotics are the most common group of drugs that cause taste and olfactory dysfunction at the same time. Olfactory bundles, trigeminal tracts and taste tracts work concurrently for these senses. Based on this information, it has been suggested that macrolides affect the neuronal transmission in one of these tracts directly, causing simultaneous taste and olfactory loss (1).

Among the drugs commonly indicated for taste and olfactory loss are the terbinafine, fluoroquinolone, protein kinase inhibitors (sunitinib, erlotinib, imatinib etc) in addition to macrolide group (1). Taste disorder is the most commonly seen and equally overlooked side effect of the ACE inhibitors. Captopril may cause many taste disorders including altering sweet and salty tastes, inducing a metallic and bitter taste in the mouth (10,11).

Cancer patients are also affected from taste and olfactory disorders following chemotherapy. Some cases may even experience olfactory hallucinations (12). Analgesics, bisphosphonates, antihypertensives and cardiac drugs, antihistamines and decongestants, bronchodilators, muscle relaxants, antidepressants, anticonvulsants, antipsychotics, antimigraine drugs and lipid-lowering agents may also cause taste and smell alterations (13).

Clarithromycin-induced other side effects are the central nervous system (CNS) suppression (confusion and dullness) or CNS excitation (agitation, insomnia, delirium, psychosis). The exact mechanism that causes this mental state is not fully known. Bandettini et al. reported a case where clarithromycin use induced blurred consciousness in a non-convulsive status epilepticus (NCSE) (14). Clarithromycin induced myasthenic syndrome (15) and sensory-neural sensory loss have also been reported (16).

In cases of drug-induced taste disorders, non-medication

related causes must be investigated, ENT examination and endoscopic evaluations must be performed, and both senses should be thoroughly examined. Suspected drug's dose should either be reduced or the drug use must be stopped and special attention must be given to oral hygiene. Treatment of an existing zinc deficiency and alpha lipoic acid treatment have been shown to be useful in some cases (10).

In conclusion, drug-induced taste and smell disorders may occur unexpectedly. Considering the negative effects on the life quality and the permanent sensory loss that occurs in certain cases, clinicians should exercise caution in prescribing medicine that would potentially have such side effects and they should refrain from unnecessary use of antibiotics.

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