Coclia Disorders of Smell and Taste

10. What is the differential diagnosis for dysguesia and complete loss of taste?

Gustatory dysfunction

Much of what is perceived as a taste defect is truly a primary defect in olfaction, which alters flavor. The components that comprise the sensation of flavor include the food's smell, taste, texture, and temperature. Each of these sensory modalities is stimulated independently to produce a distinct flavor when food enters the mouth.

Taste may be enhanced by tongue movements, which increase the distribution of the substance over a greater number of taste buds. Adaptation in taste perception exerts a greater influence than in other sensory modalities.

Other than smell dysfunction, the most frequent causes of taste dysfunction are prior URI, head injury, and idiopathic causes, but many other causes can be responsible.

- Lesions at any site from the mucosa, taste buds, unmyelinated nerves, or cranial nerves to the brain stem may impair gustation.
- Oral cavity and mucosal disorders including oral infections, inflammation, and radiation-induced mucositis can impair taste sensation. The site of injury with radiotherapy is probably the microvilli of the taste buds, not the taste buds themselves, since taste buds are thought to be radioresistant.
- Poor oral hygiene is a leading cause of hypogeusia and cacogeusia. Viral, bacterial, fungal, and parasitic infections may lead to taste disturbances because of secondary taste bud involvement.
- Normal aging produces taste loss due to changes in taste cell membranes involving altered function of ion channels and receptors rather than taste bud loss.
- Malignancies of the head and neck, as well as of other sites, are associated with decreased appetite and inability to appreciate flavors.
- Use of dentures or other palatal prostheses may impair sour and bitter perception, and tongue brushing has been shown to decrease taste acuity.
- Surgical manipulation may alter taste permanently or temporarily.
  - Resection of the tongue and/or portions of the oral cavity most commonly for reasons of malignancy decreases number of taste buds.
  - Radiation and chemotherapy damages taste receptors and decreases salivary flow altering taste perception.
  - In otologic surgery, stretching or transection of the chorda tympani nerve may result in temporary dysgeusia. Bilateral injury still may not result in permanent taste dysfunction because of the alternate innervation through the otic ganglion to the geniculate ganglion via the greater superficial petrosal nerve.
Nutritional deficiencies are involved in taste aberrations. Decreased zinc, copper, and nickel levels can correlate with taste alterations. Nutritional deficiencies may be caused by anorexia, malabsorption, and/or increased urinary losses.

Endocrine disorders also are involved in taste and olfactory disorders. Diabetes mellitus, hypogonadism, and pseudohypoparathyroidism may decrease taste sensation, while hypothyroidism and adrenal cortical insufficiency may increase taste sensitivity. Hormonal fluctuations in menstruation and pregnancy also influence taste.

Heredity is involved in some aspects of gustation. The ability to taste phenylthiourea (bitter) and other compounds with an –N-C= group is an autosomal dominant trait. Studies have shown that phenylthiourea tasters detect saccharin, potassium chloride (KCl), and caffeine as more bitter. Type I familial dysautonomia (ie, Riley-Day syndrome) causes severe hypogeusia or ageusia because of the absence of taste bud development.

Direct nerve or CNS damage, as in multiple sclerosis, facial paralysis, and thalamic or uncal lesions, can decrease taste perception.

Many other diseases can affect gustation (eg, lichen planus, aglycogeusia, Sjögren syndrome, renal failure with uremia and dialysis, erythema multiforme, geographic tongue, cirrhosis).

11. What therapeutic interventions exist in the management of persistent dysguesia?

**Treatment of gustatory dysfunction**

As with olfactory problems, direct initial treatment of gustatory dysfunction toward the causative abnormality, if possible.

- Address any nasal pathology causing decreased olfaction and thus affecting taste.
- Treat mucosal disorders (eg, infections, inflammations).
- Treat oral candidiasis and other local factors, and replete any vitamin deficiency that may cause glossitis.
- Aid patients in eliminating local irritants (eg, mouthwashes, ill-fitting dentures)
- In mucositis or dry mouth as a result of radiation therapy, artificial saliva or salivary stimulants and local anti-inflammatory medications may improve some taste dysfunction.
- Correcting endocrine disorders with the appropriate hormone replacement may improve the taste disorder.
- Consider eliminating a medication suspected of causing dysgeusia unless the medication is crucial in treating another medical problem and cannot be substituted.
- In the case of familial dysautonomia, in which patients have a complete lack of lingual taste buds, subcutaneous administration of methacholine has been reported
to normalize previously elevated taste thresholds for all taste qualities. The cholinergic mechanism is probably related to taste transduction via free nerve endings because these patients have no taste receptors.

- Some gustatory deficits are untreatable (eg, some cases of nerve or CNS damage, end-stage diabetic neuropathy, multiple sclerosis). Certain mechanical aids exist to enable the patient to make use of whatever taste function is left.
- Advise patients that chewing food well increases the release of the tastant and increases saliva production to further distribute the chemicals. Switching foods during the meal decreases the phenomenon of adaptation and can improve detection of the tastes.
- Finally, for patients who are anosmic or hyposmic (including many elderly people), simulated odors are available to use while cooking to augment the sensation of flavor. A drawback of these simulated odors is that, to normosmic people, the smell is quite pungent. Thus, these odors cannot be used in mixed groups of anosmic and normosmic individuals.