

Inverse Correlation Between Pain Intensity and Gustatory Ability

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ABSTRACT

Two divergent schools of thought define the interaction between gustatory ability and pain. Bartoshuk suggests that taste acts to inhibit pain (Bartoshuk, 2012). In this paradigm, pain directly correlates with the gustatory ability. Conversely, pain inhibiting taste has been described in myriad clinical conditions to include a response to an orthodontic wire (Yamauchi, 2002). However, the inverse correlation between the intensity of pain and the subjective perception of the degree of gustatory ability has not heretofore been described. Such a case is presented.

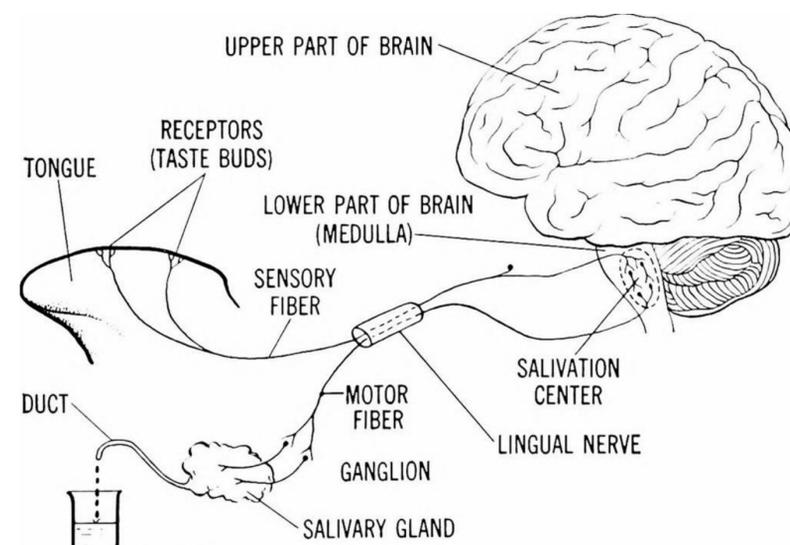
CASE STUDY

This 49 year-old right-handed woman presented with a severe bi-facial pain and a change in taste. As the pain would increase, her taste ability would decrease. For instance, when the pain was 6-8/10, food would taste bland, 30% of normal. Alternatively, when she had no pain, taste was 100%. With gradual increase in pain, there was a gradual reduction of taste. Diazepam improved the pain, but there was no change in her taste.

RESULTS

Abnormalities in Physical Examination

Neurological Examination: Cranial Nerve (CN) Examination: CN II: Ophthalmologic Examination: absent spontaneous venous pulsations. CN V: Decreased pinprick right V2. Motor Examination: Drift Testing: Right abductor digiti minimi sign with right cerebellar spooning. Cerebellar Examination: Holmes rebound positive with vertical titubation. Rapid alternating movements decreased in the left upper extremity. Reflexes: 2+ bilateral ankle jerks. Bilateral pendular quadriceps femoris reflexes. Positive jaw jerk. Bilateral positive Hoffman reflexes.



Tests

Chemosensory Testing: Olfactory testing: Alcohol Sniff Test: 7 (hyposmia). Gustatory: Taste Threshold Testing: Ageusia to Phenylthiocarbamide. SPECT scan: Extreme hyperperfusion to the right putamen, and both caudate heads. The left putamen and cingulate gyrus were moderately hyperperfused.

DISCUSSION

The inverse correlation between analgesia and increased gustatory ability confirms the experimental findings of Bastian (Bastian, 2014). The mechanism for such a relationship is unclear. In the patient presented, only facial pain influenced taste. Non-facial somatic pain had no impact on gustation. This suggests the importance of trigeminal nerve involvement. This co-occurrence may be due to ephaptic transmission, or an alternative mechanism that involves a central nervous system localization overlap that subserves both trigeminal pain and gustatory sensations.

CONCLUSIONS

Potentially, gustatory ability may be used as an objective measure to determine the degree of pain. Furthermore, management of facial pain with gustatory stimuli may be worth study. Additional investigation of taste perception and epochs of pain are warranted.

REFERENCES

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