

101 Amyotrophic Lateral Sclerosis (ALS) - Not Just a Motor Disease? Isolated Bitter and Sweet Taste Loss in ALS

Ahmed A Ashary, MD¹; Dev N Patel²; and Alan R Hirsch, MD³

¹ St. Georges, University of London Medical Programme at University of Nicosia, Cyprus

² Aureus University School of Medicine, Aruba

³ Smell and Taste Treatment and Research Foundation, Chicago, Illinois

ABSTRACT: Study Objective: Specific taste quality deficits in ALS has not heretofore been described.

METHOD: Case Study: A 71 year old right handed female presented with a two year course of progressive reduction in strength in her hands, arms and legs with difficulty tying shoe laces, opening jars, writing and walking. She described nocturnal muscle spasms involving all extremities. Gradually, over eight months prior to presentation, all food began to taste bad and horribly bitter. Associated with no appetite and a seven pounds weight loss.

RESULTS: Abnormalities in Neurological examination: Cranial Nerve (CN) examination: CN IX and X: Gag absent bilaterally. Motor examination: Bulk: atrophy in thenar and hypothenar eminences and intrinsics in both upper extremities. Percussion induced fasciculation and myotonia in both shoulders and arms. Fasciculation of tongue with percussion myotonia of tongue. Strength: Intrinsic 4/5 in both upper extremities, 3/5 in abductor pollicis brevis bilaterally, 3/5 right gastrocnemius soleus, 4/5 bilateral anterior tibialis. Drift testing: left abductor digiti minimi sign. Gait: Heel and toe walking unstable with circumduction of left leg. Tandem gait unstable. Cerebellar: Holmes rebound phenomena positive in the left upper extremity. Deep tendon reflexes: 1+ left brachioradialis. 1+ left triceps. 3+ right ankle jerks. 0 left ankle jerk. Positive jaw jerk. Chemosensory Testing: Normosmia to: Alcohol Sniff Test (46), Pocket Smell Test (3/3) and Retronasal Smell Index (9). Taste Quadrant Testing: ageusia in the palate to sodium chloride and citric acid. Ageusia throughout the palate, tongue and whole mouth to sucrose and quinine hydrochloride. Fungiform papillae count: left 18, right 20 (normal). Lip biopsy (normal). MRI: T2 flair in bilateral corticospinal tracts, left greater than right in the spinal cord and the brain. EMG: fibrillation, positive waves with fasciculation in all four extremities. Voluntary contraction with polyphasic unstable motor unit action potentials.

CONCLUSION: While Lang found no taste loss in ALS (Lang, 2011), Pelletier found reduction in intensity of

taste to all modalities in different sectors of the tongue, but paradoxically demonstrated normogeusia in whole mouth taste perception (Pelletier, 2013). Pathological specimens of those with ALS revealed degeneration in the nucleus parabrachialis medialis and tractus trigeminothalamicus dorsalis (Oyanagi, 2015), suggesting that taste deficit may be due to central white matter abnormalities. Sweet taste is localized in the most posterior and rostral aspect of the right insular cortex, immediately adjacent to bitter (Prinster, 2017), suggesting a neighborhood effect phenomena. Weight loss in ALS may be due to sensory distortion and secondary impairment of appetite. It would be worthwhile to investigate those with ALS for evidence of otherwise overlooked gustatory deficits, correction of which may improve appetite and nutritional state.

102 Extracurricular Activity Involvement and Depression Among High School Students

Alex Waler¹; Lindsay Taliaferro, Ph. D.; and M.P.H. CHES²

¹ M.D. Candidate, Class of 2021, University of Central Florida College of Medicine, Orlando, Florida

² Assistant Professor of Medicine, Population Health, University of Central Florida College of Medicine, Orlando, Florida

ABSTRACT: Introduction: While physical activity has been shown to promote positive mental health and aid in treatment, the association between involvement in other activities and depressive symptoms among adolescents remains unclear. We sought to fill a gap in the literature by examining relationships between involvement in sports, art, and leadership activities during high school and depressive symptoms among adolescents. Hypothesis: We hypothesized that all types of involvement would be associated with lower levels of depressive symptoms.

METHODS: We performed a secondary data analysis using the 2016 Minnesota Student Survey, a population-based survey of students in grades 9 and 11 (N=81,885). Descriptive sample statistics (e.g., frequencies) and chi-square tests, stratified by sex, were used to examine relationships between depressive symptoms and involvement in different extracurricular activities among males and females. Analyses were performed using SPSS.

RESULTS: For males and females, involvement in sports was associated with lower levels of depression, compared to non-involvement. Compared to males who did not participate in arts (16.6%), those who did were significantly more likely to report depressive symptoms