

Conclusions. d-ATS was effective in the treatment of ADHD in children and adolescents, meeting its primary endpoint (reported elsewhere) and all secondary endpoints. d-ATS was safe and well-tolerated, with minimal dermal reactions.

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Alliaceous Axilla as a Manifestation of Olfactory Reference Syndrome

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Abstract

Introduction. Olfactory reference syndrome (ORS) is a delusion in which a person believes that he or she exudes a displeasing body aroma that others perceive negatively. The axilla has been reported as a single primary source in only one patient. Furthermore, ORS is rarely reported to be associated with food odor. In these instances, the food is not edible. Delusions of ORS presenting as alliaceous edible food aromas have not heretofore been described.

Case Report. One week after undergoing catheter ablation for atrial fibrillation, this 42-year-old right-handed male experienced a sudden onset of loss of smell and taste. This has persisted on presentation and he described a complete lack of smell, only being able to smell different spices and herbs. Over time, his sense of smell selectively improved such that he was able to smell alliaceous substances, including onion and garlic, as well as a few other aromas. At the same time his smell returned, he noted that his own body exuded a smell of garlic. This occurred especially while weightlifting at the gym. He noticed that the shirts he had worn working out, in the axillary regions, were encumbered with a garlic/onion miasma. He was fearful that this mephitic aroma was being secreted through his armpits, and that others would recognize his tragomaschalia. As a result, he restricted his activities. Over a few months, his smell ability gradually worsened back to the condition he was in after the ablation. Coincident with this, his perception that he was exuding an alliaceous aroma resolved.

Results. Motor examination: Drift testing: mild left pronator drift. Left abductor digiti minimal sign. Olfactory testing prior to the development of ORS: Alcohol Sniff Test (AST): 0 (anosmia). Brief Smell Identification Test (B-SIT): 3 (anosmia). Olfactory testing during ORS: AST: 16 (hyposmia). B-SIT: 9 (hyposmia). Olfactory testing after resolution of ORS: AST: 0 (anosmia).

Discussion. This could be explained by a physiologic axillary odor or malodor, which he could not detect before or after the ORS. During the ORS, the odor may have been misperceived in a dysosmic manner due to his underlying olfactory deficit. Such dysosmia may have then been interpreted as the aroma of an alliaceous vegetable. The intensity of the aroma may have been greatest at the axillary area if compared to the other sources, but

due to his underlying hyposmia, he was able to perceive only the axilla as a sole source of the aroma. Besides, psychodynamic preoccupation with bodily physique may have explained his hypersensitivity to minor flaws and his excessive preoccupation with possible harassment from others. He may have consequently misinterpreted individuals' benign observations and attitudes to presume the presence of aroma. In individuals with olfactory deficit, this investigation for the presence of ORS with traditionally unpleasant food aromas or the presence of ORS in those with chemosensory dysfunction is warranted.

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A Case of Possible Levetiracetam Induced Aseptic Meningitis vs Viral Meningitis

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Abstract

Introduction. Meningitis causes inflammation of the meninges and when bacteria are not the cause may be considered aseptic. Drug-induced aseptic meningitis (DIAM) can arise from the use of certain medications. The pathophysiology of DIAM is not well understood. Within the antiepileptic medication class, only lamotrigine, carbamazepine, and levetiracetam have been associated with DIAM via documented cases. Common presentation of DIAM involves fever, headache, meningismus, and mental status changes (abnormal consciousness and focal neurological deficits). Other clinical features may include neck stiffness, photophobia, nausea, vomiting, abdominal pain, bone pain, hypotension, edema (facial and optic nerve), rash, and seizures. Case reports of DIAM with varying or limited symptomology exist. Therefore, the presentation alone will not allow for a DIAM diagnosis, prompting further analysis and diagnostic exclusion.

Case. A middle-aged male presented with a 48-hour history of confusion, disorientation, unresponsiveness, and hypersomnolence. Past medical history included hypertension, hyperlipidemia, type-2 diabetes, and seizures. Home medication included chlorthalidone, levetiracetam, lisinopril, metformin, potassium chloride, rosuvastatin with no medication allergies reported. Upon admission, the patient denied fever, headache, nausea, neck pain, vomiting, and rash. Somnolence, dysarthria, and obtundation were noted during the physical evaluation. Hospital medications included home medications along with enoxaparin, correctional dose insulin lispro, and IV lactated ringers. Vitals and labs were unremarkable. On hospital day (HD) 1 the MRI scan was unremarkable, ruling out a demyelinating process. Serology tests (ie, ANA and dsANA) were negative. Neurology was consulted, and a lumbar puncture was performed. On HD-2 AEIM was suspected, prompting levetiracetam discontinuation and lacosamide initiation (50 mg by mouth twice daily). The CSF analysis was notable for pleocytosis (lymphocytic predominance at 96%), elevated protein (100 mg/dL), and slightly elevated glucose (79 mg/dL). The CSF VDRL was negative, ruling out

neurosyphilis. Bacterial meningitis was ruled out based on the CSF analysis (WBC 144×10^3 and glucose) and the lack of bacterial growth on gram stain. Inasmuch, antibiotic therapy was not initiated. Empiric acyclovir 1000 mg IV every 8 hours was initiated as viral meningitis had not been eliminated, due to the lack of viral meningeal PCR testing. By HD-3, the CSF culture resulted without growth and the patient was alert and oriented. By HD-4 the patient was discharged, having received 6 doses of IV acyclovir, with 7 more days of oral therapy.

Discussion. In 2018, McDonald et al documented the first case of probable levetiracetam-related antiepileptic induced meningitis (AEIM). The mainstay of treatment is discontinuing the offending agent. Resolution of symptoms is typically 2 to 3 days after drug discontinuation as seen in this patient case report. Symptomatic resolution within days of stopping the suspected offending drug has been observed in all reported cases of AEIM where 1 to 2 weeks is generally seen with viral meningitis. Applying the Naranjo Scale yields a score of 4, which indicates possible levetiracetam-induced meningitis in this adult patient. Providers should be cognizant when prescribing antiepileptics to assess and monitor for aseptic meningitis that may appear with atypical symptoms.

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Comparative Effectiveness of Intravenous Ketamine and Intranasal Esketamine in Real-World Setting Among Patients with Treatment Refractory Depression

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Abstract

Background. Ketamine, an *N*-methyl-D-aspartate receptor antagonist, has been “repurposed” as a rapid-acting antidepressant for treatment-resistant depression (TRD). The *s*-enantiomer of ketamine, “esketamine,” was FDA approved for TRD and depressive symptoms in adults with major depressive disorder with suicidal ideations/behaviors. Intravenous (IV) ketamine, although financially less expensive, is often not covered by insurance and intranasal (IN) esketamine, although covered by insurance can be expensive. There is a paucity of literature on efficacy data comparing subanesthetic IV ketamine and IN esketamine for TRD in a real-world scenario. Thus, we conducted this study comparing the efficacy and the number of treatments required to achieve remission/response with repeated use of subanesthetic IV ketamine/IN esketamine among TRD patients.

Methods. This was an observational study where we included adults (≥ 18 years) with TRD who provided consent and had received up to 6 IV ketamine infusions (0.5 mg/kg, infused over

40 minutes) or up to 8 intranasal (IN) esketamine (56/84 mg) treatments for TRD at the Mayo Clinic Depression Center. Depression symptoms were measured utilizing the self-report 16-Item Quick Inventory of Depressive Symptomatology (QIDS-SR) scale before and 24 hours after ketamine/esketamine treatment. Remission and response were defined as QIDS-SR 16 score ≤ 5 and $\geq 50\%$ change in QIDS-SR 16, respectively. Continuous variables are reported as means \pm SD and categorical variables as counts and percentages. The Wilcoxon rank-sum test was used to compare continuous variables. Chi-square and Fisher’s exact tests were used to compare categorical variables. The number of treatments to remission/response was calculated.

Results. Sixty-three adults with TRD, middle-aged (47.0 ± 12.1 years), predominantly female (65%), of which 76% ($n = 48$) and 24% ($n = 15$) received IV ketamine and IN esketamine, respectively. Mean (SE) change in QIDS-SR 16 score was -8.7 ± 0.7 ($P < .001$), a significant reduction (improvement) from baseline (mean \pm SD = 17.6 ± 3.7). Overall remission and response rates were 36.5% and 55.6%, respectively in the acute phase. Response (56.3% vs 53.3%) and remission rates (39.6% vs 26.7%) were similar among patients who received IV ketamine or IN esketamine, respectively ($P > .05$). The mean number of treatments received to achieve response (2.5 ± 1.6 vs 4.6 ± 2.1) and remission (2.4 ± 1.3 vs 6.3 ± 2.4) were significantly lower among patients who received IV ketamine compared to IN esketamine ($P < .005$). Most patients tolerated both treatments well.

Conclusion. Intravenous ketamine and intranasal esketamine showed similar response/remission in TRD patients but the number of treatments required to achieve response/remission was significantly lower with IV ketamine compared to IN esketamine. These findings need to be investigated in a randomized control trial comparing these two treatment interventions.

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Opioid Prescription Dispensing Patterns in Patients with Bipolar Disorder: Real-World Evidence from the IBM Market Scan Research Databases

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Abstract

Objective. Prescription opioid dispensing patterns over time were assessed for individuals with bipolar disorder (BD) vs matched controls.