

Characteristics and Outcomes of Hospitalized Psychiatric Inpatients Treated with Buprenorphine for Co-occurring OUD

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Introduction. Despite being the gold standard for long term treatment and mortality reduction, medications for opioid use disorder (mOUD) are under utilized despite ongoing efforts to reduce barriers to access, with only 18% of qualifying patients undergoing treatment. Approximately 38% of patients nationally with an opioid use disorder (OUD) have a co-occurring psychiatric diagnosis; however, treatment for these co-occurring illnesses frequently do not occur simultaneously, especially among acutely psychiatrically ill patients. Inpatient psychiatric units often do not initiate patients on mOUD, such as buprenorphine, possibly due to lack of national policy encouraging expanded access. This study involves a pilot mOUD consultation service for patients admitted to inpatient psychiatric units, and aimed to characterize the patients involved, and compare certain variables (such as length of stay (LOS)) to inpatients without an OUD.

Methods. This IRB-approved retrospective single-site (level 1 trauma in academic hospital just outside New York City) study examined the medical records of patients who received consultations from our service between January 1st 2018 and August 15th 2020. Demographic and clinical information was collected and analyzed for descriptive statistics. There were no interventions; the primary outcome gathered was average length of stay for patients consulted.

Results. 123 patients received consultations during this time period. Patients had an average age of 37 years, identified predominantly as male, and were mostly White. About one third of the population was undomiciled, and almost three quarters were unemployed. Over half of the patients had prior treatment with buprenorphine. The most common primary psychiatric diagnosis was depression (over 50%), followed by bipolar disorders and schizophrenia spectrum illness. About 40% of patients had co-occurring stimulant use, followed by about 30% with marijuana use, and 16% with benzodiazepine use. The average LOS among patients treated with mOUD was not significantly longer than the average LOS for the inpatient units overall. Over half of the patients were established with outpatient or inpatient substance use treatment following discharge from psychiatry.

Conclusions. Our data supports initiating patients with co-occurring OUD and psychiatric illness on mOUD, regardless of severity of acute psychiatric symptoms. Our study did not find that initiating substance use treatment prolonged LOS. Initiating treatment on the psychiatric unit may have increased engagement in outpatient addiction services. Further studies are required to characterize potential benefits.

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Ctrl+ADHD: Navigating the Mechanisms Tethering Internet Gaming Disorder and ADHD

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Background. The tentative psychiatric disorder known as Internet Gaming Disorder (IGD) is characterized by persistent and repetitive engagement with video games, often resulting in notable disruptions in daily life, work, and/or education. The American Psychiatric Association (APA) has recognized the need for additional research in this area. The literature suggests a strong correlation between IGD and attention deficit hyperactivity disorder (ADHD), as a meta-analysis suggested an 85% correlation with symptoms of ADHD. In fact, both combined type ADHD and predominantly hyperactive/impulsive ADHD are linked to IGD. This study aims to understand the neurobiological overlap between these comorbid disorders in order to best understand which treatment modalities could best help patients with either symptoms of ADHD or IGD.

Methods. Google Scholar and PubMed were explored using search terms including “IGD,” “internet gaming disorder,” “ADHD,” “attention deficit hyperactivity disorder,” and “mechanism” in various permutations. Eighteen studies were included from 58 search results that addressed IGD’s connection to ADHD and their common biological mechanisms.

Results. Findings suggest that In individuals with Internet Gaming Disorder (IGD), there is a decrease in the functional connectivity within brain networks associated with cognitive control, executive function, motivation, and reward. Additionally, structural changes such as reduced gray-matter volume and white-matter density have been observed. Furthermore, comorbidity studies suggest that the executive control networks affected in attention deficit-hyperactivity disorder (ADHD) may increase the vulnerability to developing IGD. Another meta-analysis found that , VBM (voxel-based morphometry) analysis showed disorder-specific GMV abnormality in the putamen among IGD subjects and orbitofrontal cortex in ADHD and shared GMV in the prefrontal cortex. Functionally, fMRI analysis discovered that IGD-differentiating increased activation in the precuneus and shared abnormal activation in anterior cingulate cortex, insular, and striatum. A 119 adolescent case-control study found that after a 6-week treatment period, both groups escitalopram and bupropion demonstrated improvement across all clinical symptom scales compared to the matched control group. Moreover, the bupropion group exhibited greater enhancements in scores on the Clinical Global Impression-Severity Scale, Young Internet Addiction Scale, ADHD Rating Scale, and Behavioral Inhibition Scale compared to the escitalopram group.

Conclusions. The literature findings suggest that individuals with IGD exhibit reduced functional connectivity and structural changes in brain networks associated with cognitive control and reward. Comorbidity studies indicate that executive control networks affected in ADHD may contribute to the vulnerability of developing IGD. These findings are helpful in the assessment and

treatment of IGD which currently does not have any official treatment recommendations.

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Resolution of COVID-19 Chemosensory Loss Upon COVID-19 Reinfection

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Introduction. The pandemic of coronavirus disease 2019 (COVID-19) has been associated with widespread myriad chemosensory dysfunction with smell loss as high as 99% and taste loss in 89% of those studied (Kim 2021, Paderno 2020, Renaud 2020). Other chemosensory problems, occur often in combination, including dysgeusia and hyposmia (3.2%), dysgeusia and anosmia (3.4%), ageusia and hyposmia (3.4%) and, ageusia and anosmia (8.5%) (Giacomelli, 2020). Hyperosmia has also been reported to be precipitated by COVID-19 infection (Di Stadio 2022, Kamali 2021). COVID-19 induced persistent hyposmia with resolution of smell and taste dysfunction with COVID-19 reinfection has not heretofore been described. Such a case is presented.

Methods. Two years prior to the presentation, a 26-year-old right-handed single male developed COVID-19 at which time his sense of smell and taste were totally eliminated. His smell gradually returned to 40-50% of normal whereby he was able to smell everything, but less intensively than he normally did. Furthermore, some odors he experienced in a hyperosmic fashion, such as smoke which was 200% more intense than normal. Prior to COVID-19 exposure, he experienced frequent flavorful eructations which were eliminated after COVID-19 exposure. His taste was initially absent after the COVID-19 exposure, but gradually returned to 60-70% of normal whereby he would taste everything but less intensively. Two years and one month after the initial COVID-19 infection despite being fully vaccinated, he contracted a recurrent COVID-19 infection. Prior to the infection, his smell and taste were 60% of normal. Acutely with the reinfection, his smell and taste ability abruptly dropped to 0% for 16 hours, after which his smell returned to 90% of normal and his taste returned to 100% of normal. During this time period, his other chemosensory problems including dysosmia, dysgeusia, cacogeusia, hyperosmia, and phantosmia all resolved, and his flavorful eructations returned. His sense of smell has remained normal for five months, but his sense of taste has gradually dropped down to 50% of normal.

Results. Abnormalities in Physical Examination: General: Scaloped tongue. Neurological Examination: Cranial Nerve (CN) Examination: CN II: Visual acuity 20/25 OU. CN III, IV, VI: left ptosis. CN V: decreased light touch left V₁ and V₂. CN IX and X: Uvula deviates to the right. Reflexes: Absent bilateral triceps. Neuropsychiatric Testing: Clock Drawing Test: 10/10 (normal). Animal Fluency Test: 26 (normal). Go-No-Go Test:

6/6 (normal). Center for Neurologic Study Lability Scale: 8/10 (normal). Chemosensory Testing: Olfaction: After the first infection prior to the second infection: Alcohol Sniff Test: 3 (Anosmia). Chemosensory Testing: 1 month after the recurrent COVID-19: Alcohol Sniff Test: 9 (hyposmia). Brief Smell Identification Test: 9 (normosmia). Retronasal Olfaction Test: Retronasal Index: 8 (normosmia). Gustation: Phenylthiocarbamide Taste Test: 9 (normogeusia). Waterless Empirical Taste Test: sweet: 6 (normogeusia) sour: 8 (normogeusia) salty: 6 (normogeusia) bitter: 4 (hypogeusia) brothy: 0 (ageusia) total: 37 (normogeusia).

Conclusions. COVID-19 induced smell loss has been observed to worsen after reinfection, improvement has not been described (Jain, *Ear, Nose & Throat Journal*, 2021, Lechien, *Journal of Internal Medicine*, 2021). Possibly the recurrent infection induced hyperosmia which superimposed upon the underlying COVID-19 induced anosmia caused an additive effect, combining together to induce normosmia as opposed to COVID-19 induced hyposmia. This may be due to persistent inflammation of the olfactory bulbs and frontal lobes, inducing excessive neuronal sprouting and associated hyperosmia (Di Stadio, *European Review for Medical and Pharmacological Sciences*, 2022). Alternatively, COVID-19 may have acted on not only the olfactory nerves but rather on a central basis, enhancing neuronal firings in the anterior insula and hippocampus, areas involved with the olfactory integration and which have enhanced gray matter volume in states of hyperosmia (Wabnegger, 2019). Even though COVID-19 vaccination has been noted to worsen the chemosensory function (Konstantinidis, *International Forum of Allergy & Rhinology*, 2021), COVID-19 immunization induced improvement in smell has also been reported (Plaza, *Annals of Neurology*, 2021). It is possible that such an improvement is through infection induced activation of inflammatory immune responses which then acts on the infected olfactory bulbs to reduce pathology. The current case of COVID-19 infection enhancing smell and taste strengthens such an autoimmune explanation. In those with recurrent COVID-19 infection, query and investigation as to presence of improvement of chemosensory dysfunction is warranted.

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Power-Up: Dissecting Neurobiological Mechanisms Underlying Internet Gaming Disorder

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Background. The DSM V-TR places video game addiction, also known as Internet Gaming Disorder (IGD) within the section that suggests the need for additional research. Simultaneously, there has been a remarkable surge in the consumption of video games,