

Food Noise, Intrusive Thoughts, and Depression - Improvement on Tirzepatide: A Case Report

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Abstract

Tirzepatide (Mounjaro) is a dual long-acting glucose-dependent insulinotropic polypeptide receptor and glucagon-like peptide-1 receptor agonist. Tirzepatide was approved for the treatment of type 2 diabetes in the USA, Europe, and Asia. In addition, tirzepatide showed a substantial sustained weight loss and retarded the progression to type 2 diabetes. However, concerns about its association with depression, suicidality, and various compulsive disorders, including compulsive shopping, were raised. Food noise is common among patients with hyperactive autistic spectrum disorder, which is a common disorder affecting 1/100 of children worldwide. We reported a case of depression, intrusive thoughts, and food noise improvement following tirzepatide in a 34-year-old Saudi female. Tirzepatide (Mounjaro) could be repurposed for the treatment of intrusive thoughts and food noise in patients with high body mass index. (**International Journal of Biomedicine. 2026;16(3):406-409.**)

Keywords: tirzepatide • type 2 diabetes • body mass index • food noise

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Introduction

GLP-1-like receptor agonists (RAs) and dual glucose-dependent insulinotropic polypeptide (GIP)/glucagon-like peptide 1 (GLP-1) agonists (twincretins) represent a paradigm shift in obesity treatment.¹ Glucagon-like peptide receptor agonists were approved for treating type 2 diabetes in 2005, and a new long-acting formulation appeared to reduce the need for frequent subcutaneous injections. GLP-1 is well known as a gut hormone and also acts as a neuropeptide, produced in select brainstem neurons. GLP-1 stimulates insulin secretion, slows digestion, and signals the brain to promote fullness.^{2,4} GLP-1-like receptor agonists and twincretins had a low risk of hypoglycemia and significantly reduced major adverse cardiovascular events.⁵

Despite the above benefits, reports about safety concerns of GLP-1 agonists were received by the European Medicines Agency regarding the association with depression, warranting further investigations.⁶ Tobaiqy et al.⁷ stated that although psychiatric adverse events constitute only 1.2% of the total reports for semaglutide, liraglutide, and tripeptide. However, the severity and fatality rates in some reports require further assessment. On the other hand, existing evidence suggests that GLP-1 RAs could be of value in treating psychiatric disorders, including depression, major neurocognitive disorders, and alcohol use disorders.^{8,9}

Evidence of food-noise improvement with GLP-1 agonist treatment is present. Food noise is a constant, persistent, insuppressible preoccupation with food, to the extent that patients feel their lives revolve around eating.¹⁰ Food noise and repetitive behavior are common features in hyperactive autistic spectrum disorder, which is a common disorder affecting 1/100 of children worldwide.¹¹ Insights from social media reported the association of GLP-1 agonists with behavioral addictions, including compulsive shopping, and various psychological disorders.¹²

We reported a case of a substantial improvement in depression symptomatology, intrusive thoughts, and food noise following tirzepatide use.

Case Report

A 34-year-old Saudi female patient, a single teacher with a Master of Arts in Translation. She is the second of healthy parents and was diagnosed with depression in 2020 and started sertraline without improvement. Then she showed some improvement on fluoxetine, she reported food obsessions in the form of food noise and intrusive thoughts, she spends almost 10 hours/day thinking about which items of food she would like to eat during that day. In addition, she had very severe thoughts about hurting herself or other people, for example, jumping in front of the train, while

on fluoxetine, she still experienced frequent and severe bouts of low mood. This patient was also diagnosed with paranoia and reports of an impulse to spend more money on shopping.

The Patient Experience before Mounjaro, in Her Own Words

"I was overweight for as long as I can remember. And I have been feeling sad (depressed) since I was a pre-teen. I was prescribed Sertraline for over a year, and the only difference was complete numbness and fatigue. In 2023, I started on Fluoxetine and began to see a difference in my mood. I am still me, and I can finally function, but fatigue persists".

Six months previously, the patient started on tirzepatide 10 mg per day for morbid obesity; her body mass index (BMI) was 49, her weight was 123, and her Height was 157. The patient showed substantial improvement in depression, food noise, and intrusive thoughts.

The Patient Feelings following Mounjaro

"Months ago, I had to start Mounjaro because of my obesity, which started to affect my knees, so I had to take Mounjaro as a way to kickstart my weight loss journey. I noticed that Mounjaro hushed the voices in my head that had driven me to spend hours on end browsing food apps to see what I could eat. I didn't realize how much energy, time, and thought I was putting into choosing a meal. That's why I developed a habit of eating once a day, late at night, and in large quantities. Food noise almost completely disappeared.

Another major thing I noticed while taking Mounjaro was how easily I could identify intrusive thoughts and shush them out quickly, like never before. And the frequency with which I have these intrusive thoughts also differed. Intrusive thoughts are a rare occurrence. In relation to depression, while on Mounjaro, my depressive episodes are shorter than before and occur less frequently as well. Before, even on medication, I would still have periods of bad mood, fatigue, and dissociation for weeks or a month. Now they are far and few between, and maybe it's related to my cycle. Normally, ovulation periods and PMS are the worst.

I use Mounjaro now less as a weight loss drug and more as a mood stabilizer that helps my mind rest a bit and not waste time over what meal to eat next."

She is now following up at the family medicine clinic on tirzepatide (Mounjaro) and fluoxetine. Her current body mass index is 44. Importantly, the patient reported no body image distortion or guilt regarding her high body mass index. The fluoxetine dose was not escalated.

Discussion

We reported a case of improving food noise, obsession, and intrusive thoughts with tirzepatide (Mounjaro). Our findings were similar to Järvinen et al.,¹³ who reported an improvement in severe obsessive food craving in a patient with hyperactive autistic spectrum disorder treated with liraglutide 2.4mg/day. There is an increasing awareness about the role of GLP-1 agonists in decreasing food-compulsive eating and addiction.¹⁴ GLP-1 agonists were shown to affect cognitive processes and influence the reward process in the

brain to influence various addictive behaviors, including alcohol dependence and recreational drug abuse.¹⁵

Hindbrain GLP-1 neurons, located primarily in the nucleus of the solitary tract, project directly to forebrain regions, including the paraventricular nucleus and other areas of the hypothalamus, to regulate satiety and suppress food-seeking behavior.^{16,17}

Dysfunction in cortico-striatal-thalamic circuits mediates executive functioning, and poor behavioral inhibition was observed in patients with obsessive-compulsive disorder and hyperactivity.

A recent case report suggested the association of semaglutide with depression.¹⁸ However, the case reported a male patient with a previous episode of depression, suggesting that his depressive symptomatology could be a relapse of previous depression. In addition, our patient is not a case of depression, but depression and compulsive disorder. Furthermore, we used tirzepatide, a dual-acting medication that stimulates both the GIP and GLP-1 receptors.

While gut enteroendocrine cells and brainstem preproglucagon (PPG) neurons both produce GLP-1, they regulate feeding via independent mechanisms. Optogenetic or chemogenetic activation of PPG neurons in the nucleus tractus solitarius profoundly suppresses eating and promotes satiation.¹⁹

The restricted and repetitive patterns of behavior in autism and obsessive-compulsive disorder share various features, including ritualized patterns of verbal and nonverbal behavior, highly restrictive routine, and resistance to change. Therefore, the diagnosis is extremely challenging and leads to overdiagnosis of obsessive-compulsive disorders among patients with autism.²⁰

The American Psychiatric Association included restrictive behavior as a criterion for autism diagnosis. Repetitive behavior in patients with autism appears similar to arranging, ordering, and cleaning in compulsive disorders.²¹ Importantly, 17.4% of patients with obsessive-compulsive disorders had autism. However, they are usually underdiagnosed due to phenotypical similarities.²² Jiujias et al.²³ hypothesized that obsessions initiate anxiety and compulsions relieve anxiety; therefore, there is a bidirectional relationship. The relationship between anxiety and repetitive behavior in Autism is unclear. More differences between OCD and autism are in sensory processing and executive functioning. The accurate diagnosis of repetitive behavior in autism and OCD is highly important for the introduction of the treatment for a better outcome.²⁴

Although antidepressant, antipsychotic, and stimulant drugs are used to treat autism with some success. However, they do not fully reverse all the symptoms of autism spectrum disorders. In addition, autism spectrum disorders are associated with other metabolic disorders, including diabetes and obesity.²⁵ Therefore, drugs that address all the behavioral and metabolic disorders, like GLP-1 agonists, are attractive.

Although the effects of GLP-1 agonists on mood disorders showed mixed results, the evidence was based on observational studies.²⁶ Our report is important because it is the second case report in the literature to show the substantial

improvement of compulsive/obsessive behavior and depression in a patient with morbid obesity. Therefore, GLP-1 agonists should be thought of as a treatment for patients with obsession/depression, in particular, food noise and intrusive thoughts.

Conclusion

Tirzepatide (Mounjaro) alleviates repetitive behavior and food noise in a patient with autism/obsessive-compulsive disorders. GLP-1 agonists could be considered a treatment for patients with high body mass index and repetitive behavior. Further larger studies investigating different GLP-1 agonists and doses are highly recommended.

Ethical Considerations

The patient provided written informed consent to publish case-associated data without identifying details.

Author Contribution Statement

The author confirms sole responsibility for the conception, design, and writing of the manuscript.

Conflict of Interest

The author has declared no conflict of interest.

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