

CASE REPORT

The Challenges in Treating Obesity Patients with Major Depressive Disorder (MDD) Treatment: a Case Report


Tantangan Pengobatan Pasien Obesitas Pada Terapi Gangguan Depresi Mayor (MDD): Laporan Kasus


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ABSTRACT

Depression and obesity are two disorders that profoundly impact worldwide health. This is primarily because of their high occurrence, which is linked to both illness and death. Obesity increases the likelihood of developing depression and vice versa. The susceptibility to depression in individuals with obesity implies the existence of linked mechanisms between both conditions, although the molecular processes involved are not well comprehended. We describe a 28-year-old man who sought help from a dietitian or nutrition specialist to address weight gain that occurred after he began taking medication for his major depressive disorder (MDD) three years ago. This case study aims to address the challenges of treating obesity in patients with major depressive disorder (MDD) treatment.

Keywords: depression; MDD medication; obesity

ABSTRAK

Depresi dan obesitas adalah dua gangguan penyakit yang sangat berdampak pada kesehatan dunia. Hal ini terutama disebabkan oleh tingginya angka kejadian kedua gangguan tersebut, yang berhubungan juga dengan angka kesakitan dan kematian. Obesitas meningkatkan kemungkinan terjadinya depresi dan sebaliknya. Kerentanan obesitas terhadap gangguan depresi menyiratkan adanya mekanisme terkait antara kedua kondisi tersebut, meskipun proses molekuler yang terlibat belum dipahami dengan baik. Kami menggambarkan seorang pria berusia 28 tahun yang mencari bantuan ke spesialis gizi untuk mengatasi penambahan berat badan yang terjadi setelah dia mulai mengonsumsi obat untuk gangguan depresi mayor (MDD) tiga tahun lalu. Studi kasus ini bertujuan untuk membahas tantangan dalam mengobati pasien obesitas dalam terapi gangguan depresi mayor (MDD).

Kata Kunci: depresi; pengobatan MDD; obesitas

INTRODUCTION

Over 340 million people worldwide currently suffer from major depressive disorder (MDD). The World Health Organization predicts that Major Depressive Disorder (MDD) will become the most significant worldwide health burden and escalate into a public health emergency by 2030.^{1,2} Worldwide, 39% of adults are overweight, 13% are obese, and over 264 million people of all ages have depression.³ Obesity and depression affect a significant portion of the population. It is believed that the immunological and endocrine systems, along with psychological and social factors, play a role in both of those disorders.⁴ Obesity and depression had a bidirectional relationship: obese individuals had a 55% chance of having depression, while individuals with depression had a 58% probability of developing obesity. Furthermore, the correlation between obesity and depression was stronger compared to the correlation between overweight and depression.²

CASE REPORT

A 28-year-old male sought the expertise of a nutrition specialist to achieve weight loss. Anamnesis indicates that he has been experiencing depression for the past three years, stemming from challenges he faced throughout his studies at the medical faculty. He was disheartened due to his family's expectation for him to pursue a career in medicine.

However, he visited a psychiatrist irregularly, and he lacked family support throughout his treatment. He only consulted his psychiatrist when his mental well-being was declining or he faced major challenges. Besides not following the treatment plan, the patient also worried about the drug's side effects, as he has experienced weight gain since he started medications for his major depression disorder (MDD) treatment. Before he started his MDD treatment, his nutritional status was already overweight.

The patient received treatment for his depression with antidepressants and atypical antipsychotics. The medications prescribed for the patient were Vortioxetine at a dosage of 10 mg per day and Quetiapine at a dosage of 100 mg per day. Since starting the medication for his depression, the patient has experienced an increase in appetite and body weight. This makes him often eat at restaurants or order food through delivery services to overcome the increase in his appetite. The main meal and 1-2 snacks were eaten three times daily. Most meals and snacks are calorie-dense and high in fat. The food consumption research varied from 3,000 to 4,000 calories daily.

Regarding his physical activity level, the patient is considered to have a sedentary lifestyle with minimal physical activity. During his initial visit to the dietitian, he weighed 150 kg and height of 186 cm, resulting in an obese and morbid classification with a BMI of 43.36 kg/m². Nutritional guidance from the dietitian includes a personalized meal schedule, food choices, portion sizes, and timing of meals. The dietitian recommended that the patient engage in 30-minute walks five times each week. She suggests using a low-dose combination of diethylpropion and or listat. After 6 months of treatment, the patient had weight reduction (about 12 kg), but he did not return to his dietitian regularly anymore. The patient did not routinely consult his dietitian because he felt that his weight

had decreased and he thought that he could control his diet. In addition, he felt that his depression was getting better.

DISCUSSION

Major depressive disorder is often identified by changes in appetite and weight, with some individuals experiencing increased appetites and others experiencing decreased appetites. This might be caused by mood changes, or it could also be caused by the effects of antidepressant medicine to overcome their depression. The brain regions responsible for experiencing pleasure from food are linked to depression.⁵ MDD is often linked with weight reduction, but MDD with atypical characteristics (MDD-AF) is defined by subsequent weight gain, increased hunger, and obesity.^{1,2}

The transition from losing weight to gaining weight in depressed patients can be seen. Weight loss can occur because some depression patients tend to lose their appetites. On the other side, many of them would increase their appetites when they felt depressed. One potential explanation is that individuals with depression may turn to “comfort foods” (often high in fat and sugar) for solace or to improve their mood. Recent pilot investigations indicate a correlation between a liking for sweet taste and depression in obese individuals.⁶

Obesity and major depressive disorder (MDD) are closely linked and important health conditions. Obesity increases the likelihood of major depressive disorder (MDD), while depression with atypical features (MDD-AF) contributes to obesity.^{7,8} A substantial fraction of the population experiences both obesity and depression simultaneously. An obesity study revealed a 55% increased likelihood of lifetime depression in obese individuals and a 58% higher chance of developing obesity in people with depression compared to the general population.⁸ Various factors, including biological, psychological, and behavioral aspects, can impact the intricate relationship between depression and obesity.⁹

The connection between the two conditions involves the immunological and endocrine systems, as well as psychological and social factors, which play a role in maintaining the two-way relationship.^{4,9} Depression and obesity, are both associated with the dysregulation of stress responses, particularly those involving the hypothalamic-pituitary-adrenal (HPA) axis. Adrenocorticotropin Releasing Hormone (ACTH) is made in the brain by the Corticotropin Releasing Factor (CRF). This hormone tells the adrenal gland to release glucocorticoids. Glucocorticoids have a negative feedback effect on their receptors, inhibiting ACTH and CRF synthesis. The obesity epidemic could be significantly influenced by the activation of the HPA axis due to elevated stress levels and easy access to high-calorie foods. Various physiological systems, such as the hypothalamus, pituitary adrenal axis, gonadal, growth hormone, leptin, sympathetic nervous system, and adrenergic, dopaminergic, and serotonergic central pathways, appear to be interrelated and have a role in obesity.¹⁰

Major depression, a high-stress condition, leads to weight gain by increasing the production of the key stress hormone cortisol, which elevates blood sugar levels.¹¹ Cortisol significantly influences the body's normal physiological functions by increasing blood sugar levels.¹² Twelve studies have demonstrated that activating hypothalamic serotonin receptors decreases an individual's consumption of dietary protein and fat rather than carbohydrates, depending on their propensity.

The patient was prescribed Vortioxetine at a dosage of 10 mg/day and Quetiapine at a dosage of 100 mg/day for his depression. Vortioxetine is a novel multimodal atypical antidepressant belonging to the class of Selective Serotonin Reuptake Inhibitors (SSRIs) for Major Depressive Disorder (MDD), with a recommended dosage range of 5–20 mg/day. Vortioxetine exerts its therapeutic effects by inhibiting serotonin transporters and directly modulating serotonin receptor activation.¹³ Studies demonstrated that activating serotonin receptors in the hypothalamus decreases the consumption of protein and fat in the diet, rather than carbs. The impact of each SSRI and Serotonin Norepinephrine Reuptake Inhibitors (SNRIs) on body weight varies because of their different levels of influence on the serotonergic, noradrenergic, dopaminergic, and histaminergic systems. SSRIs and SNRIs were linked to a minor weight loss in the short run and a weight increase in the long run.¹⁴

Meanwhile, Quetiapine, a second-generation antipsychotic, can be used as a supplement or adjuvant treatment for MDD, with the dose ranges from 50 to 300 mg daily with the immediate release (IR) form and 150 to 300 mg daily with the extended-release (ER) form, using similar titration schedules to a maximum of 300 mg daily. And this patient was given 100 mg of Quetiapine once a day by his psychiatrist. Preclinical studies have shown that atypical antipsychotics like Quetiapine may enhance the action and the therapeutic effect of the SSRIs, and it was found that depression patients who were treated with an atypical antipsychotic were more likely to experience remission or clinical response compared to those who received adjunctive placebo. On the other side, Quetiapine is also linked to short- and long-term side effects such as weight gain, altered lipid profile, and raised glucose levels. The average weight increase was 0.9 kg during 6 to 8 weeks of therapy.¹⁵ This was also the cause of the patient non-compliance while he undergoing depression therapy after he realized that he was gaining weight.

He also did not comply with the treatment plan that was already devised by his psychiatrist when he felt better, and the patient is also worried about the drug's side effects, as he has experienced weight gain since he began the medicine. However, when attempting to receive therapy from a dietician, the patient did not consistently follow the advice. The patient's treatment was unsuccessful due to his noncompliance with the therapeutic regimen prescribed by his psychiatrist and dietitian, as well as insufficient support from his family.^{16,17} The patient consulted his psychiatrist only when he felt very depressed or when he faced many problems. Besides that, he did not compile the treatment plan that was already devised by his psychiatrist when he felt better, and he worried about the side effects of his medication since he experienced weight gain after he started his depression treatment. However, when attempting to receive therapy from his dietitian, the patient did not consistently follow the advice. The patient's treatment was unsuccessful due to his non-compliance with the therapeutic regimen prescribed by his psychiatrist and dietitian, as well as a lack of support from his family with his problems.^{16,17}

The co-occurrence of depression and obesity (including obesity caused by medication's side effects) at the clinical level results in considerable suffering for the particular patient. This problem has substantial clinical ramifications since it may hinder the treatment of each ailment individually.⁴

Therefore, engaging in consistent exercise and undergoing psychotherapy, specifically cognitive behavioral therapy and interpersonal psychotherapy, including dietary changes resulting in weight loss can enhance mood ratings in obese patients with both clinical and subclinical

depression.⁴ An integrated approach to addressing obesity and depression is necessary for the growing number of individuals experiencing both conditions. Family support is also crucial for maintaining mental well-being, providing both direct advantages from familial connections and indirect protection against stressful situations.^{16,17} Collaboration between psychiatrists and dietitians is also crucial for achieving optimal therapeutic outcomes for individuals with obesity and depression.

CONCLUSION

Depression and obesity are two prevalent disorders with a substantial influence on worldwide health and are closely linked and important health conditions. Various factors, including biological, psychological, and behavioral aspects, can impact the intricate relationship between depression and obesity, and play a role in maintaining the two-way relationship.

Interactions between modern antidepressants and newer antipsychotic medications are often significant in clinical practice. Weight gain is a common side effect of antidepressants and antipsychotics. Therefore, it is crucial to educate patients about drug side effects, hunger regulation, the importance of family support, and regular exercise from the start of treatment for depression and obesity. It is also crucial for psychiatrists and dietitians to collaborate to get the best therapeutic outcomes for patients with obesity and depression.

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AUTHORS CONTRIBUTION

EI and VS reviewed the results and approved the final version of the manuscript.

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CONFLICT OF INTEREST

The authors declare that the case report was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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