

Bupropion-Related Weight Gain in a Fresh Depression Patient

To the Editor: Bupropion is well-known for the characteristics of less significant impact on the body weight and even with weight-loss effects.¹ It is seldom reported with body weight gain (BWG) side effects. However, we want to share a fresh depression patient with significant BWG after using bupropion within 1 month.

Case Report

Miss L is a first-episode medication-naïve case with major depressive disorder (MDD) for 2–3 months. The MDD symptoms included depressed mood, hopelessness, worthlessness, inattention, fatigue, suicide ideation, and insomnia [Hamilton Rating Scales for Depression (HDRS) scores: 26; body mass index (BMI): 21.29, body weight: 35 kg]. The previous average body weight was also around 35 kg. No concurrent substance abuse or medical illness was noted. She started to receive bupropion 150 mg/day and the dose was increased to 300 mg/day within 1 week because of significant MDD symptoms (HDRS scores: 25). Her symptoms improved significantly but with major BWG side effects (HDRS scores: 12; BMI: 23.97; body weight: 46 kg) after 1-month treatment of bupropion. No binge eating behaviors were mentioned. She worried much about BWG side effects and requested antidepressant medication. After clarification and reassurance, she could accept to maintain bupropion and the body weight still kept the same (BMI:

23.97; body weight: 46 kg) in the following 3 months. Because of remission in MDD (HDRS scores: 5), she stopped medication gradually with similar BWG profile (BMI: 23.76; body weight: 45 kg).

Discussion

Bupropion has various results of body weight profile as shown in several studies.^{1–5} Gadde et al. reported that obese subjects will have average body weight loss of around 12.9% after bupropion treatment for 24 weeks and fat loss accounted for the 73.5% of body weight loss.⁴ Anderson et al. also reported similar results with an average 10.1% loss of body weight after 48 weeks of bupropion therapy.¹ In a 52-week double-blind trial of bupropion in MDD, higher baseline body weight showed more significant body weight loss after remission.³ However, a study of bupropion in smoking cessation showed the advantages as minimum average BWG of 0.2 kg and lack of emergent depressive episodes.² To our knowledge, this is the first case report of such significant BWG in MDD. We hypothesized that bupropion might increase our patient's body weight because of her relatively low baseline body weight. Bupropion is a dual reuptake inhibitor of norepinephrine and dopamine.⁶ Treatment with bupropion might increase dopamine in this patient, which can produce significant improvements in MDD and might increase the desire or motivation for food intake.⁷ Lower dopamine level in cerebrospinal fluid, genotype polymorphism of dopamine D2 receptors, and abnormal dopamine binding in striatum might also be related to low body weight.⁸ A

novel neuroimaging study showed that dopamine might enhance the responsivity of reward circuitry to food in several specific genotype polymorphism of dopamine D2 and D4 receptors.⁹ The restoration of brain dopamine with the use of bupropion and the possible unique polymorphism might play a role in BWG side effects in this patient. The possible gene–pharmacology interaction might explain the unique finding. However, more subjects with similar symptoms need to be recruited for further complete surveys to confirm our hypothesis.

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