

## A Case of Profound Weight Loss Secondary to use of Reboxetine

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### Abstract

Reboxetine is a selective norepinephrine re-uptake inhibitor used in the treatment of depression. The studies testing the effects of reboxetine on body weight have demonstrated that reboxetine reduces body weight and reboxetine found to be superior to placebo in reducing antipsychotic-induced weight gain. To date there are only a few cases in the literature of reboxetine use in adults resulting in profound weight loss. We present an unusual case report of a patient who experienced a marked weight loss with reboxetine treatment, regained weight after its withdrawal and experienced marked weight loss after re-challenge with reboxetine.

**Keywords:** Depression; Reboxetine; Weight loss; Adverse effect

### Introduction

Reboxetine, the first selective norepinephrine re-uptake inhibitor used in the treatment of depression, mainly acts by binding to the norepinephrine transporter and blocking re-uptake of extracellular norepinephrine [1]. Increase in the appetite and weight gain are major problems in most of the psychiatric disorders either as a symptom or as a drug induced side effect. Most of the patients blame the psychiatric agents for weight gain and quit their medications without consulting with their attending physicians. This condition, impairs the adherence to the treatment, leading to many untreated psychiatric patients in our environment and this situation causes major social problems.

Although reboxetine is marketed as a norepinephrine re-uptake inhibitor, this agent serves as a catabolic enhancer as well. In controlled studies reboxetine was found to be superior to placebo in reducing antipsychotic-induced weight gain [2,3]. The studies testing the effects of reboxetine on body weight have demonstrated that reboxetine reduces body weight [4]. However there are only a few cases in the literature of reboxetine use in adults resulting in profound weight loss [5]. We present an unusual case report of a patient who experienced a marked weight loss with reboxetine treatment, regained weight after its withdrawal and experienced marked weight loss after re-challenge with reboxetine.

### Case Report

A 16-year-old lady was referred with recurrent depression in October 2012 to our private practice psychiatric clinic. She was a student in high school. She had symptoms of depression including anhedonia, excessive sleeping, attention and concentration difficulties. Recently she felt unhappy, demotivated to study for her university entrance examinations, her appetite was high, and she had social interaction problems. Initial examination revealed an overweight female with depressive affect and mood. She had a body weight of 92 kg and a height of 170 cm. (body mass index (BMI): 31.8-[moderately obese]). Past medical history was negative. She was a non-smoker, non-drinker, and had no known allergies. Her dietary history was

unremarkable. She did not suffer from abnormal eating behaviour. Her intellectual level was brilliant and she was successful in school. Her relationship with her mother and father was poor however her family did not have any serious marital or other problems. Initial laboratory results including full blood count, electrolytes, amylase, and liver function tests were normal.

She was diagnosed as a major depression case and reboxetine (8 mg, t.i.d., per os) was prescribed. Soon afterwards, progressive weight loss was observed, 2 kg every 2 weeks. The patient reported loss of appetite and a decrease in her body weight in the first week of reboxetine treatment. Since she wanted to loose weight, she was grateful for the loss of appetite. As reboxetine treatment continued, her depressive symptoms and attention-concentration difficulties improved dramatically, HADS score decreased to 7 after first month of treatment. During this time she kept up three meals per day, but ate little due to loss of appetite. She did not vomit or feel nauseated.

Since she wanted to loose weight and refused to discontinue reboxetine, she was referred to other clinics to exclude organic causes for the marked weight loss. Several investigations were performed by the referred centers. All laboratory tests including full blood count, electrolytes, amylase, thyroid function tests, a short synacthen test, and liver function tests were normal. Results of serologic tests for hepatitis A, B and C were negative. HIV antibody and purified protein derivative of tuberculosis examinations were negative. Anti-smooth-muscle, anti-nuclear and anti-mitochondrial anti-bodies were absent. The serum protein electrophoresis result was normal. Serum ceruloplasmin and ax-1-antitrypsin levels were normal. Findings of abdominal-pelvic and breast ultrasound were normal.

Her weight decreased dramatically from a baseline of 92.0 kg to 79.0 kg between October 2012 and June 2013. On June 2013, she was persuaded to a supervised withdrawal of reboxetine, to observe weight status without reboxetine. When the reboxetine prescription ceased, a gradual weight gain ensued, her body weight increased to 85 kg within 6 weeks. Because of her depressive symptoms restarted and she preferred the reboxetine for antidepressant and weight control effect, reboxetine (8 mg, t.i.d., per os) was reintroduced in September 2013. She had loss of appetite and began to loose weight again. Her body weight

decreased to 65.0 kg and her BMI decreased to 22.5 (normal weight) in January 2014.

## Discussion

The loss of body weight during reboxetine therapy has been reported in studies in patients who used antipsychotics. 2,3 Reboxetine implicated in the regulation of eating behaviour and appetite control and used in the treatment of eating disorders particularly for bulimia nervosa [6].

In the present case, reboxetine treatment correlated with a significant weight loss and reboxetine withdrawal was associated with weight gain and in the follow up, re-challenging with this drug resulted in marked weight loss. Therefore we suggest that there was a strong relationship between reboxetine usage and reduction in weight. However weight loss induced by reboxetine in this patient cannot be explained precisely. The change of body weight in this case is not similar to the general reports in degree and duration of the results [2-4]. As in most reports, the exact reasons for weight loss with reboxetine are unclear, but severe weight loss with short-term use of reboxetine suggests that unknown, peculiar, or more complex mechanisms could have affected this patient. Several possible mechanisms could be suggested for the effects of reboxetine on body weight [4]. One possible mechanism is the drug's ability to partially inhibit serotonin re-uptake in the central nervous system that has been implicated in the regulation of eating behaviour and appetite control [4,6]. The administration of reboxetine may have an effect on the food intake through anorectic activity as in the present case that this woman's eating habit changed due to anorectic effect and her desire to loose weight. Also, changes in the composition of food may be a cause [7] Furthermore concomitant gastrointestinal disorders, including inflammatory bowel disease, colonic ulceration, and chronic intestinal disorders of digestion or absorption, may be one of the possible mechanisms of weight loss [8], but there were no specific clinical findings associated with malabsorption in this patient's past medical history and during reboxetine medication.

There are reports of weight loss and/or anorexia associated with reboxetine in the World Health Organization database. However, there is no information about the exact sequence of events in these reports. 5 Similar to our case, Lu et al. [5] report a case of significant weight loss experienced by a 44-year-old woman treated with reboxetine. However

their reported case had a number of comorbid medical disorders including chronic hepatitis C infection, rheumatoid arthritis, gastroesophageal reflux disease, and hypertension. Also there was comedication of hydroxychloroquine, rabeprazole, felodipine and lamotrigine with reboxetine. In present case there was no comorbid medical disorder and she was not using any other drug.

In summary, the profound weight loss associated with reboxetine use highlights the effects of reboxetine on body weight. Caution is needed in reboxetine treated nonobese patients. Further evaluations are required to define the exact roles of reboxetine on biochemical metabolism and body weight. Studies are needed that document the time course and sustainability of weight loss over longer periods of time.

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