“Doc, My Anxiety is Back, and It’s Worse than Ever”

Rasha El Kady, MD; and Balkozar Adam, MD

A 35-year-old woman with a history of anxiety disorder not otherwise specified, as well as adult onset attention-deficit/hyperactivity disorder, presented with excessive worrying, restlessness, continuous fidgeting, easy fatigability, thought blocking, difficulty staying asleep, and reports that her mind “goes blank” several times a day. Her anxiety, which had been under control 6 months prior, was so bad that she could not keep track of things and ended up paying the same bills several times. No other symptoms of mania, depression, or psychosis were reported.

She was taking 200 mg/day of sertraline and 10 mg of buspirone 3 times daily, which had a minimal positive effect on her anxiety. During a follow-up visit, her husband stated that “she was fine until she started that B-HCG diet.” The patient had not disclosed that she was on this diet, despite being asked dietary questions, possibly because she was losing weight on the diet. After some initial resistance, she agreed to stop the beta-human chorionic gonadotropin (B-HCG) injections. A follow-up appointment showed significant improvement in her anxiety symptoms and no significant change in her weight.

**Substance-Induced Anxiety Disorder**

**DIAGNOSIS**

**DISCUSSION**

With the rise of obesity in the United States, dieting fads are becoming increasingly common. American culture’s emphasis on body image and the pressures to conform to it often lead to a willingness to try anything to lose weight. Introduced in the 1950s by British endocrinologist Dr. Albert Simeons, the B-HCG diet is one such fad. Simeons proposed this diet after observing men who were treated with HCG for Frolich’s syndrome (a rare metabolic syndrome causing obesity, growth retardation, and hypogonadism). Simeons noticed that these men lost their ravenous appetite and noticed redistribution of their body fat.2-4 In pregnancy, Simeons suggested that HCG prevents the formation of abnormal fat deposits in order to maintain maternal blood saturated with nutrients to provide adequate caloric requirement for fetal growth.4,5

The diet consists of the intramuscular injection of 125 IUs of B-HCG 6 times per week for a total of 40 injections. The injections are to be accompanied by a 500-calorie daily diet (that is low in carbohydrates and high in proteins) divided into two meals per day.6,7

Simeons claimed that HCG exerts an effect on the hypothalamus to decrease hunger and promote fat distribution from “the more favored sites”.3,4,8 Supporters of the diet claim that it improves the general well-being of participants in a way that allows them to comfortably adhere to the 500-calorie diet without feeling weak or hungry. They also claim that HCG mobilizes stored fat, suppresses appetite, and redistributes fat from the waist, hips, and thighs.3,7,9,11
The US Food and Drug Administration (FDA) has warned consumers against the use of over-the-counter HCG products and labeled them as “unproven and illegal.” The FDA and Federal Trade Commission issued 7 letters to companies warning them about selling illegal HCG products.\(^5,12,13\) Yet, HCG products are still easily available to the public online in the form of lozenges, pellets, and homeopathic drops.

An extensive literature search suggested that HCG therapy is linked to multiple adverse effects including headache, insomnia, restlessness, fatigue, mania, delirium, deep vein thrombosis and pulmonary embolism, aggressive behavior, hair loss, hypoglycemia, and gout.\(^1,5,8,14\)

In fact, a previous literature search proposed that weight loss associated with HCG diet is merely caused by the severe caloric restriction,\(^2,7\) and that HCG injections were not superior to placebo for weight loss.\(^6,14,15\)

Literature reviews regarding the relationship between anxiety and the HCG diet are limited. To our knowledge, no well-defined study has been conducted to assess the psychological effects of a B-HCG diet or the mechanism by which HCG diet can affect mood or anxiety. Previous research suggested that female reproductive hormones affect mood, behavior, and functioning of the stress system.\(^8,16\) Also, a daily diet of 500 calories is simply not sustainable.

Greenway and Bray\(^15\) have performed a double-blind, randomized study using B-HCG injections or placebo (HCG dilutent). They enrolled 20 participants in each group and used multiple affective checklist to assess their hunger, anxiety, hostility and depression. There was no significant difference in any of these items except for higher anxiety scales in the B-HCG group before treatment. Another double-blind randomized prospective study was done by Stein et al.,\(^6\) which included 51 women and also compared HCG versus placebo. There were no significant difference in weight loss, fat distribution or hunger ratings between the two groups.

**CONCLUSION**

This case report suggests a possible association between the use of B-HCG injections and worsening of anxiety in a patient whose anxiety had been previously well controlled. We do not have enough evidence to confirm a causal relationship. This case report brings to light the limited data available on the adverse effects of B-HCG diet and its safety. Taken together, these factors all point to a strong need for more investigation in this area.

**REFERENCES**