

Case Report

Red Bull and Mania

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Abstract

Background: Energy drinks are promoted for their stimulant effects including increased attention, performance and endurance. However, recent reports have raised concerns about their use in children and youth.

Case presentation: In this case report I describe a case of a young man with no previous psychiatric history who was involuntarily hospitalized for severe manic symptoms following the heavy use of Red Bull.

Conclusion: To my knowledge, this is the first case report describing the onset of mania following the ingestion of Red Bull. Clinicians should incorporate questions regarding the use of energy drinks in the routine assessment of young individuals presenting with mania (*German J Psychiatry* 2010; 13(4): 178-180).

Keywords: Drugs, mania, mental health, psychiatry, substance use

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Introduction

In a recent editorial in the CMAJ, MacDonald and colleagues (2010) alerted physicians to the risks associated with the use of energy drinks particularly in children and youth. The energy drink market has grown exponentially since Red Bull was first introduced in Austria in 1987 and in the U.S. in 1997. Energy drinks are promoted for their stimulant effects including increased attention, performance and endurance. Caffeine, the main active ingredient of energy drinks varies in amount and concentration in various drinks but can be as high as 550 mg in a 24 oz can (Winston et al., 2005). Consumption of energy drinks has been linked to caffeine intoxication—a syndrome characterized by features including nervousness, anxiety, agitation, tremors, gastrointestinal upset, and tachycardia (American Psychiatric Association, 1994) Another common feature of caffeine toxicity is insomnia which is a known trigger of mania in vulnerable individuals (Plante & Winkelman, 2008). Here I describe a case of mania following the use of the energy drink “Red Bull”.

Case Presentation

A 32-year-old man was hospitalized involuntarily with a one-week history of decreased sleep requirement, hyperactivity, pressured speech, racing thoughts, delusions of grandiosity and paranoia, risk-taking behavior, and lack of insight. For example, he had made an impulsive decision to sell his house without consulting his fiancé who he was supposed to marry in a week. At work, he initially thought of himself as a “machine” that could make everyone happy, but he had become suddenly disillusioned with his job and threatened to quit because of alleged mistreatment by his employer.

There was no prior history of psychiatric illness with the exception of occasional ‘mood swings’, but these were transient and did not interfere with his level of functioning. There was also a history of episodic heavy use of alcohol during the previous couple of years, but he denied alcohol use in the three months preceding his hospitalization. He had smoked cocaine on a couple of occasions over the previous six months to enhance his work performance as a construction worker, but he denied using cocaine, any other

illicit drugs, or abuse of any over the counter compounds during the previous three months. He had no history of any major medical illnesses. Family history was positive for post-partum depression in his mother and an aunt, and his grandfather had died by suicide. There was no known family history of bipolar disorder.

When a younger colleague introduced the patient to Red Bull, four weeks prior to psychiatric hospitalization, he found in it a cheaper substitute for cocaine to enhance his productivity at work. He started drinking 1–2 cans a day but the consumption escalated quickly and he had been taking 6–8 large cans (550 mls per can) a day during the week preceding his hospitalization. According to his family, he had been working continuously and had gone without any sleep for four days prior to his hospitalization. He was also observed to have other signs suggestive of caffeine toxicity, such as restlessness, psychomotor agitation, excessive sweating and tremor.

On admission, he met the DSM-IV diagnostic criteria for substance-induced mood disorder with manic features. On the Young Mania Rating Scale (YMRS; Young et al., 1978), his score was 52 out of a maximum score of 60. On the Montgomery–Åsberg Depression Rating Scale (Montgomery & Åsberg, 1979) he scored 10 out of a maximum score of 60. These ratings signified rather severe mania. Urine drug screening for alcohol, salicylates and acetaminophen was negative in the emergency department. Unfortunately, cocaine and other illicit substances were not assessed in the drug screen.

Because of his aggressive and threatening behavior at the time of admission, he required the use of physical restraints. He was treated with olanzapine 10 mg daily that resulted in significant overall improvement. He was discharged from hospital after three days with a YMRS score of 8. He tapered off olanzapine a week later. When seen six weeks after his hospital discharge, he denied any further use of Red Bull and had been free of mood symptoms and working on a full time basis.

Discussion

In addition to caffeine, Red Bull has two other psychoactive ingredients, taurine and inositol. A 250 ml can of Red Bull drink has 80 mg of caffeine, 1 g taurine and 50 mg of inositol. Taurine is a sulfur amino acid that can induce psychotic episodes (Fekkes et al., 1994). Inositol is a naturally occurring compound found in substantial amounts in whole grains, cereals, legumes and nuts. Inositol administration has been linked to exacerbation of mania in patients with bipolar disorder (Levine et al., 1996). One of the proposed mechanisms of action of lithium and valproic acid in bipolar disorder is that these drugs act by reducing the brain concentrations of amino acids including taurine (O'Donnell et al., 2003). Lithium has also been hypothesized to alleviate mania by reducing brain inositol levels (Harwood, 2005). Thus, Red Bull has three active ingredients that can potentially trigger a manic episode.

Machado-Vieira and colleagues (2001) reported an acute manic episode associated with Red Bull in a patient with a DSM-IV diagnosis of bipolar I disorder who had been stable on lithium for 5 years prior to ingestion of Red Bull. This patient only consumed a total of six cans of Red Bull in a four day period in contrast to the rather heavy consumption of six cans of Red Bull daily in our patient. To my knowledge, this is the first case that describes the occurrence of mania following the heavy use of Red Bull. The temporal association of Red Bull and mania suggests that the energy drink may have played a triggering role in an individual with no prior psychiatric history, but a family history of mood disorders.

Conclusion

This case illustrates the importance of incorporating questions regarding substance use in the routine assessment of individuals presenting with an acute episode of mania. In substance-induced mood disorders, episodes are judged to be a consequence of a substance use/abuse, rather than the spontaneously occurring episodes in bipolar disorder. In general, the treatment of substance-induced mood disorder with manic features should follow the same guidelines as for the management of bipolar mania (Yatham et al., 2009). When patients are stabilized, they should be strongly encouraged to discontinue using the substance that lead to induction of mania.

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