A Case of Sedation Secondary to a Trial of Lisdexamfetamine

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The American Academy of Child and Adolescent Psychiatry[1] has endorsed stimulants and behavioral therapy as the mainstay treatment for attention-deficit/hyperactivity disorder (ADHD). Lisdexamfetamine dimesylate is a prodrug usually prescribed for the treatment of ADHD and binge-eating disorder. Common side effects include anorexia, decreased appetite, irritability, nausea, and insomnia.[2] We present the case of a 6-year-old boy diagnosed with ADHD who, when administered a trial of lisdexamfetamine, developed excessive daytime sleepiness (EDS).

Case Report

A 6-year-old boy in otherwise good health was referred to a partial hospital program (PHP) for symptoms of poor attention, lack of focus, and poor impulse control, all of which were assessed both at home and school. He was diagnosed with ADHD and oppositional defiant disorder (*DSM-5* criteria).

The stimulant-naive patient was prescribed lisdexamfetamine 20 mg in the morning. After initiating his first dose, he was noted to have sedation to the extent that he was unable to sustain conversation. He subsequently slept through the entire day at PHP. A detailed review of his clinical history, general physical examination, and vital signs was unremarkable. Nonetheless, the patient was difficult to arouse. A retrospective review of events was unremarkable. No changes in sleep routine, physical activity, or diet were identified other than initiation of the stimulant agent. His family confirmed that the patient was not taking any other medication.

After discussion with the patient's family, it was hypothesized that EDS could be a treatment-emergent adverse event (TEAE). The dose of lisdexamfetamine was reduced to 10 mg to enhance tolerability. On follow-up the next day, after taking the lower dose of medication, the patient was noted to have continued lethargy and fatigue. Lisdexamfetamine was discontinued due to a high suspicion of EDS as a TEAE.

On day 3 following discontinuation, the patient was observed to have reverted to his usual level of alertness. With consent from the family, methylphenidate was prescribed to treat symptoms of ADHD. No symptoms of EDS or lethargy were observed for over a week, and the patient maintained his usual sleep patterns, while improvement in symptoms of ADHD was noted.

Discussion

A prodrug of *d*-amphetamine, lisdexamfetamine, is theorized to exert its efficacy in treating ADHD by increasing concentrations of catecholamines, increasing the norepinephrine/dopamine deficit, and inhibiting reuptake and releasing monoamines from presynaptic terminals.[2] The secondary activating properties of stimulants are also frequently utilized in the treatment of narcolepsy, hypersomnia syndromes, and circadian rhythm sleep disorder.[3] Rebound hypersomnolence has been described as a period of compensatory sleep subsequent to amphetamine/methamphetamine-induced waking.[3] However, this phenomenon always follows a waking episode unlike that observed in this case. This case is the first, to our knowledge, describing EDS or hypersomnolence immediately after the first dose of a stimulant. The paradoxical reaction of EDS seems to be idiosyncratic in nature, although the packet insert of the medication mentions that 2% of the population may develop somnolence.[2] Other unusual adverse effects such as priapism were reported with lisdexamfetamine use.[4]

Clinicians are encouraged to report unusual TEAEs to increase the database for such events. Larger-scale studies controlling for confounding factors are necessary to establish a correlation between stimulant use and somnolence.

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REFERENCE

1. Pliszka S; AACAP Work Group on Quality Issues. Practice parameter for the assessment and treatment of children and adolescents with attention-deficit/hyperactivity disorder. *J Am Acad Child Adolesc Psychiatry*. 2007;46(7):894–921.
2. VYVANSE (lisdexamfetamine dimesylate). FDA website. www.fda.gov/medwatch. Accessed October 15, 2018.
3. Mignot EJM. A practical guide to the therapy of narcolepsy and hypersomnia syndromes. *Neurotherapeutics*. 2012;9(4):739–752.
4. Majeed MH, Ali AA, Mirza T. Frequent, spontaneous, prolonged penile erections in a 12-year-old boy after lisdexamfetamine use. *Prim Care Companion CNS Disord*. 2017;19(6):17l02139.

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