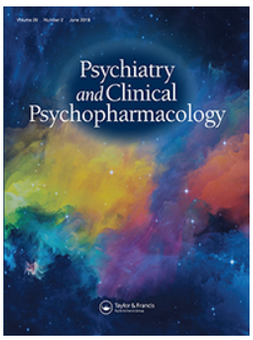

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CASE REPORT

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Probable emergence of symptoms of trichotillomania by atomoxetine: a case report

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ABSTRACT

Attention-deficit hyperactivity disorder (ADHD) is a common neurodevelopmental disorder in childhood. Atomoxetine is the first nonpsychostimulant agent approved by the Food and Drug Administration for the treatment of ADHD. Trichotillomania (TTM) is an obsessive-compulsive and related disorder characterized by a long-term urge that results in the pulling out of one's hair from any part of his/her body. Studies have implicated dopaminergic and serotonergic dysfunction in the aetiology of TTM. We report a male patient with ADHD developing of symptoms of TTM following atomoxetine use. Atomoxetine indirectly affects dopamine levels in the mesolimbic dopamine system, similarly to methylphenidate/amphetamine, and can thus lead to hair pulling behaviour. Further studies concerning the potential adverse effects of atomoxetine, such as the development of TTM, are now needed.

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KEYWORDS
Atomoxetine; trichotillomania; attention-deficit hyperactivity disorder

Introduction

Attention-deficit hyperactivity disorder (ADHD) is a common neurodevelopmental disorder in childhood with adverse impacts on school/work life involving symptoms of inattention and hyperactivity-impulsivity. Atomoxetine, the first nonpsychostimulant agent approved by the Food and Drug Administration (FDA) for the treatment of ADHD [1], increases norepinephrine levels in the synaptic space by inhibiting presynaptic reuptake and through an indirect effect on dopamine levels [2]. Trichotillomania (TTM), also known as hair-pulling disorder, is an obsessive-compulsive and related disorder characterized by a long-term urge that results in the pulling out of one's hair from any part of his/her body [3]. The most common site affected by TTM is the scalp. The other common regions are eyebrows, eyelashes, pubic area, face, and less frequently other body hair [4]. Usually, the disorder is chronic and leads to distress. Studies strongly support the role of serotonin and dopamine dysfunction in the pathophysiology of TTM [5]. A possible association between TTM and psychiatric medications, such as aripiprazole [6] and fluoxetine [7], has been reported. There are case reports of TTM associated with dopaminergic agents like stimulants [8–11]. There is a case report regarding children with ADHD presenting with atomoxetine-associated TTM by pulling hairs from the eyebrows [12]. We aimed to present a child male patient who was diagnosed with TTM by pulling hairs from the scalp during his treatment with atomoxetine.

Case presentation

A 9-year-old boy was the first of two children and was in the fourth year of school. He lived with his parents and sibling. He was brought by his parents to our outpatient clinic due to "inability to remain still, hyperactivity and forgetfulness". His parents were frequently told by teachers of his hyperactivity, compulsive talking, inability to sit still and failure to do homework and that he was sometimes fought with his friends and easily bored. His parents reported that he also displayed these symptoms in the home, that he would not sit still, did not do his homework, was hyperactive, jumping from one activity to another, could only sit still when playing with his tablet or watching television. They also stated that these symptoms had been present for a long time, but that they had decided to present to our clinic when the complaints from his school intensified.

The patient's examination findings were as follows: a male patient 135 cm in height and weighing 36 kg. He appeared well groomed with good hygiene, established eye contact, talked compulsively, and was hyperactive, restless, and impatient. He was alert and oriented time, place, and person. His speech was fluent and goal-directed. He had no experiences of hallucinations. He had no thoughts of delusions, paranoia, homicidal, or suicidal ideations. His ability to write and read was below average. He had poor attention and impulse control but good insight. He appeared to show no depressed or elevated mood.

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His history revealed that the pregnancy was normal, he was born on term weighing 3700 g and no complications occurred during delivery. The patient had no history of any systemic disease and other psychiatric disorder. In the family history, his cousin was also reported to be impatient and hyperactive. The Turkish versions of the Turgay DSM-IV-based Screening Scale for DSM-IV Disruptive Behaviour Disorders were used to evaluate the severity of his ADHD symptoms(the attention-deficit score was 22, the hyperactivity/impulsivity score was 23 [13]. The ADHD-combined presentation was diagnosed at psychiatric evaluation on the basis of DSM-5 diagnostic criteria. The clinical global impression-severity of illness (CGI-SI) score was 6. Psychoeducation, behaviour therapy, and atomoxetine (18 mg/day) were initiated following diagnosis. His family reported that six days after starting atomoxetine, that the patient began playing with the hair on the left vertex of his head and then pulling it out, resulting in hair loss in that area. His evaluation revealed hair pulling associated with hair loss. The patient had been both focused and automatic hair pulling, depending on the situation and emotion. The patient had no any pathology in dermatological examination except for hair loss due to symptoms of TTM. The patient received a probable diagnosis of TTM at subsequent evaluation. The Massachusetts General Hospital-Hair Pulling Scale score was 28 [14]. Seven days after starting medication, atomoxetine was stopped due to exacerbation of hair pulling behaviour, and vayarin (150 mg/day) therapy was started. His symptoms disappeared 3 days after cessation of atomoxetine. His Naranjo adverse drug reaction probability scale score was 7 for the drug [15]. It suggests a probable association between atomoxetine and emergence of symptoms of TTM. When the patient returned for a check-up 4 weeks later, we learned there had been no recurrence of symptoms of TTM, and no signs of tics and other obsessive-compulsive and related disorders following discontinuation of atomoxetine. At that last interview, no significant decrease occurred in his symptoms of ADHD, and vayarin was raised to 300 mg/day.

Discussion

We report a male patient with ADHD developing of symptoms of TTM following atomoxetine use. Although ADHD may be comorbid with TTM, there was no previous history of hair pulling behaviour in our case, and the symptoms developed only subsequently, and the condition resolved entirely following discontinuation of atomoxetine. For this reason, hair pulling was likely associated with atomoxetine in our case. Studies have implicated stressful life events [16], dopaminergic and serotonergic dysfunction in the aetiology of TTM [5]. But, a significant stressful life event was not detected in this case. Although SSRIs continue to be used for therapeutic purposes in cases of trichotillomania, the results from studies regarding its effectiveness are negative [17]. Indeed, trichotillomania was reported to develop in association with fluoxetine use in a 7-year-old boy [7], and exacerbation of trichotillomania symptoms with fluoxetine use was also reported in a girl of the same age to be [18].

The authors posit that fluoxetine may indirectly increase norepinephrine and dopamine release in the prefrontal cortex via 5HT1C antagonism [18]. The use of antipsychotic agents that block dopaminergic D2 receptors has been effective in the management of TTM patients [19]. But there is a case of TTM arising after receiving treatment with aripiprazole (5 mg/day) in a 16-year-old male patient with ADHD and conduct disorder [6]. The authors stated that aripiprazole may also act as an agonist rather than an antagonist at dopamine receptors of low doses [6]. Kara et al. reported that TTM developed in a 9-year-old male with 12 h of extended-release methylphenidate [11]. The other case report of TTM arising after receiving treatment with dextroamphetamine/amphetamine in a female patient with ADHD [9]. The development of compulsive behaviour has been found to be associated with dopamine therapy and dopaminergic mesolimbic stimulation [20]. The facilitating effect of stimulants on dopamine and serotonin neurotransmission is reported to be potentially important in the aetiology of compulsive behaviours such as hair pulling [20]. Akaltun et al. reported TTM developed in an 11-year-old male with atomoxetine [12]. Atomoxetine, a nonpsychostimulant agent, increases noradrenaline levels in the synaptic space by inhibiting presynaptic reuptake [2]. Atomoxetine indirectly affects dopamine levels [2] in the mesolimbic dopamine system, similarly to methylphenidate/amphetamine and can thus lead to hair pulling behaviour.

Although studies showed a high rate of ADHD among TTM patients as compared with the general population [21], there was no previous history of hair pulling behaviour in our case. However, the use of atomoxetine has become widely common in treating problems associated with ADHD, thus, this case report indicates that the need to monitor the possibility of TTM precipitated by atomoxetine is increasingly important.

In conclusion, further studies concerning the potential adverse effects of atomoxetine, such as the development of TTM, are now needed.

Disclosure statement

No potential conflict of interest was reported by the author.

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