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CASE REPORT



Trichotillomania treated with n-acetylcysteine

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ABSTRACT

Trichotillomania (TTM) is a disorder characterized by repetitive hair pulling resulting in hair loss and it is usually difficult to treat with a chronic course of illness. Currently, the selective serotonin reuptake inhibitors (SSRIs) are the most frequently prescribed drugs for adults with TTM. Various studies and case reports give mixed results. Therefore, the treatment effectiveness of SSRIs remains uncertain. There is a growing interest regarding the use of glutamatergic agents in obsessive compulsive disorder and obsessive compulsive spectrum disorder. Here, we report an 18-year-old female patient with TTM, which successfully treated with glutamate modulator n-acetylcysteine.

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Trichotillomania;
n-acetylcysteine; NAC;
hair pulling; treatment

Introduction

Trichotillomania (TTM) is a disorder characterized by repetitive hair pulling resulting in hair loss and it is usually difficult to treat with a chronic course of illness. Lifetime prevalence of the disorder ranges between 0.6–3.4% [1]. Traditionally, serotonin has been the main neurotransmitter implicated in the pathogenesis. Animal studies have shown that the depletion of serotonin leads to impulsive motor behaviour [2]. Activation of the serotonergic system using selective serotonin reuptake inhibitors (SSRIs) has been investigated as a treatment option for TTM. Currently, the SSRIs are the most frequently prescribed drugs for adults with TTM [3]. However, in a meta-analysis of pharmacological treatment studies, SSRIs were not found to have superior efficacy compared to placebo [4]. Various studies and case reports give mixed results. Therefore, the treatment effectiveness of SSRIs remains uncertain.

There is a growing interest regarding the use of glutamatergic agents in obsessive compulsive disorder (OCD) and obsessive compulsive spectrum disorder (OCSD) [5,6]. Recent studies demonstrating the efficacy of the glutamate modulator n-acetylcysteine (NAC), implies a potential role of the neurotransmitter glutamate in the pathogenesis of the TTM. Glutamate is the main excitatory neurotransmitter of the central nervous system and, it is known that an excessive amount of glutamate discharge leads to neuronal damage. It is hypothesized that a glutamate modulator such as NAC may alleviate TTM symptoms by achieving lower brain glutamate levels [6,7].

TTM affects patients' both life quality and functionality; not only by the time spent on the act of pulling

but also by the consequences of this behaviour. Due to being unable to stop this behaviour and their physical appearance getting worse, some patients may lose self-esteem and experience thoughts of guilt and shame. This is a case report defining TTM treated with NAC. Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Case

The patient is an 18-year-old high school student, a girl who lives with her parents and has been experiencing recurrent, irresistible urges to pull out hair from her scalp every day, particularly in stressful times, nearly for a year. On average, these urges and behaviours occupy her for almost an hour every day. When asked to elaborate upon her feelings and symptoms, she states that her behaviour occurs usually while she is watching television or studying, she usually feels tense before pulling out her hair and relieved immediately after; however, eventually, thoughts of guilt and regret appear on her mind. Due to being unable to resist these urges earlier, she says that she usually does not try to resist anymore. She continuously uses a bandanna during the day because she feels ashamed of her easily noticeable hair loss in the temple region (Figure 1). Between the urges, her hair loss, behavioural changes and the time spent on accompanying thoughts, she feels that her daily life and functionality is affected immensely by her symptoms. She leaves locks of hair around her room and home after pulling and unlike some cases, she does not swallow any of them.



Figure 1. Before the NAC treatment.

When asked about depressive and anxious symptoms that may accompany; she says that although not intense, from time to time she feels sad, pessimistic, anxious, and usually these feelings come after a hair-pulling act. To assess the severity of these symptoms, she was administered beck anxiety inventory (BAI) and beck depression inventory (BDI), and got 17 and 20, respectively. She had moderate symptoms of anxiety and depression. These symptoms began to emerge after she started studying for an important exam, about a year ago, and she started seeing a psychiatrist about 10 months ago. Fluoxetine was started and the dose was gradually increased to 40 mg/day. After initial treatment, although the amount of hair she was pulling decreased, her symptoms regarding the time spent, hair loss and accompanying thoughts were not affected noticeably. With ongoing symptoms, about a month ago, risperidone was started 0.5 mg/day. Her symptoms did not respond to risperidone as well, so she was referred to our Research and Education Hospital.

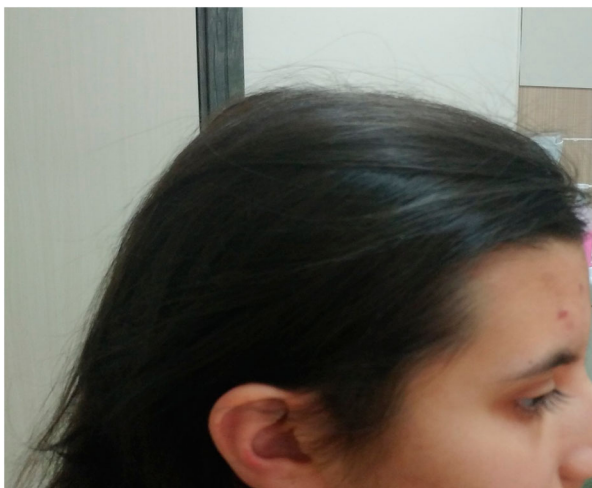


Figure 2. After the NAC treatment.

Considering her symptoms, psychiatric history, and clinical findings, she was diagnosed with TTM. Fluoxetine was continued due to partial response, but without an improvement in symptoms, risperidone was discontinued. With a daily dose of 1200 mg, water-soluble form NAC therapy was initiated, and a visit was scheduled for three weeks later. After three weeks, she stated that all the urges and behaviours related to hair pulling had stopped dramatically, and she could watch television or study without pulling her hair or thinking about it. Her mother confirmed this by saying that there had been no new locks of hair around her room. She was administered BAI and BDI, and got 7 and 9, respectively. There was no symptoms anxiety and depression. No side effects associated with the new treatment were reported. The patient was invited to monthly follow-up examinations.

Two months after initiating treatment, her hair loss in the temple region of her scalp improved markedly as well (Figure 2) and thereafter, NAC was discontinued. During six-month follow-up, no further symptoms related to hair pulling were observed, and she has been able to continue her daily activities without the need of using a bandanna.

Discussion

There is a growing interest regarding the use of glutamatergic agents in OCD and OCSD. We reported an 18-year-old female patient with TTM, which successfully treated with glutamate modulator NAC.

Although evidence supporting the effectiveness of SSRIs is insufficient, SSRIs are usually considered first-line treatment option for the disorder [4]. Alternatively, there are studies investigating the use of naltrexone, antipsychotics, lithium, dronabinol, and hidroksizin [1,8–11].

NAC is a precursor of the amino acid cysteine and functions as a glutamate modulator. It is mainly used for treating paracetamol intoxication and as a mucolytic for infections of the respiratory tract. Irregularities in the glutamatergic system are believed to be responsible for repetitive behaviours in OCD patients [12]. Increase in glutamate levels results in exacerbated oxidative stress and more severe OCD symptoms [13]. Glutamate and oxidative stress are also associated with the pathogenesis of TTM, which is an OCSD as well [6,12]. There is limited data regarding the use of NAC in TTM. In recent studies, it is showed that NAC may be effective in reducing TTM symptoms [6,12]. These effects can be the result of decreased extracellular glutamate concentrations in nucleus accumbens, which is the brain region responsible for compulsive behaviours in TTM [6,14]. In their double-blind randomized trial, Grant et al. found NAC to be significantly more effective in reducing TTM symptoms compared to placebo. According to the study, the drug is also well tolerated

in the dose range of daily 1200–2400 mg [6]. In our case, TTM symptoms improved in three weeks with the daily dose of 1200 mg and after six months no recurrent symptoms were observed.

Conclusion

In conclusion, data from this report suggest effective and well tolerated of using NAC in the treatment of TTM. Although there are promising results with the use of NAC, further studies are needed in order to create an appropriate treatment regimen and evaluate its long-term effectiveness.

Disclosure statement

No potential conflict of interest was reported by the authors.

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