Abstract

Methylphenidate is a central nervous system stimulant used as the first choice for treating the attention deficit hyperactivity disorder (ADHD). Methylphenidate could rarely cause psychotic symptoms even with therapeutic doses. In this article, two cases were reported who diagnosed with ADHD, and shortly after the beginning of the long-acting methylphenidate treatment psychotic symptoms has emerged, and was discussed the treatment process of the psychotic symptoms.

Keywords: ADHD; Methylphenidate; Psychotic symptoms

Introduction

Methylphenidate is a central nervous system stimulant which using as the first choice for treating the attention deficit hyperactivity disorder (ADHD) [1]. It causes an increase in striatal dopamin signalling by holding dopamine more in synaptic cleft via dopamine transporter blockage and D1 receptor activation in postsynaptic neuron [2]. It has been reported that methylphenidate could rarely cause visual hallucinations, paranoid, somatic or reference delusions in with therapeutic doses [3-7].

The emergence of hallucinations has been attributed to a chronic increase at dopamin levels in synaptic cleft while the pathophysiological mechanisms are not clearly known. In some cases, hallucinations emerged after taking the first and low dose medication has been thought an effect of idiosyncratic mechanism [5].

Stimulants cause an increase of the releasing of catecholamines and a blockage of their getting back. Some authors argues that high dose stimulants can deteriorate the response to the visual stimuli causing different perception of the visual stimuli in susceptible children, based on the information that norepinephrine is released in the lateral geniculate nucleus, and it increases the transmission of visual information [5, 8].

In this article, two cases were reported who diagnosed with ADHD, and shortly after the beginning of the long-acting methylphenidate treatment psychotic symptoms has emerged, and was discussed the treatment process of the psychotic symptoms.

Case Report

Case 1

A girl, 10 years of age, had irritability, nervousness, non-compliance complaints for school, inattention, often finding excuses during the lessons. Sometimes suicidal thoughts, struggling in relationships with her mother. She had lost her father when she was 2 years old. Mother described that it is hard to get along with her for childhood period. Weschler Intelligence Scale for Children (WISC-R) verbal score was 107, performance score was 120, total intelligence score was 114. In history there was no any psychotic symptom, no existence in any psychotic symptom or disorder in her family. Attention deficit hyperactivity disorder plus generalised anxiety disorder plus oppositional defiant disorder was diagnosed with the Kiddie-schedule for affective disorders and schizophrenia - present and lifetime version-Turkish version (K-SADS-PL-T) [9] and treated with long-acting methylphenidate 36 mg per day. With the first day of the treatment, the touched which chased by a man continuously who saw him and came eye to eye for just one second with him in a market, watched via a candid camera by him when she was in her home, he wants to harm. During the two weeks pe-
period, although had never seen a more, when she was walking she was looking at behind frequently. The evaluation of the Naranjo adverse drug reaction (ADR) probability scale [10] was 8. This symptom was evaluated as an adverse effect of methylphenidate. Methylphenidate were discontinued and began the atomoxetine and it was gradually increased. One week later, the delusion disappeared.

Case 2

A boy, 7.5 years of age, first grade student. While he was taking the first school again he still could not literary. He was hyperactive and fightfull and highly talkative. St Binet IQ was 85. He had never psychotic symptom, there was no family history regarding any psychotic symptom or disorder. DSM-IV [11] criteria it was diagnosed attention deficit hyperactivity disorder and conduct disorder and was began long-acted methylphenidate 18 mg per day treatment. With first dose, the fear which he can be able to harm himself was began. He was seeing the objects as larger-than-life, and also big flies. He has been timid. He was talking to himself, was doing meaningless gesture as if there someone was in the face of him. ADR probability scale score was 7. At the 4th day of after the discontinuation, the fears disappeared. Family did not accept another medication.

Discussion

Both cases have complicated ADHD. In both, long-acted methylphenidate treatment [12] were discontinued because it has caused the psychotic symptoms and after discontinuation, symptoms disappeared in a few days. During the progress of ADHD, bipolar affective disorder or other psychiatric disorders can emerge as comorbid situation [13]. In both cases, comorbid disorder diagnosis was excluded because of the psychotic symptoms has immediately appeared after the methylphenidate treatment and disappeared after discontinuation of it.

Ross showed that the prevalence of the psychotic or manic symptoms emerging after stimulant treatment was 0.25% (or a four hundredth) while some methodological problems. But, it has been argued that reports are insufficient [14]. Kraemer et al. reported that 3 adult cases who had methylphenidat-induced psychotic disorder. After discontinuation and beginning the antipsychotic treatment, all of three patients' symptoms disappeared [6]. Kraemer et al. argued that the less frequency of psychotic adverse effects due to methylphenidate is stem from the ignorance of this effect by science [6]. In the literature, it has been addressed that the paranoid psychosis can emerge during the treatment of narcolepsia with methylphenidate [6] and it might be possible that the psychotic symptoms can occur because of the abuse of the methylphenidate [15]. In our country, a case emerging visual hallucination after the beginning the methylphenidate and fluoxetine treatment has been reported by Abali ve Mukan, in 2007 [16].

Psychotic symptoms emerging after using the methylphenidate treatment is not very frequent and after discontinuation, it can immediately disappear. But this situation, sometimes can be fearful for family and it might be harmful for patient’s compliance to the medication. For all these reasons, clinicians should be aware of psychotic symptoms during the methylphenidate treatment of patient with ADHD, before thinking the any comorbid disorder, clinician should evaluate the methylphenidate adverse effect. Thus, it would gain to clinician the right way of the effective treatment.

Conflict of Interests

Authors have declared that there is not any conflict of interests.

References

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