Case Report (Olgu Sunumu)

Treatment of Attention Deficit-Hyperactivity Disorder in a Pediatric Patient with COVID-19

Kovid-19 Tanılı Bir Pediatrik Hastada Dikkat Eksikliği-Hiperaktivite Bozukluğu Tedavisi

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Özet

2019 yılı Aralık ayında ilk kez ortaya çıkan ve tüm dünyaya yayılan yeni tip koronovirüs (Kovid-19) ile semptomatik ve/veya asemptomatik enfekte olan çocuk ve ergenlerin sayısı tam olarak bilinmemektedir. Kısa sürede gelişen pandemi sürecinin ve pandemi etkeninin tedavi algoritmasının belirsizliği tüm dünyada kaotik bir ortam oluşturmuştur. Çocuk ve ergenler bu kaotik ortamdan olumsuz etkilenmişlerdir. Bu dönemin çocuk ve ergenlerin ruh sağlığı üzerine etkilerini inceleyen çalışmalar kısıtlıdır. Dikkat eksikliği hiperaktivite bozukluğu (DEHB), otizm spektrum bozukluğu (OSB) gibi psikiyatrik hastalık öyküsü olan bireylerin diğer bireylere kıyasla daha zor uyum gösterdiği ve daha olumsuz etkilendiği ileri sürülmüştür. Burada DEHB ve karşıt olma karşıt gelme bozukluğu (KOKGB) ve Kovid-19 hastalığı birlikteliği olan, tedavisinde kısa etkili metilfenidat (IRIS-MPH) kullanımı ile Kovid-19 kliniğinde herhangi bir kötüleşme olmayan, herhangi bir yan etki gözlenmeyen ve başarılı bir şekilde tedavi edilen bir hasta sunulmuştur. Bununla birlikte Kovid-19 hastalarında IRIS-MPH ve diğer psikotrop ajanların güvenle kullanımını değerlendiren daha ileri çalışmalara ihtiyaç vardır.

Anahtar kelimeler: Çocuk, Dikkat eksikliği hiperaktivite bozukluğu, Kovid-19, Metilfenidat, Risperidon, Tedavi

Abstract

It is unknown that the novel Coronavirus (COVID-19), which emerged for the first time in December 2019 and spread all over the world, have affected how many children symptomatically or asymptomatically. The uncertainty of the treatment algorithm of pandemic factor and rapidly developing pandemic process created a chaotic environment in whole world. Children and adolescents have been adversely affected by this chaotic environment. Studies examining the effects of this period on the mental health of children and adolescents are scarce. It has been suggested that individuals with psychiatric disorders such as attention deficit-hyperactivity disorder (ADHD) and autism spectrum disorder (ASD) adapted more difficultly and were affected more negatively than other individuals. In this study, we present a patient with ADHD and oppositional defiant disorder (ODD) who was using short-acting methylphenidate (IRIS-MPH) for treatment, had no worsening or any adverse side effects and was treated carefully for COVID-19 infection. However, further studies are required to evaluate the safety of IRIS-MPH and other psychotropic agents in patients with COVID-19.

Keywords: Attention deficit-hyperactivity disorder, Child, COVID-19, Methylphenidate, Risperidone, Treatment

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INTRODUCTION

According to the World Health Organization (WHO), the novel coronavirus (COVID-19), which emerged for the first time in December 2019, spread all over the world within 4 months (1). In our country, the Ministry of Health announced an adult patient as the first case on March 11, 2020, and on April 1, 2020, it was reported that Covid-19 infection had spread to the whole country (2). The number of symptomatic or asymptomatic children with COVID-19 is unknown (3). In order to prevent this epidemic that has become an emergency in whole world; schools were closed, social isolation and quarantine were ordered. Similarly, in our country, on March 16, 2020, schools were closed and measures such as distance education, curfew, social isolation, requirement to wear masks, ban on collective events, and remote home office work were taken, affecting education, social life, work regulations, and health care (4,5). The uncertainty of the treatment algorithm of pandemic factor and rapidly developing pandemic process created a chaotic environment in whole world. Children and adolescents have been adversely affected by this chaotic environment (6). Studies examining the effects of this period on the mental health of children and adolescents are scarce. It has been suggested that individuals with a history of psychiatric diseases such as attention deficit-hyperactivity disorder (ADHD) and autism spectrum disorder (ASD) adapted more difficultly and were affected more negatively than other individuals (7-9). ADHD is a neurodevelopmental disorder characterized with inattention, hyperactivity and impulsivity. Its incidence in school-age children is estimated to be 9-15% (10). It is estimated that the severity and frequency of ADHD may have increased during the pandemic period (11). When the guidelines of European ADHD Guidelines Group (EAGG 2020) and Canadian ADHD Resource Alliance (CADDRA 2020) on its treatment during the pandemic period are examined, it is understood that they are parallel to the treatment approaches before the pandemic process (12,13). In the literature, there is not enough data about ADHD treatment or methylphenidate use during COVID-19 infection. In this study, we present a case of COVID-19 and its treatment process in a patient with a diagnosis of ADHD and oppositional defiant disorder (ODD) who was using short-acting methylphenidate (IRIS-MPH) for treatment.

CASE

A 12-years-old, 6th grade student, male patient was brought to our clinic by his family with complaints of increased physical activity, short attention span, inability to complete tasks, excessive talking, not paying attention to his teacher, reluctant to do homework, distraction, having troubles in organizing, forgetfulness, losing things frequently, not obeying orders and short temper. A normal mental capacity was identified according to results of psychiatric examination and Wechsler Intelligence Scale for Children–Revised (WISC-R). Physical examination was normal. There was no history of relevant illness in his personal and family history. There was no continuous use of medication. Diagnosis of ADHD and ODD was determined in this patient according to psychiatric evaluation based on The Diagnostic and Statistical Manuel of Mental Disorders (DSM)-5, Conner's parent rating scale, disruptive behavioral disorder from DSM-IV and IRIS-MPH treatment was planned for the patient. The severity subscale score of the clinical global impression scale (CGI-GS) used to assess the severity of the disorder was 5 (14). The patient's height, weight, body mass index (BMI), pulse rate and blood pressure, liver, kidney and thyroid function tests, hematologic parameters, folic acid, vitamin B12 levels were normal before starting IRIS-MPH treatment. IRIS-MPH 10 mg/day was started for the patient, whose electrocardiogram findings and cardiological examination were also normal. Dose of IRIS-MPH was increased to 20 mg/day one week later due to the lack of improvement in his complaints. On the 8th day of the treatment, patient's mother, father, 7-years-old brother, 6-months-old sister and the patient were infected with COVID-19. Liver, kidney and thyroid function tests, hematologic parameters, chest X-ray, and chest tomography of the patient were evaluated as normal. Patient and his family were quarantined. Amoxicillin+-clavulanic acid 1200 mg/day and paracetamol 120 mg/day as needed medications were started for the patient who was asymptomatic on the first day of quarantine. IRIS-MPH 20 mg/day treatment was continued for the patient whose ADHD symptoms partially regressed and the symptoms of ODD continued. On the second day of the quarantine, the patient had fever and his fever regressed with paracetamol 120 mg/day. On the 3rd day, the fever complaint improved and the diarrhea complaint started. On the 4th day, diarrhea complaints regressed and weakness occurred. The patient had no complaints on the 5th day of the quarantine. Paracetamol 120 mg/day treatment was discontinued. Amoxicillin+clavulanic acid 1200 mg/day treatment was discontinued on the 8th day of quarantine. The 15-day quarantine period continued. No adverse effects were observed on the symptoms of COVID-19 and ADHD treatment in the patient. The quarantine period of the patient who recovered from COVID-19 disease was terminated. At the end of the first month, the patient's treatment was changed to long-acting methylphenidate (OROS-MPH) 18 mg/day+risperidone 0.5 mg/day, due to the continuing complaints of being bored quickly, talking too much, fidgeting and irritability. Side effects

screening scale was used for stimulant drugs (15). No drug-related side effects were detected in our control visits. In addition, the patient's control cardiological examination, liver, kidney and thyroid function tests, hematologic parameters, and laboratory findings including folic acid and vitamin B12 were normal. In the second month of our treatment, it was learned that his mobility and speech decreased and he started to obey. The improvement subscale score of the clinical global impression scale (CGI-GI) used to assess the recovery of the disorder and patient's response to the treatment was 2 (14). It was recommended that the patient continue his current treatment regimen.

DISCUSSION

Children with ADHD experienced many difficulties during the pandemic period such as changes in daily routines, social isolation, adapting to social distance, not being able to get professional help on time, and not reaching treatment agents (11). Our patient also had difficulties in adapting to new routines, such as not going to school, being unable to go out due to quarantine, and following school lessons online. In EAGG 2020, it is recommended that ADHD treatment should be initiated during the pandemic period, ADHD symptoms may negatively affect the family dynamics, and untreated ADHD may increase the risk of COVID-19 transmission (12). In addition, in a study involving children and adults with ADHD, it was found that children and adults with ADHD who received treatment were significantly less likely to be infected with COVID-19 than those who did not receive treatment. In this study, it was emphasized that ADHD poses a risk in terms of COVID-19 infection and drug therapy improves this risk (16). In line with the reasons stated in EAGG 2020 and CADDRA 2020, ADHD treatment was continued in our patient because it facilitates adaptation to pandemic conditions such as protection of family dynamics, quarantine and social distance (12,13). On the 8th day of IRIS-MPH 20 mg/day treatment, the patient who was diagnosed with COVID-19 and received antibiotic treatment, had reduction in his ADHD symptoms with treatment. COVID-19 symptoms may manifest differently in all ages. Since the symptoms of COVID-19 were not severe, outpatient antibiotic and antipyretic treatment was administered in our patient. Other COVID-19 treatments such as antiviral treatment were not applied, since the patient's symptoms of COVID-19 improved with these treatments. The COVID-19 treatment of the patient, whose symptoms improved on the 5th day of the quarantine, was terminated on the 8th day of the quarantine. No adverse effects, progression of COVID-19 symptoms and negative changes in laboratory values were not observed during the follow-up period in the patient who continued to use IRIS-MPH.

However, at the end of 1 month, IRIS-MPH 20 mg/day was stopped due to the partial improvement in the patient's ADHD symptoms and intense symptoms of ODD, and OROS-MPH was started at 18 mg/day. Also, because risperidone, an atypical antipsychotic beneficial in the treatment of ODD, was added to our patient's treatment for the symptoms of ODD (17). The patient, who was found to be significantly ill according to the CGI-GS test (CGI-GS: 5 points), recovered very well with OROS-MPH dosed at 18 mg/day and risperidone dosed at 0.5 mg/day (CGI-GI: 2 points). Side effects screening scale used for screening side effects of OROS-MPH and IRIS-MPH showed no side effect (15,18). Metabolic, endocrine or extrapyramidal system side effects such as sedation, weight gain and high blood glucose might be observed due to use of risperidone (19). No drug side effects related to neither OROS-MPH nor risperidone was observed during the treatment of our patient. No problems were identified in the biochemical and hematological control tests.

As a result, to our knowledge, there is no study on the use of MPH during COVID-19 infection in children and adolescents. It was observed that IRIS-MPH did not cause any deterioration for the COVID-19 clinic and the drug was well tolerated by the patient. However, further studies are required to evaluate the safety of IRIS-MPH and other psychotropic agents in patients with COVID-19.

Conflict of Interest and Financial Status: The authors declare that they have no competing interest.

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