Atomoxetine Treatment for Attention Deficit and Hyperactivity Disorder Symptoms in a Child Who Has Mucopolysaccharidosis Type IIIB Disorder

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Abstract

Mucopolysaccharidosis type III (MPS-III, Sanflippo syndrome) is one of the lysosomal storage diseases characterized by four different enzymes playing a role in catabolism of heparan sulfate substance. Type IIIB (Sanflippo B), one of them, is characterized by alpha-N-acetylglucosaminidase (NAGLU) enzyme deficiency and results in accumulation and storage of heparan sulfate in central nervous system, and then emerges itself with developmental deficiency, coarse facial features, delay in speech, mental retardation, hyperactivity, impulsivity, aggressive and disruptive behaviors, difficulty in establishing social relations, aimless hand movements, inadequate eye contact, and sleep disturbances. There are a few studies related to the treatment of neuropsychiatric symptoms of these patients. In this case, atomoxetine treatment added was shown to be effective, safe and tolerable, because risperidone treatment that the patient took was not effective in hyperactivity symptoms. A 12-year-old girl, diagnosed with MPS type IIIB (NAGLU deficiency; OMIM# 252920) when she was 5 years old, was admitted to our clinic with symptoms of hyperactivity, short span of attention, aggressive behavior, and quasi-autistic symptoms such as aimless hand movement, with risperidone use at 1.5 mg/day for approximately 1 year. After clinical and psychometric examinations, she was diagnosed with “mild mental retardation” and “attention deficit hyperactivity disorder”. Atomoxetine was added at a dose of 0.5 mg/kg/day to her risperidone treatment and its dosage was gradually increased up until to 1.4 mg/kg/day. Over the follow-up period, her attention deficit and hyperactivity disorder (ADHD) symptoms were ameliorated, reported by both her teachers and her parents via rating scales of ADHD. Her hyperactivity and irritability levels were noticed as decreased and improved over evaluation process throughout clinical interviews. Through atomoxetine treatment process, there was not any adverse effect.