

The Effectiveness of Methylphenidate in the Treatment of Encopresis Independent from Attention-Deficit Hyperactivity Disorder Symptoms

Ömer Faruk Akça[✉] and Savaş Yılmaz

Department of Child and Adolescent Psychiatry, Necmettin Erbakan University, Meram School of Medicine, Konya, Turkey

Several medications are reported to be effective in treatment of encopresis. However, mechanisms of action related to these drugs are not known. We report a patient with ADHD and encopresis whose encopretic signs have disappeared with long acting methylphenidate while they have not changed with atomoxetine.

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Key Words Methylphenidate, Atomoxetine, Encopresis, Attention-deficit hyperactivity disorder.

INTRODUCTION

Attention-deficit hyperactivity disorder (ADHD) is among the most frequently reported coexisting psychiatric condition in children with encopresis.¹ Some case reports and a retrospective study state that methylphenidate (MPH) is effective in the treatment of encopresis that accompanies ADHD.²⁻⁵ However, the mechanism of action related to this medication in the treatment of encopresis is not well-known.

CASE

An eight-year-old boy was referred to our clinic with complaints of encopresis and constipation which occurs during last 2.5 years. The patient had also experienced over activity, behavior, and concentration problems since he was three years old. He was assessed by a pediatrician before admission to our clinic, and neither pathological findings nor gastroenterological disease, which could have explained the encopretic symptoms were found except the constipation during his

physical examination. The patient was diagnosed with secondary encopresis (retentive type) and ADHD using the DSM-IV-TR criteria.⁶ Behavioral modifications for encopresis were planned, and 27 mg/d of long-acting methylphenidate (LA-MPH) was initiated for the patient's ADHD symptoms. However, during the next visit, which occurred before the behavioral modifications were initiated, the encopresis, ADHD, and accompanying behavioral problems had disappeared, but the patient experienced irritability and loss of appetite with the LA-MPH medication. After eight months, due to irritability and appetite problems, 25 mg/d of atomoxetine (ATX) was added to the patient's medication. Two months later, all the patient's ADHD, oppositional behavior, and encopresis symptoms had disappeared, which prompted the clinic to stop the patient's LA-MPH. After the termination of the LA-MPH, encopresis occurred every day for a week, but the ADHD and oppositional behaviors did not. The child's mother restarted the LA-MPH, and the encopresis disappeared again.

DISCUSSION

ATX and MPH have been reported to be effective in treatment of encopresis concomitant with ADHD.^{2-5,7} Some authors suggest that the anti-encopretic effects of MPH or ATX may be related to the direct impact they have on executive functioning, self-organizing skills, and impulse control, which enable children to recognize and respond to internal cues to defecate;² however, the positive effects on ADHD may be secondary to the resolution of child-parent relationship conflicts

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✉ **Correspondence:** Ömer Faruk Akça, MD
Department of Child and Adolescent Psychiatry, Necmettin Erbakan University, Meram School of Medicine, Meram, Konya, Turkey
Tel: +90-332-223-6859, **Fax:** +90-362-431-7855
E-mail: dromerakca@gmail.com

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and poor social and school functioning.³

In the present case, despite the attention problems of the patient recovered with ATX, the encopretic symptoms did not change with this medication. In another retrospective study in which patients were treated with MPH, no association between improvements in attention, hyperactivity, or behavioral problems and improvement in the encopretic symptoms⁸ occurred. In another case, a non-ADHD encopretic patient's encopretic symptoms disappeared with LA-MPH.⁴ Therefore, MPH may have an effect on encopretic symptoms independent of ADHD symptoms. This case supports that assumption. Also, a statistically significant association between ADHD and an increased risk of encopresis could not have been demonstrated in a recent study.⁹

The researchers have found no study that investigates the peripheral effects of MPH on the gastrointestinal system (GIS). Amphetamine, which has similar effects as MPH, was found to reduce the gastric emptying and intestinal motility via the D1 and D2 receptors in rats.¹⁰ Dopamine is effective in GIS motility, and the GIS contains the D1 and D2 receptors.¹¹ Moreover, the GIS contains dopamine transporter which is inhibited by MPH, and dopamine levels increase due to this inhibition.¹² However, norepinephrine in the GIS does not originate from intrinsic enteric neurons; it originates from the enteric projections of extrinsic (sympathetic) neurons.¹¹ This knowledge may help to explain why the encopretic symptoms recovered with MPH instead of ATX.

The anti-encopretic effects of MPH may be related to its direct peripheral effects on GIS motility rather than its effects on executive functioning, self-organizing skills, or impulse control. Future studies investigating the peripheral effects of MPH on the GIS will improve the knowledge of this topic.

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