

ATTENTION DEFICIT-HYPERACTIVITY DISORDER (ADHD) SYMPTOMS AND DAYTIME VOIDING SYMPTOMS IN CHILDREN WITH PRIMARY ENURESIS

Hypothesis / aims of study

Enuresis or nocturnal incontinence is a common for children. Enuresis actually brings personal inconvenience and social stress to children and their family. Additionally, children with enuresis are more likely to have psychological and emotional disorder, and even adult urgent incontinence. Several previous studies have demonstrated the associations between attention deficit-hyperactivity disorder (ADHD) and enuresis in children. Children with enuresis have been reported to have higher prevalence of ADHD. One recent study also indicated as high as 42% of children with lower urinary tract symptoms/enuresis in a tertiary referral center had ADHD symptoms. Desmopressin is the standard treatment for primary enuresis. However, the efficacy in the treatment of children with enuresis and ADHD remains unclear.

In this study, we prospectively undertook analysis on a cohort of children aged 6-12 years presented with primary enuresis. We aim to investigate the ADHD symptoms and other voiding symptoms in these children. Moreover, we will evaluate the efficacy of desmopressin for the treatment of enuresis in children with ADHD symptoms.

Study design, materials and methods

We consecutively collected children aged from 6 to 12 years whose chief complaint was PE (wet the bed three or more times/week) for more than one month at the urology clinics of the tertiary medical center. Subjects were excluded if they had: 1) concurrent neurologic or urogenital disorders; 2) congenital disorders; 3) prior previous pelvic surgery; or 4) concurrent use of medications known to interfere with bladder or sphincter function. All study subjects received bladder and renal ultrasonography and urinalysis to exclude other genitourinary tract anomalies and urinary tract infection. All enrollee first received 4-week bladder training program at the beginning of the treatment protocol, including evenly distributed fluid intake throughout the day, the avoidance of drinks precipitating bladder over-activity, timed voiding every 2-3 hours, fluid restriction in the evening and emptying bladder before bedtime. For subjects with good compliance, if enuresis did not demonstrate significant improvement, we proceeded with medical therapy. We administered 12-week desmopressin orally, starting with a standard dose of (0.2 mg) and increasing after 2 weeks to 0.4 mg in subjects if the episodes of enuresis did not achieve completely dry. We attempted to wean the subjects from the medication since 10th week by tapering off the medications. Patients were followed 1 month after cessation of medications.

Results

A total of 67 children (51 boys and 17 girls) aged 6 to 12 years presented with the chief complaint of enuresis were consecutively enrolled in urologic clinic. None of these children had the clinical diagnosis of ADHD. Among them, 27 (39.7%) had ADHD symptoms based on norm of the SNAP-IV, parents form questionnaire. Demographic and clinical data of all study subjects showed there were no significant differences between children with ADHD and non-ADHD symptoms in terms of age, parental age, birth history, maternal history and household income. The subjects with ADHD symptoms had significantly higher total DVSS score as compared with those without ADHD symptoms (8.44 vs. 5.66, $p=0.02$). In terms of scores of all DVSS subscales, children with ADHD symptoms had significantly higher scores in the items "I only go to the bathroom one or two times each day" and "I cannot wait when I have to pee" when compared with those without ADHD symptoms ($p=0.03$ and 0.02 , respectively). Subjects with ADHD vs. no ADHD symptoms had significantly lower maximal flow rate (Q_{max}) and voided volume (13.5 vs. 17.1 mL/sec, $p=0.05$ and 69.9 vs. 112 mL, $p=0.02$). The sleep quality of subjects with ADHD symptoms was significantly worse compared to those without ADHD symptoms (3.07 vs. 2.05, $p=0.02$). There was no difference in constipation between the two groups.

Subjects without ADHD symptoms had favorable response to desmopressin compared with those with ADHD symptoms despite statistical insignificance (75.6% vs. 66.7%, $p=0.42$). Similarly, the responses were comparable between non-ADHD group and three ADHD subgroups ($p>0.05$). No serious adverse effect was complained in all study subjects during the period of treatment.

Interpretation of results

ADHD symptoms could be observed in surprisingly high proportion (39.7%) of children with enuresis. Enuretic children presented with ADHD symptoms were more likely to have daytime LUTS compared to those without ADHD symptoms. We first described the presence of ADHD symptoms had no significant impact on the efficacy of desmopressin in treating children with enuresis.

Concluding message

The prevalence of ADHD symptoms is high in children presented with the enuresis at urologic clinic. Enuretic children with ADHD symptoms were more likely to have daytime LUTS. Desmopressin was a safe and feasible treatment for enuresis in children regardless of ADHD symptoms.

Disclosures

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