Letter to the Editor

Commentary on ‘Effect of vitamin D and omega-3 on nocturnal enuresis of 7–15-year-old children’

Dear Editor,

We read with great interest the recent contribution by Dr. Rahmani et al. [1]. They showed the beneficial effect of vitamin D on nocturnal enuresis (NE) but did not suggest the possible mechanisms in the discussion. We would like to add some considerations on the possible mechanisms of the effects of vitamin D on NE.

Arousal disorder plays an important role in the pathogenesis of NE. There are several systems involved in arousal, including dopaminergic ventral mesencephalic neurons, cholinergic pontomesencephalic neurons and the noradrenergic locus coeruleus. According to recent research, NE is considered to be a comorbid factor, and the presence of attention-deficit hyperactivity disorder (ADHD) was closely related with NE. Vitamin D could decrease symptoms of ADHD through modulation of neurotransmitters such as dopamine [2] and acetylcholine [3]. It is speculated that vitamin D may also improve arousal disorders by regulating these common neurotransmitters involved in NE and ADHD to improve symptoms of NE.

Sleep disorders are common among children with NE. The most frequently reported sleep problems include daytime sleepiness, bedtime resistance and night awakening. Previous clinical studies suggested that vitamin D supplementation for patients with sleep disorders may contribute to significant improvements in sleep quality and efficiency [4]. Therefore, the improvement of sleep quality may also account for the treatment effectiveness of Vitamin D in NE.

Recent studies indicate higher nocturnal blood pressure and dominant activity of sympathetic nervous system in enuretic patients. Li et al. [5] reported that 1,25-dihydroxyvitamin D(3) is a novel negative endocrine regulator of the renin–angiotensin system and that vitamin D analogues could help ameliorate hypertension. Therefore, there is a possibility that NE related to sympathetic hyperactivity might be responsive to vitamin D by downregulating the renin–angiotensin system.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jpurol.2018.09.014.

References


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