https://doi.org/10.5664/jcsm.8234

JCSM | Journal of Clinical Sleep Medicine

LETTERS TO THE EDITOR

An elevated leg movement index during sleep in atopic dermatitis and periodic leg movement disorder may be an indication of sympathetic activation common to both

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Treister and colleagues[1] have examined several polysomnographic parameters in children with mild to moderate atopic dermatitis (AD) (n = 34) and periodic limb movement disorder (PLMD). Seven of the 34 (20%) patients with AD had a limb movement index during sleep (LMI) of > 15 events/h in the absence of other sleep disorders; the authors compared the polysomnographic findings of this group (n = 7) with a demographically matched group of children (n = 7) with periodic limb movement disorder (PLMD) without AD. The following are some of their findings: the LMI of the PLMD group (31 ± 9 events/h) was only marginally greater ($P = .07$) than the AD (24 ± 6 events/h) patients; increased total limb movements in PLMD versus AD were most notable during stage N2 sleep (38 ± 17 versus 22 ± 7 events/h, $P = .01$); and the LMI in both groups were elevated above normative values (10.2–10.6 events/h). Notably, the AD group had a significantly greater LMI during wakefulness (118 ± 27) as compared to the PLMD group (66 ± 27; $P < .01$). The authors very importantly observe that AD could be associated with a "hyperarousable state" and that arousals from sleep in AD are not always associated with scratching.[1]

In AD, autonomic, particularly sympathetic nervous system dysfunction is known to affect sudomotor activity leading to the sweat gland dysfunction and impaired barrier function of the stratum corneum.[2] As the efferent innervation of the skin is mainly sympathetic, the autonomic responses of the skin are primarily sympathetically mediated. Furthermore, there is an increased risk of restless legs syndrome (RLS) in AD[1] and RLS is commonly associated with an elevated LMI. Moderate to severe RLS has been shown to be associated with greater sleep-related sympathetic activation.[3] The presence of a high LMI in about 20% of patients with AD who had a LMI index that was almost similar to the LMI observed in patients with PLMD and without AD, may be indicative of a common underlying state of sympathetic activation in both AD and PLMD. A significant correlation between AD severity and degree of sleep fragmentation is recognized[1] and the results of this study indicated significantly greater sleep fragmentation in patients with AD in contrast to the healthy controls,[1] highlighting the need to also consider the role of primary cutaneous factors in the pathogenesis of sleep disturbance in AD. Polysomnography (and the LMI) may be useful for obtaining an index of sympathetic activation in disorders of autonomic dysregulation—a measure that can have treatment implications.

CITATION

Gupta MA, Gupta AK. An elevated leg movement index during sleep in atopic dermatitis and periodic leg movement disorder may be an indication of sympathetic activation common to both. *J Clin Sleep Med*. 2020;16(3):463.

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SUBMISSION & CORRESPONDENCE INFORMATION

Submitted for publication October 24, 2019
Submitted in final revised form November 6, 2019
Accepted for publication November 6, 2019
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DISCLOSURE STATEMENT

All authors have seen and approved the manuscript. The authors report no conflicts of interest.