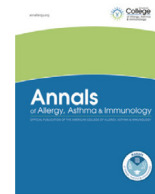




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## Letters

## Assessment of sleep disturbance in patients with atopic conditions

Sleep is critical to our overall health and well-being. Survey data of the Centers for Disease Control and Prevention report that 34.1% of children, 74.6% of adolescents, and 32.5% of adults have insufficient sleep.<sup>1</sup> The coronavirus disease 2019 pandemic further negatively affected sleep among all age groups. Atopic conditions in children affect sleep, causing adverse changes in behavior, concentration, school performance, and growth.<sup>2,3</sup> Sleep disturbances in children also directly affect their caregivers' sleep. In adults, sleep disturbance similarly affects cognitive function, quality of life, and productivity. Cardiometabolic complications of chronic sleep-disordered breathing occur in all ages. Sleep deprivation reduces the threshold dose and has been implicated as a cofactor during reactions in patients with peanut allergy.<sup>4</sup> The risk for sleep disorders is higher for persons with asthma and other atopic conditions,<sup>5</sup> yet allergy-related sleep disorders are infrequent topics in published literature and national meetings.

In 2021, the Respiratory and Sleep-Related Breathing Disorders Committee of the American College of Allergy, Asthma, and Immunology developed an electronically mailed questionnaire with a 5-point descriptive scale ("almost all the time," "often," "occasionally," "rarely," and "never") to survey members of the American College of Allergy, Asthma, and Immunology on awareness and assessment of sleep disturbance in their patient panel. A total of 102 valid questionnaires were received between September 30 and October 8, 2021 (3.3% response rate). Of the respondents, 90% saw both adult and pediatric patients. Approximately 46% were in practice more than 20 years, 32% for 6 to 20 years, and 18% for less than 5 years. Most were in small group practice, self-employed, or in an academic setting. Most practiced in a suburban (54%), urban (24.5%), or inner city (15.7%) area. Sleep assessment was based on the condition and age of the patient.

A total of 92 respondents completed the questions focused on adults. Most of the respondents inquired about sleep in adults with asthma often or almost all the time, whereas only approximately 10% rarely or never did. More than 60% discussed treating obstructive sleep apnea, with only 1% rarely discussing treatment. The split was greater when it came to ordering sleep studies: 41% never ordered, approximately 43% occasionally, often, or almost all the time ordered, and approximately 15% rarely ordered. Respondents most often inquired about sleep in patients with asthma (74% all the time), rhinosinusitis, and atopic dermatitis (AD, 66% all the time). Assessing sleep occurred less often in patients with chronic urticaria (CU) and contact dermatitis (CD) and least in those with food allergies (approximately 48% rarely

asked). A summary of these results has been provided in Figure 1. Treatment was assessed for utilization of first-generation antihistamines, intranasal corticosteroids (INSs), and the leukotriene receptor antagonist, montelukast. Furthermore, 55% recommended INS almost all the time in adult patients who snore, whereas 43% occasionally or often recommended an INS. First-generation antihistamines were recommended 9% almost all the time, 61% often/occasionally, and 23% rarely in adults with AD, CU, and CD.

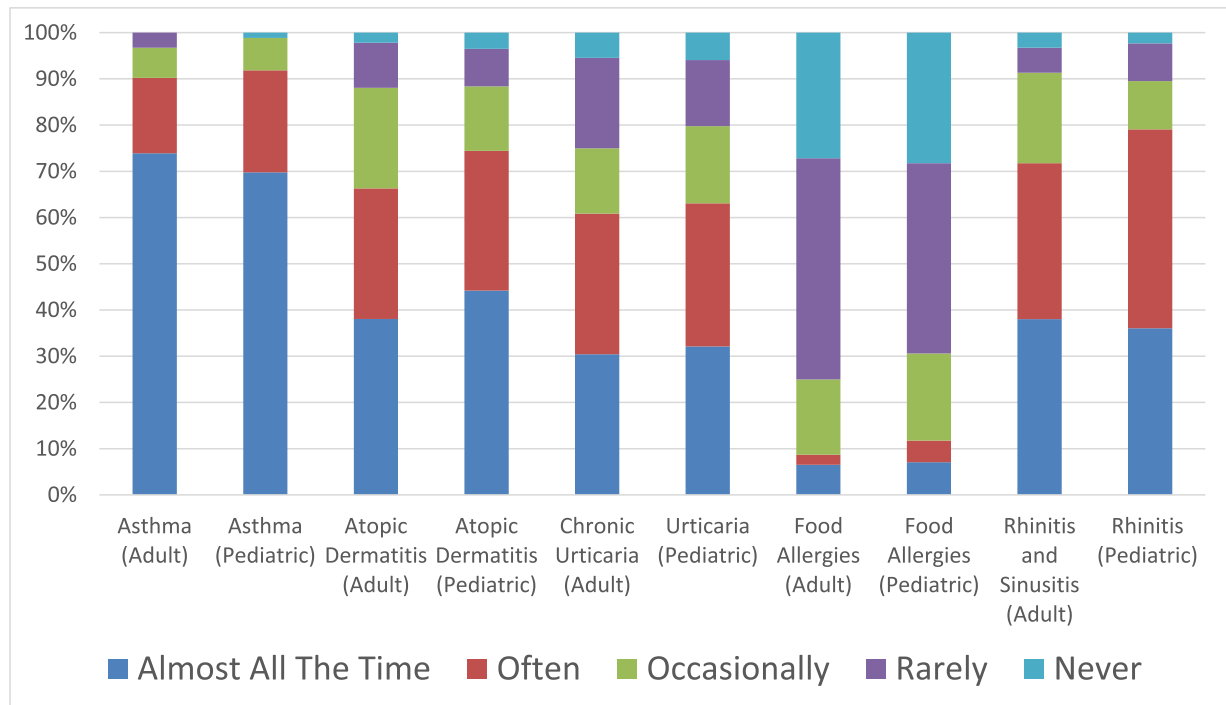
A total of 86 respondents completed the pediatric-specific questions. More than 60% often or almost always assessed sleep in children who snore, and 86% recommended INS in these patients. Montelukast, however, was rarely or never recommended in children who snore (32% and 13%, respectively) despite data revealing benefit in sleep disordered breathing and adenoid enlargement.<sup>5-7</sup> Only 8% of the respondents recommended montelukast almost all the time. Recent studies evaluating benefits of montelukast in children with adenoid hypertrophy have revealed beneficial reduction in adenoid size, snoring, and apnea-hypopnea (AH) index.<sup>7,8</sup> Overexpression of cysteinyl-leukotriene receptor 1 was found on examination of adenotonsillar tissue specimens from children with AH.<sup>8</sup> Moreover, combination therapy with both INS and leukotriene receptor antagonist was more efficacious in reducing the symptoms of AH vs INS alone.<sup>9</sup> There is a role for medication management in children who snore. Approximately half of the respondents (48%) also did not order sleep studies when sleep apnea was suspected. First-generation antihistamines were used occasionally/often/all the time (73%), and 94% occasionally/often/always referred to a sleep specialist. Similar to the adult data, sleep was assessed least in patients with food allergy. Most of the respondents rarely assessed sleep in patients with CU, AD, CD, and food allergies regardless of age. More has been published on the negative effects of AD on sleep.<sup>10</sup>

In subgroup analysis, allergists who had been in practice more than 10 years were significantly more likely to ask their adult patients almost all the time or often about possible obstructive sleep apnea, when compared with allergists in practice for fewer years (Fisher's exact test,  $P = .003$ ; odds ratio, 4.3; 95% confidence interval, 1.6–11.2). They were also significantly more likely to order overnight sleep studies almost all the time or often for their adult patients with suspected obstructive sleep apnea ( $P < .001$ , odds ratio, 9.5; 95% confidence interval, 2.4–42.5). No additional highly significant differences in survey responses were appreciated when accounting for years in practice, practice type (academic vs private), or practice area (urban vs suburban/rural). Most of the respondents did not plan on using a sleep assessment tool, and the biggest barriers cited were insufficient information and time.

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**Figure 1.** Survey responses for the questions: “How often do you ask about sleep interference or poor sleep quality in [adult/pediatric] patients with the following conditions?”

Atopic conditions are associated with sleep disturbances in all age groups, but variable clinical manifestations may limit physician recognition. Our questionnaire evaluated allergists' self-reported practices of assessment and management of allergy-related sleep disorders. Although most of the respondents assessed sleep disturbance in their patients with atopy at least some of the time, sleep assessment was not a universal practice, especially for nonasthma allergic conditions. Many respondents did not use a formal sleep assessment tool. More information is needed to guide allergists on valid tools they can easily incorporate in their practice. Lack of sensitive and specific pediatric screening tools further complicates assessing sleep in children. Furthermore, there was significant variation in the treatment of allergy-related sleep disorders. This questionnaire has limitations, including the small sample size, selection bias of respondents, and selection biases of different practice settings. Nevertheless, these findings have implications and suggest the need for increased awareness of sleep disorders in patients with atopy of all ages. Standardized, easy-to-use assessment tools may help bridge these gaps.

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