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Atopic Dermatitis and Sleep Disturbance in Adults

To the Editor:

Yu et al¹ reported sleep disturbance and fatigue in US adults with atopic dermatitis (AD) using the National Health and Nutrition Examination Survey. In multivariate regression models, odds ratios (95% confidence intervals) of AD for shorter sleep duration, trouble falling asleep, and early morning awakenings were 1.61 (1.16–2.25), 1.57 (1.10–2.24), and 1.86 (1.24–2.78), respectively. Atopic dermatitis was also significantly associated with feeling unrested and feeling too tired to perform instrumental activity of daily living. I have a query about their study with special reference to sleep monitoring method.

I previously reported a case study on the association between AD and sleep by subjective sleep evaluation and by physiological apparatus such as sleep polysomnography and actigraphy.² In Yu's study, although sleep was clearly disturbed by movement he presented no sleep disturbance reported by questionnaire. I understand that Yu et al¹ analyzed data from a national survey and insomnia and fatigue from AD would affect activities of daily living. To confirm the association between AD and sleep, monitoring physiological sleep parameters should also be considered for the analysis. Furthermore,

causal association should include considering confounders of sleep disturbance through use of a prospective study.

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Measuring Sleep Disturbance in Atopic Dermatitis: Patient-Reported Versus Objective Outcomes

To the Editor:

We thank Professor Kawada for his commentary¹ on our study of the burden of sleep and fatigue in US adults with atopic dermatitis (AD).² In our study, we sought to determine the impact of sleep disturbance and fatigue on instrumental activities of daily living (IADLs) and health-related quality of life (HRQOL) in adults with AD. The study used a survey-based approach, that is, patient-reported outcomes (PROs), to capture the impact of sleep disturbance and fatigue on IADLs and HRQOL.

Kawada suggested that objective monitoring of physiological sleep parameters should also be considered to confirm the association between AD and sleep. We agree with this suggestion. There are many ways of assessing sleep disturbance. Objective tests, such as polysomnography and actigraphy, describe important characteristics of sleep, including delayed onset, number and duration of awakening, and overall sleep efficiency. In fact, these approaches have been implemented to study sleep disturbances in AD before,^{3,4} and more studies using objective sleep assessments are warranted in AD. However, sleep disturbances can differentially impact patients' HRQOL depending on the nature, severity, and chronicity of the sleep disturbance, as well as the patients' baseline age, level of activity,

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and vitality. Thus, objectively measured sleep characteristics do not always correlate perfectly with HRQOL disturbances. In our study, we a priori sought to understand the impact of sleep disturbance and fatigue on IADLs and HRQOL. Thus, using PRO was deemed the best approach.

Kawada also suggested that prospective studies would better establish causation. We definitely agree because this is true for any research question. Indeed, prospective studies are underway by our group and others using both objective assessments and PRO to better understand the relationship between AD and sleep.

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Allergenic Ingredients in Hand Wet Wipes

To the Editor:

Among individuals referred for patch testing, hands are the most common location affected.¹ Wipes are a potentially relevant allergen source for those with allergic contact dermatitis (ACD) of the hands, with recent estimates suggesting that wipes contact the hands of 71% of Americans.² Multiple cases of wipe-associated hand dermatitis have been reported,^{3,4} usually from preservatives such as methylchloroisothiazolinone, methylisothiazolinone, bronopol, other

formaldehyde-releasing preservatives, iodopropynyl butylcarbamate, or fragrance. The prevalence of these ingredients in hand wipes has not been determined. The purpose of this study was to tabulate potential allergens in hand wipes available at several large US retailers.

During May and June 2016, Walgreens Pharmacy's Web site was searched for "hand wipes." Generic wipes from CVS, Target, and Walmart were also included. For ingredient lists unavailable online, labels were examined in stores or obtained from the manufacturer. A hand wet wipe was only excluded if all efforts to attain the ingredient list were not successful. Redundancies (wipes with identical ingredient lists) were eliminated in an effort to avoid overrepresentation of a single brand's formulation secondary to variation in packaging size or advertising. Ingredients were tabulated in Microsoft Excel (Excel 2010; Microsoft Corp, Redmond, WA).

Using the International Nomenclature of Cosmetic Ingredients and the Ingredient Database of the Personal Care Products Council,⁵ synonymous ingredients were combined into a single category to minimize redundant reporting. In most cases, we did not collapse ingredients into large categories (eg, fragrance materials, formaldehyde-releasing preservatives); however, the terms "fragrance" and "parfum" were combined into a single category "fragrance." Related allergens (eg, different species of lavender or paraben variants) were also combined into larger categories of "lavender extracts" and "parabens." In the event that multiple related allergens were present within a wipe (eg, methyl paraben and propyl paraben), a single wipe was reported such that frequencies convey the percentage of hand wet wipes containing any paraben and not the total number of parabens in these wipes.

The final database included 34 hand wet wipes specifically marked for use on the hands. A total of 87 ingredients (before categorization) were listed in these wipes, with an average of 9.5 ingredients per hand wipe. Table 1 summarizes the most common ingredients. *Aloe barbadensis* was the most common ingredient, observed in 85.3% of wipes. Tocopherol derivatives (61.8%), citric acid (55.9%), fragrance (55.9%), alcohol (52.9%), and benzalkonium chloride (52.9%) were found in more than half of hand wipes. The remaining most frequently identified ingredients are listed in Table 1.

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