compared with healthy controls. While baseline spirometry was normal, EoE subjects had lower PC_{20} values (indicating greater airway reactivity) and higher eNO (indicating increased lower airway atopic inflammation) in comparison with healthy subjects. Frequency of AHR was significantly greater in EoE (OR = 4.13; 95% CI: 1.16–14.62; $P = .0281$) and EoE without asthma (OR = 6.60; 95% CI: 1.64–26.58; $P = .0079$). In particular, AHR was present in 8 of 18 EoE subjects without a prior asthma diagnosis. When history of wheezing was included, 66.7% of EoE subjects were considered to have a definite or likely diagnosis of asthma. An elevated total serum IgE was associated with a greater risk of AHR (OR = 99.643; 95% CI: 1.633–56.925; $P = .0124$), but eNO and allergen sensitization were not. There were no differences in median serum levels of IL-5, IL-9, eotaxin, EGF, and FGF-2 among EoE subjects with and without AHR and healthy controls.

CONCLUSIONS. There is a high frequency of AHR and likely asthma diagnosis in EoE subjects. Elevated total serum IgE was the only marker associated with a greater risk of AHR in EoE children.

REVIEWER COMMENTS. As previously reported, EoE subjects had a very high prevalence of associated atopic disorders, and this study suggests that EoE patients in particular are being underdiagnosed for asthma. The cross-sectional design did not account for possible AHR variation over time and possible association with changes in EoE disease activity and lacks a comparison with children with atopic disease without EoE. Longitudinal studies correlating AHR with the treatment of EoE and associated atopic disease would help to determine its significance in EoE.

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Retrospective Comparison of Fluticasone Propionate and Oral Viscous Budesonide in Children With Eosinophilic Esophagitis

Fable JM, Fernandez M, Goodine S, Lerer T, Sayej WN. [published online ahead of print May 9, 2017]. *J Pediatr Gastroenterol Nutr*. doi: 10.1097/MPG.0000000000001626

PURPOSE OF THE STUDY. Oral topical steroid therapies with oral viscous budesonide or fluticasone propionate are effective treatment options for eosinophilic esophagitis (EoE) patients, but a comparison between the 2 treatments has not been performed in pediatric patients. This study was designed to compare these 2 treatments.

STUDY POPULATION. A total of 68 EoE patients from Connecticut Children's Medical Center seen from 2010 to 2015.

METHODS. A retrospective chart review of patients all treated with either swallowed fluticasone propionate or oral viscous budesonide (thickened with either Neocate Duocal or sucralose) for >8 weeks who underwent endoscopy pre- and posttreatment.

RESULTS. Two-thirds cohort responded to topical steroids (65%), with fewer responding to fluticasone (FP) than oral viscous budesonide (OVB) (40% vs 75%, $P < .006$). Lower posttreatment eosinophils per high-power field (eos/HPF) levels were noted in the OVB treated patients (12±16 eos/HPF) compared with the FP treated group (20±29 eos/HPF). There was also a significantly greater difference in the change of absolute eos/HPF from pre- to posttreatment in the OVB group versus FP (−33 vs −18, $P = .047$). Asthma was associated with a poorer response in OVB treated patients. The vehicle thickener did not affect outcomes.

CONCLUSIONS. The data suggest that treatment with oral viscous budesonide leads to better endoscopic and histologic outcomes than fluticasone. Adherence to treatment and history of asthma are major determining factors in the response to treatments. Using Neocate Duocal as the budesonide delivery vehicle is just as effective as sucralose.

REVIEWER COMMENTS. This is the first study to directly compare the efficacy of topical steroid therapies in EoE. The limitations of this study include the retrospective nature and the potential selection bias, as the patients included in the study were treated based on provider preference, a past history of treatment success or failure, patient preference, insurance issues, or other reasons that could impact the measured response rates. In addition, the compliance with treatment was not assessed.

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ATOPIC DERMATITIS, CONTACT DERMATITIS, AND ANGIOEDEMA

Antimicrobials From Human Skin Commensal Bacteria Protect Against *Staphylococcus aureus* and Are Deficient in Atopic Dermatitis

Nakatsuji T, Chen TH, Narala S, et al. *Sci Transl Med*. 2017; 9(378):eaah4680

PURPOSE OF THE STUDY. To identify if the normal human skin microbiome contains commensal bacteria that produce antimicrobial activity against *S. aureus* and if commensal loss results in the development of atopic dermatitis (AD).

STUDY POPULATION. The study included adults with AD and age-matched, healthy, non-AD subjects. A large number of AD subjects were culture positive for *S. aureus* on lesional and nonlesional skin sites.

METHODS. The authors isolated coagulase-negative *Staphylococcus* (CoNS) species with identified antimicrobial activity against *S. aureus* from the skin of AD and non-AD subjects. The study identified *Staphylococcus epidermidis* and *Staphylococcus hominis* as sources of these antimicrobial peptides (AMPs). The CoNS strains were applied autologously to the lesional skin of 5 AD patients. *S. aureus* colonization was examined after autologous microbiome transplant.

RESULTS. When the CoNS strains were applied autologously to the lesional skin of AD patients, *S. aureus* colonization decreased.

CONCLUSIONS. Normal skin has CoNS that produce AMPs, which in turn inhibit overgrowth of *S. aureus*. Thus, some skin bacteria produce AMPs that protect against *S. aureus* colonization, and loss of these protective bacteria may contribute to the development of AD.

REVIEWER COMMENTS. This study highlights the importance of the skin microbiome in AD. Peptides made by the skin commensal microbiome may be the first line of defense against pathogens and later AD development. The findings from this study may one day provide the framework for the prevention and treatment of AD by altering the skin bacterial flora or by developing these AMPs as topical medications.

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Association Between Atopic Dermatitis and Attention Deficit Hyperactivity Disorder in U.S. Children and Adults

Strom MA, Fishbein AB, Paller AS, Silverberg JI. *Br J Dermatol*. 2016;175(5):920–929

PURPOSE OF THE STUDY. To determine if an association exists between atopic dermatitis and attention deficit (hyperactivity) disorder (ADD/ADHD) in children and adults and to describe the factors that contribute to such an association.

STUDY POPULATION. This study analyzed pooled data from 19 US population-based surveys that included 354 416 children and adolescents aged 2–17 years.

METHODS. Cross-sectional data were analyzed from 19 US population-based surveys, each assembled by the National Center for Health Statistics, including the 1997–2013 National Health Interview Survey and the 2003–2004 and 2007–2008 National Survey of Children's Health. Associations of both atopic dermatitis and ADD/ADHD were examined in children aged 2–17 years, including sex, age, race, household income, highest level of household/parental education, birthplace in the US or elsewhere, and insurance coverage. Bivariate and multivariate logistic regression models were used in statistical analysis.

RESULTS. The pooled prevalence of atopic dermatitis was 10.1%, and the pooled prevalence of ADD/ADHD was 7.3%. Children with atopic dermatitis demonstrated an association with ADD/ADHD (adjusted odds ratio [95% confidence interval], 1.14 [1.03–1.26]). Children with both severe atopic dermatitis and only 0–3 nights of adequate sleep per week had much higher odds of ADD/ADHD (16.83 [7.02–40.33]) than those with 0–3 nights of adequate sleep per week (1.83 [1.47–2.26]) or mild to moderate atopic dermatitis alone (1.56 [1.22–1.99]). Atopic dermatitis in the absence of other allergic diseases was also associated with increased risk of ADD/ADHD in children. For children with atopic dermatitis, a history of anemia, headaches, and obesity were associated with higher odds of ADD/ADHD.

CONCLUSIONS. Atopic dermatitis in children is associated with increased odds of ADD/ADHD. Headaches, obesity, and anemia occurring in children with atopic dermatitis further increase the risk of ADD/ADHD.

REVIEWER COMMENTS. This study demonstrates that atopic dermatitis in the absence of other allergic diseases in children is associated with increased risk of ADD/ADHD. Furthermore, severe atopic dermatitis and sleep disturbance may act both independently and synergistically to increase the risk of ADD/ADHD. Improved understanding of these risk associations between atopic dermatitis and ADD/ADHD will assist in the clinical care of these children.

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Phenotypes of Atopic Dermatitis Depending on the Timing of Onset and Progression in Childhood

Roduit C, Frei R, Depner M, et al; and the PASTURE study group. *JAMA Pediatr*. 2017;171(7):655–662

PURPOSE OF THE STUDY. To use a symptom-based definition of atopic dermatitis to identify different phenotypes and to determine if certain subtypes are at higher risk to develop comorbid atopic disease.

STUDY POPULATION. A total of 1038 European children from The Protection Against Allergy Study in Rural Environments (PASTURE) birth cohort (designed to assess impact of living on a farm) were recruited between August 2002 and March 2005. This study included participants with data on atopic dermatitis up until age 6 years.

METHODS. Subtypes of atopic dermatitis in children were identified by using latent class analysis. Subtypes were based on the timing of onset and symptom course. The

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