

more than 120 days after the last ustekinumab treatment were excluded. Finally, 3 patients were considered to have active tuberculosis related to ustekinumab treatment. The duration of ustekinumab treatment before diagnosis of active tuberculosis in these 3 patients was 53, 1046, and 1280 days (Supplemental Table II). There was neither active nor latent tuberculosis within 3 years before first ustekinumab treatment in these 3 patients. Sex- and age-adjusted expected number of active tuberculosis cases from 2803 patients was 3.945; thus, the standardized incidence ratio was 0.76 compared with that in the general population (95% confidence interval 0.59-2.02).

This study showed that ustekinumab did not increase the risk of tuberculosis compared with that among the general population in an actual clinical setting in South Korea. Similarly, Hsiao et al<sup>5</sup> reported no active tuberculosis infection in 134 psoriatic patients receiving ustekinumab in Taiwan. Thus, these results suggest that ustekinumab treatment does not require additional tuberculosis monitoring even in areas with high disease burden. Further studies from other regions are needed to validate these results.

This study was supported by the National Health Insurance Service (NHIS) in Korea. NHIS helped us to access and analyze the National Health Insurance Database.

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Funding sources: None.

Conflicts of interest: None disclosed.

IRB approval status: Reviewed and approved by the SMG-SNU Boramae Medical Center IRB, Seoul, South Korea (07-2019-21/082).

Reprints not available from the authors.

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<https://doi.org/10.1016/j.jaad.2019.12.033>

## Cocamidopropyl betaine is commonly found in hypoallergenic personal care products for children



To the Editor: Atopic dermatitis (AD), found in approximately 15% of pediatric patients in the United States, is an inflammatory skin condition associated with poor skin barrier function, resulting in significantly higher rates of cutaneous delayed-type hypersensitivity and allergic contact dermatitis (ACD) compared with populations without AD,<sup>1</sup> particularly to weaker allergens.<sup>2</sup>

In 2014, Shaughnessy et al<sup>1</sup> analyzed 1674 patients with and without AD who underwent patch testing with the North American Contact Dermatitis Group patch series for reactivity to surfactants, products known to worsen skin barrier dysfunction and aggravate skin inflammation in patients with ACD and AD. Their study determined an association between cocamidopropyl betaine (CAPB) contact sensitivity and a history of AD and concluded that children with AD should not be exposed to CAPB.<sup>1</sup> These results are supported by our recent study of a pediatric cohort wherein all CAPB reactions came exclusively from patients with AD.<sup>3</sup>

Despite being the allergen with the eighth most frequent reactions in a recent 10-year retrospective medical record review of pediatric patients,

**Table 1.** Shampoo and soap products found in 2 or more queries of major online retailers

Baby shampoo*	Cocamidopropyl		Baby soap*	Cocamidopropyl	
	Queries	betaine		Queries	betaine
1. Johnson's Baby Shampoo	6	✓	1. Aveeno Baby Lightly Scented Wash and Shampoo — natural oat extract <sup>†</sup>	4	✓
2. Aveeno Baby Lightly Scented Wash and Shampoo — natural oat extract <sup>†</sup>	5	✓	2. Baby Dove Tip-To-Toe Wash — rich moisture	4	✓
3. Cetaphil Baby Wash & Shampoo — with organic calendula <sup>†</sup>	5	✓	3. Burt's Bees Baby Shampoo & Wash — original	4	✓
4. Johnson's Calming Baby Shampoo	5	✓	4. Dr. Bronner's 18-in-1 Hemp Baby Unscented — pure-castile soap	4	...
5. Burt's Bees Baby Shampoo & Wash — fragrance free & tear free	4	...	5. Johnson's Bedtime Moisture Wash	3	✓
6. The Honest Company Shampoo + Body Wash — ultra calming, dreamy lavender	4	...	6. Johnson's Head-To-Toe Wash & Shampoo	3	✓
7. Johnson's Head-To-Toe Wash & Shampoo	4	✓	7. Baby Dove Tip-To-Toe Wash — sensitive moisture	2	✓
8. Aquaphor Gentle Baby Wash and Shampoo	3	✓	8. Cetaphil Baby Gentle Wash — with organic calendula <sup>†</sup>	2	✓
9. Eucerin Baby Wash & Shampoo — 2-in-1 tear-free formula <sup>†</sup>	3	✓	9. Dr. Bronner's 4-in-1 Baby Unscented Organic Sugar Soap	2	...
10. The Honest Company Shampoo + Body Wash — perfectly gentle, sweet orange vanilla	3	...	10. Dr. Bronner's All-One Hemp Baby Unscented Pure-Castile Bar Soap	2	...
11. Johnson's CottonTouch — newborn wash & shampoo <sup>†</sup>	3	✓	11. Eucerin Baby Wash & Shampoo — 2-in-1 tear-free formula <sup>†</sup>	2	✓
12. Mustela Baby Gentle Shampoo	3	✓	12. Johnson's Baby Moisture Wash	2	✓
13. Aveeno Baby Gentle Conditioning Shampoo	2	✓	13. Johnson's CottonTouch — newborn wash & shampoo <sup>†</sup>	2	✓
14. Baby Dove Shampoo — rich moisture	2	✓	14. Johnson's Skin Nourish — vanilla oat wash	2	✓
15. Babyganics Chamomile Verbena Shampoo & Bodywash	2	...			
16. California Baby Therapeutic Relief Eczema Shampoo & Bodywash	2	...			
17. CeraVe Baby Wash & Shampoo	2	...			
18. Dr. Eddie's Happy Cappy Daily Shampoo and Body Wash	2	...			
19. Johnson's Detangling 2-in-1 Kids Shampoo and Conditioner	2	✓			
20. Mustela Baby 2-in-1 Cleansing Gel (hair and body)	2	✓			
21. SheaMoisture Raw Shea Chamomile & Argan Oil Baby Wash & Shampoo — w/frankincense & myrrh	2	...			

\*Each product branded as "hypoallergenic" or "for sensitive skin"; "baby shampoo" and "baby soap" refer to the product term searched in each query respectively.

<sup>†</sup>Found in both "shampoo" and "soap" queries.

CAPB is commonly found in products branded as "hypoallergenic," which are recommended for children with ACD or AD.<sup>4</sup> This study assessed the

frequency of CAPB inclusion in commonly purchased pediatric hypoallergenic personal care products.

To determine CAPB frequency in personal care products branded for children, we queried the on-line databases of the top 6 retailers by 2018 sales for “baby shampoo” and “baby soap,” excluding retailers that do not sell individually packaged personal care products.<sup>5</sup> We ordered products by “best selling” except where there was a dedicated “best sellers” page ([Amazon.com](https://www.amazon.com)), where the most representative sorting option was “most viewed” ([CVS.com](https://www CVS.com)), or where there was no best-selling filter and thus the first 20 products displayed meeting inclusion criteria were selected ([Kroger.com](https://www Kroger.com)). We cross-referenced product ingredients with the product’s specific page on its respective company’s website. To ensure appropriate product inclusion, products combined in “bundles” or not typically considered as children’s shampoo or soap, such as dish soaps and diaper rash cream, were excluded.

The top 20 best-selling products for children’s shampoo and soaps were analyzed for each retailer. Overall, 52.0% (39 of 75) of unique shampoo and 43.9% (29 of 66) of unique soap products contained CAPB. Of products found in more than 1 query, 61.9% (13 of 21) of shampoo and 78.6% (11 of 14) of soap products contained CAPB. Each of these products contained the term “hypoallergenic” on the product itself or in the product’s description (Table 1). The greatest proportion of purchased products containing CAPB came from the [Walmart.com](https://www Walmart.com) query (28 of 40 [70%]), whereas the [Amazon.com](https://www Amazon.com) query contained the least (18 of 40 [45%]) (Supplemental Fig 1, available via Mendeley v2, <https://doi.org/10.17632/sfhfzxxxt.2>).

CAPB is a prevalent sensitizer in pediatric patients and should be avoided in patients with AD.<sup>1-4</sup> CAPB is not included on the T.R.U.E. test (SmartPractice Canada, Calgary, AB), a commonly used patch test containing 35 prevalent allergens, and therefore, expanded or custom patch testing is recommended for pediatric patients with AD.<sup>3</sup> Given the higher likelihood of CAPB sensitivity in patients with AD, we recommend pediatricians and dermatologists be aware of common products containing CAPB when counseling patients about their product choices.

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Funding sources: None.

Conflicts of interest: None disclosed.

IRB approval status: Not applicable.

Reprints not available from the authors.

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<https://doi.org/10.1016/j.jaad.2019.12.036>

## Conjunctivitis in patients with atopic dermatitis treated with dupilumab is associated with higher baseline serum levels of immunoglobulin E and thymus and activation-regulated chemokine but not clinical severity in a real-world setting



*To the Editor:* Conjunctivitis has been observed as an adverse event in patients with atopic dermatitis (AD) receiving dupilumab. Its incidence rate ranges from 8.6% to 21.44% in clinical trials,<sup>1</sup> whereas real-world data have shown an even higher prevalence.<sup>2</sup> We analyzed our data to explore practical predictors of later development of conjunctivitis in patients with AD initiating dupilumab in a real-world setting.

The study included adult patients with AD who had been treated with dupilumab in our hospital for more than 3 months as of October 1, 2019. Other inclusion criteria were the same as those described in our previous report.<sup>2</sup> Baseline clinical severity, patients’ history of conjunctivitis, and results from laboratory blood tests were compared between patients who developed conjunctivitis and those who did not.

Data on 57 Japanese adult patients (49 men, 8 women) with AD were analyzed. The mean  $\pm$  standard deviation age at starting dupilumab was