

Allergenic Ingredients in Facial Wet Wipes

Kelly A. Aschenbeck, BS*†‡ and Erin M. Warshaw, MD, MS†‡§

Background: Allergic contact dermatitis commonly occurs on the face. Facial cleansing wipes may be an underrecognized source of allergens.

Objective: The aim of this study was to determine the frequency of potentially allergenic ingredients in facial wet wipes.

Methods: Ingredient lists from name brand and generic facial wipes from 4 large retailers were analyzed.

Results: In the 178 facial wipes examined, a total of 485 ingredients were identified (average, 16.7 ingredients per wipe). Excluding botanicals, the top 15 potentially allergenic ingredients were glycerin (64.0%), fragrance (63.5%), phenoxyethanol (53.9%), citric acid (51.1%), disodium EDTA (44.4%), sorbic acid derivatives (39.3%), tocopherol derivatives (38.8%), polyethylene glycol derivatives (32.6%), glyceryl stearate (31.5%), sodium citrate (29.8%), glucosides (27.5%), cetearyl alcohol (25.8%), propylene glycol (25.3%), sodium benzoate (24.2%), and cetearth-20 (23.6%)/ parabens (23.6%). Of note, methylisothiazolinone (2.2%) and methylchloroisothiazolinone (1.1%) were uncommon. The top potential allergens of botanical origin included *Aloe barbadensis* (41.0%), chamomile extracts (27.0%), tea extracts (21.3%), *Cucumis sativus* (20.2%), and *Hamamelis virginiana* (10.7%).

Conclusions: Many potential allergens are present in facial wet wipes, including fragrances, preservatives, botanicals, glucosides, and propylene glycol.

Facial dermatitis affects up to one quarter^{1,2} of patch-tested patients. There are many potential sources of facial allergic contact dermatitis (ACD). Facial wet wipes are likely underrecognized culprits in this process, because wipe allergy has historically been primarily associated with anogenital exposures. Facial wet wipes are relatively new to the marketplace; Simple (Unilever, United Kingdom) introduced their facial cleansing wipes in 1999.³ In a recent analysis of 79 patients patch tested in North America who had wipe-associated contact allergy, 22.8% had facial dermatitis.⁴ Several case reports of wipe-associated face and neck dermatitis have been published,^{5–9} most involving preservative allergens such as methylchloroisothiazolinone (MCI), methylisothiazolinone (MI), bronopol, iodopropynyl butylcarbamate, or fragrance. While some of these cases were due to transfer of allergens to the face from wipes contacting the hands, use of facial wipes has also been directly implicated.^{5,6}

As with baby wipes,¹⁰ information regarding the frequency of potential allergens in facial wipes is important for contact dermatitis

clinicians. The purpose of this study was to analyze potential allergens in facial wet wipes available at large retailers in the United States.

METHODS

Ingredient Database

Data were collected during May and June 2016. The list of wipes (name brand as well as generics) and their ingredients was obtained online and from retail stores. First, Walgreens Pharmacy's Web page was searched for "facial wipes," "facial cleansing cloths," "facial cleansing pads," "make-up remover wipes," "make-up remover cloths," and "make-up remover pads." Generic brand wipes from CVS, Target, and Walmart were added. For ingredient lists unavailable online, labels were examined in stores (Target, Walmart, Walgreens, and CVS). In cases where the wipe could not be located in stores, ingredient lists were obtained from the manufacturer's Web page or requested from the manufacturer. A facial wipe was excluded if all attempts to attain the ingredient list were unsuccessful. Intraretailer redundancies (wipes with identical ingredient lists) were eliminated so as to reduce overrepresentation of a single brand's formulation secondary to different size packaging or changes in package advertising. Ingredients were recorded in Microsoft Excel (Excel 2010; Microsoft Corp, Redmond, WA).

Ingredient Analysis

Similar allergens were combined to minimize redundant reporting. Synonymous ingredients were condensed into a single category based on the official International Nomenclatures of Cosmetic Ingredients names. Equivalent ingredients were determined using the Ingredient Database of the Personal Care Products Council.¹¹ In most cases, we did not collapse ingredients into large categories

From the *University of Minnesota School of Medicine, Minneapolis; †Department of Dermatology, Minneapolis Veterans Affairs Medical Center, MN; ‡HCMC Parkside Occupational and Contact Dermatitis Clinic; and §Department of Dermatology, University of Minnesota, Minneapolis.

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Corresponding author: Erin Warshaw MD, MS. E-mail: erin.warshaw@va.gov.

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(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 oranges or paraben variants) were also combined into larger categories of “orange 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 represent the percentage of facial wipes containing any paraben and not the total number of parabens found in these wipes.

RESULTS

The final database consisted of 178 wipes specifically marked for use on the face. A total of 485 ingredients (before categorization)

were identified in these wipes, with an average of 16.7 ingredients per facial wipe.

Table 1 summarizes the most common ingredients, excluding botanicals. Glycerin (64.0%), fragrance (63.5%), phenoxyethanol (53.9%), and citric acid (51.1%) were found in more than half of facial wipes. The next most frequently identified ingredients included disodium EDTA (44.4%), sorbic acid derivatives (39.3%), tocopherol derivatives (38.8%), polyethylene glycol derivatives (32.6%), glyceryl stearate (31.5%), sodium citrate (29.8%), glucosides (27.5%), cetearyl alcohol (25.8%), and propylene glycol (25.3%).

The top 12 potential allergens of botanical origin are summarized in Table 2. Of these, *Aloe barbadensis* (aloe vera) was the most common, present in 41.0% of facial wipes. The next most frequent

TABLE 1. Ingredients Found in Greater Than 10% of Facial Wipes, Excluding Botanicals

Frequency in Facial Wipes		Frequency in Facial Wipes	
Ingredient*	n (%)†	Ingredient*	n (%)†
Glycerin	114 (64.0)	Parabens#	42 (23.6)
Fragrance	113 (63.5)	Methyl paraben	42 (23.6)
Phenoxyethanol	96 (53.9)	Propyl paraben	38 (21.3)
Citric acid	91 (51.1)	Butyl paraben	6 (3.4)
Disodium EDTA	79 (44.4)	Ethyl paraben	6 (3.4)
Sorbic acid derivatives‡	70 (39.3)	Isobutyl paraben	4 (2.2)
Tocopherol derivatives§	69 (38.8)	Royl paraben	1 (0.6)
Polyethylene glycol (PEG) derivatives	58 (32.6)	Iodopropynyl butylcarbamate	41 (23.0)
Glyceryl stearate	56 (31.5)	Cetearyl isononanoate	40 (22.5)
Sodium citrate	53 (29.8)	Ceteareth-12	39 (21.9)
Glucosides¶	49 (27.5)	Silicones/siloxanes**	38 (21.3)
Decyl glucoside	14 (7.9)	Butylene glycol	37 (20.8)
Caprylyl/capryl glucoside	13 (7.3)	Cetyl palmitate	36 (20.2)
Lauryl glucoside	10 (5.6)	Panthenol derivatives††	36 (20.2)
Coco-glucoside	6 (3.4)	Salicylic acid	35 (19.7)
Ascorbyl glucoside	5 (2.8)	Sodium hydroxide	35 (19.7)
Xylityl glucoside	5 (2.8)	Alcohol‡‡	33 (18.5)
Sodium lauryl glucosides	1 (0.6)	Dehydroacetic acid	31 (17.4)
hydroxypropylsulfonate		Benzoic acid	31 (17.4)
Cetearyl alcohol	46 (25.8)	Benzyl alcohol	30 (16.9)
Propylene glycol	45 (25.3)	DMDM hydantoin	29 (16.3)
Sodium benzoate	43 (24.2)	Bronopol	26 (14.6)
Ceteareth-20	42 (23.6)	Hexylene glycol	26 (14.6)
		Acrylate polymers§§§	23 (12.9)

*Excludes water.

†Denominator for (%) is N = 178, total number of wipes analyzed.

‡Includes polysorbate 20, polysorbate 80, polysorbate 20 sugar alcohol, potassium sorbate, and sorbic acid; excludes redundancies within a single wipe.

§Includes vitamin E, tocopherol, tocopheryl acetate; excludes redundancies.

||Includes jojoba wax PEG-120 esters, PEG 100, PEG 100 stearate, PEG 14M, PEG 16 macadamia glyceride, PEG 16 soy sterol, PEG 200 hydrogenated glyceryl palmate, PEG 4, PEG 4 laurate, PEG 6, PEG 6 caprylic/capric glycerides, PEG 8/SMDI copolymer, PEG 80 glyceryl cocoate, PEG/PPG 20/6 dimethicone, PEG-12 dimethicone, PEG-120 methyl glucose trioleate, PEG-15 cocopolymers, PEG-15 glyceryl isostearate, PEG-150 distearate, PEG-32, PEG-32 methyl ether dimethicone, PEG-40 hydrogenated castor oil/extract, PEG-40 stearate, PEG-6 caprylic, PEG-60 almond glycerides, PEG-7 glyceryl cocoate, PEG-8, PEG-80 sorbitan laurate, and PPG-1-PEG-9 lauryl glycol ether; excludes redundancies.

¶Excludes redundancies for multiple glucosides in a single wipe. A total of 54 glucoside derivatives were found in 178 wipes.

#Excludes redundancies for multiple parabens present in a single wipe. A total of 97 paraben derivatives were found in 178 wipes.

**Includes caprylyl methicone, cetearyl methicone, cyclohexasiloxane, cyclomethicone, cyclopentasiloxane, dimethicone, dimethiconol, polymethylsilsequioxane, and simethicone; excludes redundancies.

††Includes panthenol, provitamin B5, and calcium pantothenate; excludes redundancies.

‡‡Includes alcohol, denatured alcohol, grain alcohol 35%, SD alcohol 40B, and SD alcohol 40B denatured; excludes redundancies.

§§§Includes acrylates, acrylates/vinyl isodecanoate cross polymer, C10-30 alkyl acrylate cross polymer, C10-30 acrylate cross polymer acrylates copolymer, carbomer, and sodium polyacrylate; excludes redundancies.

EDTA indicates ethylenediaminetetraacetic acid; DMDM, dimethylol dimethyl.

TABLE 2. Top 12 Ingredients of Botanical Origin

Ingredient	Frequency in Facial Wipes n (%) [*]
<i>A. barbadensis</i> (<i>Aloe vera</i>)	73 (41.0)
Chamomile extracts [†]	48 (27.0)
Tea extracts [‡]	38 (21.3)
<i>C. sativus</i> (cucumber)	36 (20.2)
<i>H. virginiana</i> (witch hazel)	19 (10.7)
<i>Centaurea cyanus</i> (cornflower)	15 (8.4)
<i>Glycine soja</i> (soybean)	11 (6.2)
<i>Citrus medica limonum</i> (lemon)	9 (5.1)
<i>Vitis vinifera</i> (grape)	9 (5.1)
Grapefruit extracts [§]	8 (4.5)
Orange extracts	8 (4.5)
Lavender extracts [¶]	7 (3.9)

^{*}Denominator for (%) is N = 178, total number of wipes analyzed.

[†]Includes *A. nobilis*, *C. recutita* (chamomile, German chamomile), and bisabolol; excludes redundancies within a single wipe.

[‡]Includes *Camellia sinensis*, *Camellia oleifera*, “green tea,” and “white tea.” Excludes redundancies.

[§]Includes *Citrus paradisi* and *Citrus grandis*; excludes redundancies.

^{||}Includes *Citrus aurantium* (dualis), *Citrus nobilis* (mandarin orange), *Citrus sinensis*, and *Mandarin*; excludes redundancies.

[¶]Includes lavender oil, lavender oil, *Lavandula angustifolia*, and *Lavandula stoechas*; excludes redundancies.

included chamomile extracts (27.0%), tea extracts (21.3%), *Cucumis sativus* (cucumber; 20.2%), and *Hamamelis virginiana* (10.7%).

Table 3 reports facial wet wipes containing few American Contact Dermatitis Society allergens (≤ 1). Many were further specified for use on the eyelids. Most of these “low-allergen” wipes also contained botanicals and fragrances.

DISCUSSION

Facial dermatitis is common in individuals referred for patch testing; almost half are ultimately found to have ACD (45.5%).² This study demonstrates that facial wet wipes may be an important source of allergens. The most common ingredients and likely potential allergens included fragrance, glucosides, propylene glycol, preservatives, and botanicals.

Fragrance/Parfum

In almost all large North American studies, positive reaction rates to fragrance mix I are in the top 5 most commonly identified allergens.^{1,12–17} Fragrance/parfum was identified in 63.5% of facial wipes in our study, making it the second most common ingredient in wipes—even without combining other ingredients that serve as

TABLE 3. Facial Wipes With 1 ACDS Core Allergen or Less

Wipe	Ingredients
Almay Gentle Oil Free Eye Makeup Remover Pads [*]	Aqua (water), poloxamer 184, butylene glycol, <i>C. sativus</i> fruit extract (cucumber), <i>A. barbadensis</i> leaf extract, <i>Camellia sinensis</i> leaf extract, disodium lauroamphodiacetate, sodium trideceth sulfate, hexylene glycol, citric acid, benzyl alcohol, phenoxyethanol
Andrea EyeQ's Moisturizing Eye Make-Up Remover Pads [*]	Paraffinum liquidum (mineral oil), <i>C. recutita</i> flower extract (matricaria), <i>Glycine soja</i> seed extract (soybean), <i>Carthamus tinctorius</i> seed oil (safflower)
Andrea EyeQ's Ultra Quick Eye Make-Up Remover Pads ^{*†}	Paraffinum liquidum, <i>A. barbadensis</i> leaf juice, <i>Triticum vulgare</i> (wheat) germ oil, <i>Glycine soja</i> (soybean) oil
Dickinson's Original Witch Hazel Daily Refreshingly Clean Cleansing Cloths [*]	Natural grain alcohol (14%), witch hazel extract, benzethonium chloride, sodium benzoate, <i>A. barbadensis</i> leaf juice
Dickinson's Original Witch Hazel Oil Controlling Towelettes [*]	Natural grain alcohol (14%), witch hazel extract, <i>A. barbadensis</i> leaf juice, sodium benzoate
Eye Scrub Eye Makeup Remover and Eyelid Cleansing Pads	Water USP (purified), PEG 200 hydrogenated glyceryl palmate, disodium laureth sulfosuccinate, cocoamidopropylamine oxide, PEG 80 glyceryl cocoate, benzyl alcohol, edetate disodium
Ology Gently Soothing Fragrance Free Facial Towelettes [*]	Water, glycerin, sodium benzoate, cocamidopropyl PG-dimonium chloride phosphate, <i>A. barbadensis</i> extract, <i>Camellia sinensis</i> leaf extract, sea salt extract, <i>C. sativus</i> fruit extract (cucumber), <i>Morus alba</i> twig extract, <i>Glycyrrhiza glabra</i> root extract (licorice), <i>Leucantheum vulgare</i> seed extract, citric acid
OXY Acne Treatment Cleansing Pads	Salicylic acid, alcohol (46% vol/vol), fragrance, isoceteth 20, PEG 8/SMDI copolymer, water (purified), trisodium EDTA, trolamine
OXY Maximum Action Rapid Treatment 3-in-1 Pads [*]	Salicylic acid, alcohol (50% vol/vol), allantoin, capryloyl glycine, fragrance, isoceteth 20, jojoba wax PEG 120 esters, PEG 8, SMDI copolymer, phytic acid, purified water, trisodium EDTA, trolamine
Systane Lid Wipes Eyelid Cleansing Wipes	Purified water USP, PEG 200 hydrogenated glyceryl palmate, disodium laureth sulfosuccinate, cocoamidopropylamine oxide, PEG 80 glyceryl cocoate, benzyl alcohol, edetate disodium

Components of fragrance mixes I and II identified in wipes were condensed with “fragrance” and “parfum” and counted as 1 ACDS allergen; these included amyl cinnamal, cinnamal, citral, citronellol, coumarin, eugenol, geraniol, hexyl cinnamal, hexyl cinnamic aldehyde, hydroxycitronellal, hydroxyisohexyl-3-cyclohexene, and hydroxyisohexyl-3-cyclohexene carboxaldehyde.

^{*}Denotes wipe containing fragrance or botanical extracts.

[†]Denotes wipe with 0 ACDS core allergens.

ACDS indicates American Contact Dermatitis Society; USP, United States Pharmacopeia; PEG, polyethylene glycol; PG, propylene glycol; SMDI, saturated methylene diphenyldiisocyanate; EDTA, ethylenediaminetetraacetic acid.

fragrances (eg, lavender, chamomile) to this category. Thus, the frequency of fragrance-related ingredients (including botanicals and individual fragrance chemicals) in facial wipes is much higher than reported herein.

Interestingly, there is only 1 report of allergy to fragrance associated with facial wet wipes⁶; however, fragrance allergy including cinnamic aldehyde, cinnamic alcohol, and fragrance mixes has been associated with other types of wet wipes (eg, baby wipes, personal hygiene wipes).^{7,8,18} In a recent study of allergic reactions to wipes (facial vs other type of wipe not recorded), 9 (12.3%) were associated with fragrance allergens included in the North American Contact Dermatitis Group screening series.⁴ The relatively few reports of wipe-associated fragrance allergy are likely due to problems establishing clinical relevance to fragrance ingredients, as well as difficulty in interpreting macular erythema (doubtful) and mild (+) reactions to fragrance mixes.^{19–21} Regardless, the high frequency of fragrance/parfum in facial wet wipes in our study underscores that these are a potential source of ACD.

Other fragrance-related ingredients such as benzyl alcohol and its relative, benzoic acid, were also among the top ingredients found in facial wipes (16.9% and 17.4%, respectively). Benzyl alcohol is a relatively rare sensitizer¹² but may pose a problem in some highly sensitive, fragrance-allergic individuals.

Phenoxyethanol

In our study, phenoxyethanol was the third most common ingredient found in facial wet wipes. While there are few reports of ACD due to phenoxyethanol,^{22–24} this preservative is a rare sensitizer.²⁵ Phenoxyethanol is often tested in combination with methylidibromoglutaronitrile because historically this combination was utilized together in products. Because of its high rate of sensitization, methylidibromoglutaronitrile has been banned in the European Union,²⁶ and as a result, it is no longer commonly found in North American products. None of the 178 facial wipes in our study contained methylidibromoglutaronitrile. Although primary sensitization from phenoxyethanol in facial wipes is likely uncommon, individuals sensitized from other sources could react to the majority of facial wet wipes.

Tocopherol Derivatives

In this study, tocopherol (or derivative) was present in more than one third of facial wipes (38.8%). Tocopherol acts as moisturizer, antioxidant, and antiaging agent.²⁷ Positive patch-test reactions to tocopherol are relatively uncommon (0.6% in 4859 patients)¹ but have been reported in 1 patient associated with a tocopherol-containing wipe.⁴

Glucosides

Glucosides are a family of related, nonionic surfactants that are frequently used in skin care products. Recently named Contact Allergen of the Year for 2017 by the American Contact Dermatitis Society, glucosides are an emerging and potentially underrecognized

allergen.²⁸ The reaction rate for decyl glucoside, the screening glucoside on most series, has modestly increased from 1.5% in 2009–2010¹³ to 1.6% in 2011–2012¹² and 1.7% in 2013–2014.¹ Of the wipes containing glucosides analyzed in our study, each wipe contained an average of 1.1 glucosides (data not shown). Decyl glucoside was the most commonly identified glucoside ingredient.

Cross reactivity between glucosides has been observed.^{29,30} Gijbels et al²⁹ reported a 55-year-old male patient who reacted to decyl glucoside and coco-glucoside documented in an intimate-hygiene wipe containing glucosides. The prevalence of various glucosides in facial wipes coupled with their cross reactivity poses a prominent risk for glucoside-sensitive patients.

Propylene Glycol

Propylene glycol is a colorless vehicle and emulsifier. It is used in a wide range of products from topical corticosteroids to vaporizers in electronic cigarettes.³¹ Butylene glycol and hexylene glycol also have similar functions but are not thought to cross react with propylene glycol. Sensitivity to propylene glycol was 2.8% in the latest North American Contact Dermatitis Group report.¹ Allergic contact dermatitis secondary to a wipe source containing propylene glycol has yet to be reported.

Parabens

Parabens are popular because they are colorless, odorless, and inexpensive preservatives, which have a wide spectrum of antimicrobial activity.³² From an allergy standpoint, parabens are one of the safest and least sensitizing preservative classes. Unfortunately, in the lay press, they have been associated with hormonal dysregulation^{33,34} and breast cancer³⁵ because of studies in laboratory animals involving extremely high concentration of parabens. In our study, 23.6% of facial wipes contained at least 1 paraben, most commonly methyl paraben or propyl paraben.

Cross reactivity between parabens has been described by Menné and Hjorth,³⁶ who observed that most patients with paraben sensitivity reacted to 2 or more paraben variants. This was especially true for propyl paraben; all patients sensitized to propyl paraben also had positive patch-test reactions to ethyl paraben, butyl paraben, or both.³⁶ In patch-test studies involving multiple parabens, butyl paraben is the most frequently positive.³⁶ In our study, butyl paraben was identified much less frequently in facial wipes (3.4%) compared with methyl paraben (23.6%) and propyl paraben (21.3%). Paraben sensitivity is uncommon, with only a 0.6% positivity rate.¹ Nonetheless, parabens are found in almost one quarter of all facial wet wipes.

Iodopropynyl Butylcarbamate

Iodopropynyl butylcarbamate is an especially problematic preservative in wipes. In a recent analysis of allergic reactions to wipe sources,⁴ 12.3% were due to this preservative. This is more than 2.5 times the reaction rate in the general patch-test population (4.7%).¹ There are also multiple case reports of wipe-associated contact

dermatitis secondary to iodopropynyl butylcarbamate-containing wipes^{6,7,37}; one of these was specifically related to facial wipe use.⁶ Most allergic reactions to iodopropynyl butylcarbamate are associated with personal care products,³⁸ and the prevalence of this preservative in facial wipes (23.0%) makes it a relevant allergen. In addition, iodopropynyl butylcarbamate may cause irritant reactions, so careful interpretation of patch-test sites is important.³⁸

Formaldehyde-Releasing Preservatives

Of formaldehyde-releasing preservatives, dimethylol dimethyl (DMDM) hydantoin was most frequently identified in facial wipes (16.3%). Formaldehyde itself was not declared on any of the 178 facial wipe labels. The relationship between formaldehyde and DMDM hydantoin allergy has been evaluated by Rietschel et al,³⁹ who found that 83.4% of patients allergic to DMDM hydantoin were also allergic to formaldehyde. Conversely, 19.4% of those allergic to formaldehyde were also allergic to DMDM hydantoin.³⁹ Other formaldehyde releasers such as quaternium-15 and diazolidinyl urea were infrequently found in facial wipes (1.7% and 2.2%, respectively). Imidazolidinyl urea was not identified in any facial wipes in our study.

Bronopol (2-bromo-2-nitropropane-1,3-diol) was identified in 14.6% of facial wet wipes. In a recent study, bronopol was second only to the isothiazolinones in positive patch-test reactions associated with wipe sources.⁴ In the general patch-test population, the reaction rate to bronopol was 2.1%,¹ but in those with wipe allergy, it was responsible for 27.4% of allergic reactions,⁴ a more than 10-fold increase. Bronopol is found in 0.5% of cosmetics and toiletries and, generally, is less commonly used than other formaldehyde-releasing preservatives.⁴⁰ Facial ACD from bronopol in baby wipes has been reported.⁷

Acrylates

Polymerized acrylates are relatively inert, with acrylate sensitization secondary to unpolymerized monomers.^{41,42} In facial wipes, 12.9% contained acrylate copolymers. Acrylate copolymers are not thought to be allergenic, making facial wet wipes an unlikely source of acrylate sensitivity.

Methylisothiazolinone and Methylchlorisothiazolinone

Isothiazolinones, including MI and MCI, have been reported as causative allergens in wipe-associated ACD.^{5,7-9,18,43-46} These reports have primarily involved baby wipes and personal hygiene wipes. In a recent retrospective study of wipe-associated ACD,⁴ the top 2 responsible allergens were MI (59.0%) and MCI/MI (35.6%). In our study, these allergens were relatively infrequently found in facial wipes (MI 2.2%, MCI 1.1%).

Botanicals in Facial Wipes

Botanicals were commonly found in facial wipes, representing 4 of the top 30 ingredients. Of these, *A. barbadensis* (*Aloe vera*) was

most frequently identified, present in 41.0% of facial wipes and the sixth most common ingredient overall. Following increased regulations regarding the components of *A. barbadensis* that are used in products, current *Aloe vera* preparations have reportedly been well tolerated, with no sensitization observed in a multicenter investigation of 702 patients by Reider et al.⁴⁷ Reports of *A. barbadensis* contact dermatitis are extremely rare.⁴⁸ Considering its prevalence in facial and other types of wipes,¹⁰ in the absence of any reports of sensitization from a wipe source, *Aloe vera* appears to be an unlikely allergen in facial wipe-associated dermatitis.

Chamomile extracts (including *Anthemis nobilis*, *Chamomilla recutita*, “chamomile,” “German chamomile,” and bisabolol) were found in 27.0% of facial wipes. Historically, chamomile has been used in herbal medicine for wound healing.⁴⁹ A recent randomized, partially double-blind study suggested that topical chamomile was similarly efficacious to low-potency topical steroids (0.5% hydrocortisone cream) for treatment of atopic dermatitis.⁵⁰ As a member of the Compositae family, it is represented in the “Compositae mix,” which has a positive patch-test reaction rate of 1.7%.¹ Sensitization to other related chemicals such as parthenolide (0.8%) and sesquiterpene lactone mix (0.9%) is also low.¹ Primary sensitization from chamomile is less common relative to other Compositae species,⁵¹ but the frequency of these extracts in facial wipes could perpetuate ACD in individuals sensitized from other, related Compositae compounds.

Various tea extracts have antineoplastic properties^{52,53} and have long been consumed by ancient civilizations. Animal studies have supported the potential for dermal irritation with the application of components of green tea extracts⁵⁴; however, clinical trials have not shown signs of dermal irritation with topical application.⁵⁵ Allergic contact dermatitis from tea extracts has not been reported. Importantly, tea extracts should be distinguished from tea tree oil, an essential oil from *Melaleuca alternifolia* with increasing usage in products,⁵⁶ which has been associated with many cases of contact allergy.⁵⁷⁻⁶² We identified tea tree oil in 4 facial wipes (2.2%).

Cucumis sativus (cucumber) was observed in greater than 20% of facial wipes. Cucumber-derived extracts are generally considered safe in topical products.⁶³ They can be found in cosmetics, soaps, detergents, antiperspirants, sprays, and moisturizers.⁶³ Allergic contact dermatitis from cucumber is rare but has been reported in a patient who worked with cucumber plants.⁶⁴

Limitations

This study has several limitations. First, the facial wipes included in this data set were only those specifically marketed for use on the face and did not include any other type of wipe that could be used on the face (eg, baby wipe). Second, we analyzed facial wipes available at large retailers; specialty-brand facial wipes, those from smaller companies, not available on the Web, or those not available in Minneapolis retail stores, were not represented in our analysis. Finally, manufacturers may change product formulations at any time; thus, the ingredients described in this study may change in the future.

CONCLUSIONS

Facial dermatitis is a common presentation for ACD, and wipes may be an important source of allergens. The most likely potential allergens identified in facial wipes included fragrances, preservatives, botanicals, glucosides, and propylene glycol. Fragrance was the most common potential allergen, present in 63.5% of wipes. With hundreds of ingredients found in facial wipes, there are many potential allergens to consider when evaluating patients for wipe-associated ACD.

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