# WHEN BEAUTY TALK TURNS UGLY

The must-have conversation with patients about cosmetic use.

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The fourth and final piece in our series on cosmetics and ocular surface disease (OSD) focuses on guidelines and recommendations regarding beauty product use for clinicians

and patients. Eye makeup and facial care products used by both women and men should be scrutinized as closely as the foods we eat.

We advocate label reading and understanding ingredients

as part of a proactive approach to ocular surface health. What is used on and around the eyes can affect not only eye health but also overall vision.<sup>1</sup> Beauty is literally in the eye of the beholder. We must communicate this to patients: *do not* permit ugly ingredients to compromise your tear film and vision just for the sake of beauty.

As we have discussed in previous installments, patients use eye cosmetics regularly, many on a daily basis. This is an area where we must expand our practices by discussing with patients their habits for choosing products, techniques for application of cosmetics, comfort with cosmetics, usage habits, and removal habits. Just as a diabetes educator must teach diabetic patients



Figure 1. A recently conducted online survey of 254 consumers revealed the most commonly used cosmetics on and around the eye as well as their replacement habits for products such as mascara, eyeliners and eye shadow that can become contaminated over time (A) Mascara was the most commonly used eye cosmetic with 87% of respondents stating its use. Replacement habits for (B) mascara, (C) eyeliner, and (D) eye shadow were found to be well beyond the recommended discard dates with the majority of consumers using eyeliners and eye shadows until the supply is exhausted.

about their nutrition and lifestyle habits, we must educate OSD patients regarding the everyday habits that may interfere with their treatment successes and overall well-being.

Since writing the previous articles in this series, we have again surveyed doctors and patients about their cosmetic use. We found a significant disconnect between how eye care providers think they are educating their patients and what patients actually think they hear about cosmetics from their eye care providers (Figure 1). In fact, many patients come to the office for eye examinations not wearing their full eye makeup, which contributes to "out of sight, out of mind" attitudes in both doctor and patient.

## **STARTING THE CONVERSATION**

Your opening lines in this eye health conversation are simple:

- Do you wear eye makeup?
- · Do you use eye cream or antiaging creams?
- · Do you use skincare products?

Consider asking patients to bring a list or a photographic lineup of their regular skincare and cosmetics products to their OSD follow-up visits. These can be helpful to identify the "bad guys" in a patient's daily cosmetic or skincare routines. In our clinics, we have uncovered massive exposure to OSD-exacerbating chemicals in some patients' skin care products (Figure 2)

One recent patient brought a gallon-sized plastic kitchen bag full of expensive skin care, and each product had from



Figure 2. Discussion of facial cleansers with patients. The Dry Eye Divas asked 155 eye care providers via an online survey if they were discussing the use of facial soaps and eyelid cleansers/ makeup removers regularly with their dry eye patients. The results show only approximately 21% of eye care practitoners are always asking this for their dry eye patients. This is a valuable conversation to have as many of the cleansing products are loaded with OSD harming ingredients.

# WHO ARE THE DRY EYE DIVAS?



The Dry Eye Divas are Leslie E. O'Dell, OD; Amy Gallant Sullivan, BS; and Laura M. Periman, MD. More than 1 year ago, Amy reached out to Leslie, an optometrist and subcommittee member for the Tear Film & Ocular Surface Society's Dry Eye WorkShop II, to collaborate on a public awareness campaign about cosmetics and dry eye. At the beginning of 2016, Amy and Leslie recruited Laura, a wellknown ophthalmologist who is passionate about dry eye and everything makeup. They coined the term #DryEyeDiva to energize their efforts. They are in the process of recruiting other "divas" to spread the education about how beauty routines can affect the ocular surface.

five to 13 known OSD-exacerbating ingredients. Ironically, her so-called eye cream had the most OSD-exacerbating ingredients, and it was labeled "Not for use around the eye"! Another patient had purchased the most expensive line at a department store beauty counter, naturally thinking this would be better for her eyes and skin. Analysis of the ingredients lists revealed nine to 13 OSD-exacerbating ingredients ... per product.

Even the authors are not immune to the toxic onslaught. One of our spouses was sent home from the dermatologist with a recommendation to use a top-selling over-the-counter (OTC) moisturizer, only to find this product contained six OSD-offending ingredients.

We are all consumers. Even men and women who do not use eye makeup may be inadvertently increasing their risk for ocular irritation through their facial cleansing habits.

We, the Dry Eye Divas (see *Who Are The Dry Eye Divas?*) have spent countless hours researching ingredient lists, peerreviewed literature, known ocular surface offenders, application trends, and removal habits to develop an educational template for you, the eye care professional, and your patients. Optometrists and ophthalmologists are the guardians of ocular surface health. We must be proactive in addressing eye safety with patients and identifying what is safe to use around the eyes. Increasing your knowledge about everyday products and habits for both women and men is a rewarding way to expand your already excellent clinical care.

As noted, we advocate label reading. We tell patients that choosing products with fewer unpronounceable ingredients is a good place to start. Do not trust the claims. Just because a package says a product is "natural," "vegan," "not tested on animals," or even "ophthalmologist tested," this does not guarantee that the product is ocular surface–friendly. Often, rather, these products can be rather ocular surface– unfriendly (see *Top 10 Ocular Surface-Offending Ingredients*).

## **GENERAL EDUCATION RECOMMENDATIONS**

Here are some guidelines to help educate patients and consumers about the proper use of cosmetics and cleansers as they pertain to the eye.

#### **Products Patients Must Avoid**

- Avoid waterproof makeup, as the same ingredients that make these cosmetics waterproof not only have the potential to block the terminal ductules of the meibomian glands but also make the product very difficult to remove without harsh makeup removal products. We have not found an effective waterproof makeup removal product that did not contain multiple OSD-exacerbating chemicals.
- Avoid eye-area products containing retinol. Antiaging products such as cis-retinoic acid in cosmetics are particularly concerning their demonstrated toxicity to human meibomian glands in cell culture.<sup>2</sup> Clinically, we have seen cases of refractory chronic meibomitis improve with mindful elimination of prescription tretinoin (Retin-A and other brands) and OTC antiaging products with similar metabolites.
- Avoid products containing benzalkonium chloride. This preservative ingredient can cause surface epithelial cell and goblet cell damage, resulting in punctate keratitis and alterations in surface wettability.
- Avoid use of Botox Cosmetic (onabotulinumtoxinA; Allergan) for crow's feet. This application weakens the orbicularis muscle, leading to incomplete blink, reduced blink forces, and increased symptoms of dry eye disease.<sup>4</sup>
- Avoid the so-called Botox-in-a-jar ingredients found in OTC cosmetics: acetyl hexapeptide-8 or acetyl hexapeptide-8 (Argireline; Lipotec)
- Avoid neurotoxic ingredients such as phenoxyethanol and acrylamides
- Avoid periocular use of Preparation H (Pfizer Consumer Healthcare) near the eyes. If the patient is concerned regarding persistent bags under the eyes, recommend seeing an oculoplastic surgeon or waiting for regulatory

## TOP 10 OCULAR SURFACE BEAUTY BLUNDERS

- 1. WATERPROOF EYE MAKEUP
- **2.** EYELID TATTOOING
- 3. EYELASH EXTENSIONS
- 4. EYELASH TINTING
- 5. OTC EYELASH GROWTH SERUMS
- 6. BOTOX-IN-A-JAR
- 7. BOTOX FOR CROW'S FEET
- 8. RETIN-A
- 9. LOOSE EYESHADOW OR GLITTER



**10. SHARING MAKEUP** 

approval of a new topical preparation now in phase 3 trials meant to specifically address infraorbital bags, also known as "festoons." Emphasize to patients: Do not compromise your ocular surface health by using a rectal mucosal OTC agent near your eyes.

## Things Patients Must Never Do:

- Do not share cosmetics. Ever.
- Do not use products not specified for use on or around the eyes, such as lip liners or Sharpie markers. The use of Sharpie markers as a semipermanent eyeliner, along the lid margin, has been popularized by social media and media stars. In addition to the obvious safety issues, the alcohols, volatile organic compounds, and solvents used in Sharpie marker inks present particularly dangerous and ugly elements to this so-called beauty practice.
- Do not alter products with heat, and be careful where cosmetics are stored. Many are not supposed to reach temperatures above 80°F.
- Do not moisten eye makeup products with saliva, a bodily fluid with myriad bacterial contaminants with potential ocular surface pathogenicity.
- Do not apply makeup while moving, whether in a car, bus, taxi, Uber, or walking.
- Do not buy OTC lash enhancers or growth serums. One ingredient in these products, *isopropyl cloprostenate*, is a synthetic prostaglandin analogue that can induce changes in eye color, changes in eyelid skin (loss of periorbital fat and darkening of the skin, also known as prostaglandin-associated periorbitopathy), stinging, blurred

## THE FORMIDABLE FORMALDEHYDES



## DMDM Hydantoin Ureas Quaternium-15 Sodium hydroxymethylglycinate

vision, eye redness, itching, and burning. This ingredient is not approved by the FDA for OTC cosmetic use, but we have found at least one example of its prohibition being ignored. It is recommended to consult with your eye care provider if using the aforementioned products.

- Do not use eyelash extensions. Eyelash glues contain volatile organic compounds and ocular surface-irritating formaldehyde. (Claims that glues are "formaldehyde free" are inaccurate). In addition, the abnormal eyelash:eyelid length ratio negatively alters the wind-and-debris– deflecting properties of the physiologic eyelash.
- Do not opt for permanent makeup with eyeliner tattooing. Eyeliner tattooing is associated with meibomian gland disease.<sup>5</sup>
- Do not use eyelash tint. Use of these products can cause conjunctivitis and dermatitis.<sup>6</sup>

## Things Patients Should Do:

The following are some guidelines you can share with patients for proper application and removal of eye cosmetics.

- Contact lens wear and cosmetic use is an area of controversy that need more research. Until more research is available, we recommend instructing patients to insert their contact lenses *prior* to makeup application or 10 minutes after with clean hands and remove *before* makeup removal. This avoids the collection under your lens of debris that can irritate the ocular surface and contribute to discomfort. Remove contact lenses before makeup removal to avoid damaging the lenses with harsh chemicals.
- If you are not a contact lens wearer, apply a drop of a preservative-free lipid-based artificial tear before apply-

# TOP 10 OCULAR SURFACE–OFFENDING INGREDIENTS



- 1. BENZALKONIUM CHLORIDE (BAK)
- 2. ALCOHOL
- 3. RETINOL
  - 4. PARABENS
  - 5. ISOPROPYL CLOPROSTENATE
  - 6. FORMALDEHYDE & FORMALDEHYDE DONORS
  - 7. PHENOXYETHANOL
  - 8. BUTYLENE GLYCOL
  - 9. ETHYLENEDIAMINETETRAACETIC ACID (EDTA)
  - **10.** ARGIRELINE (ACETYL HEXAPEPTIDE-3, LIPOTEC)

ing eye shadow. You would be surprised at how much debris accumulates at the caruncle.

- Shop for paraben-free powder eye shadow that has a high cling and is not easily tapped off the applicator or brush (known as fallout). Alternatively, use a parabenfree and retinol-free shadow base (primer) or use a paraben-free cream-based eye shadow to prevent fallout into the tear film (Figure 3).
- Never apply makeup on the so-called waterline or tightline (the lower and upper lid margins). The waxes and resins in these products can block the meibomian gland terminal ductule orifices. Additionally, the alcohols that dry the liner in place also dry the delicate tear film (Figure 4).
- Use paraben-free and formaldehyde-free eyeliner pencils, but avoid the eyelash roots and lid margins. This is too close to the meibomian gland orifices, and application here may cause superficial obstruction of the glands.
- Stick with eyeliner pencils, and sharpen them before every application.



Figure 3. Commonly used eye cosmetics such as eye shadow often are found in the tear film and even can be detected in the conjunctival tissues. This image of a 63 year-old woman with grade 3 OSD and grade 3 meibomian gland loss with a SPEED score of 22 was found to have embedded retractile elements, subconjunctival fibrosis and a trace papillary reaction attributed to the use of her eye cosmetics.



Figure 4. Application of eyeliner to the waterline or meibomian gland orifices increases the patient's risk for meibomian gland dysfunction and even gland obstruction over time. This is an image of eyeliner residue seen in the yellow circle at the meibomian gland orifices of a young woman detected with meibography.

- Replace moist cosmetics (eg, mascara) monthly.
- Remove makeup daily. Never use facial cleansers or hand soap to remove eye makeup.
- · Clean eye makeup brushes regularly.
- Talk to their eye care provider about their cosmetic use, antiaging regimen, removal products and facial cleansers.

## **ANTIAGING RECOMMENDATIONS**

Following are some tips patients may consider to keep the periocular area looking young.

- Use paraben-free sunscreen daily. Wear a hat. Wear sunglasses.
- Consider injection of dermal fillers in the midface and tear trough. Clinically, we have seen improvements in

OSD symptoms after this treatment, likely due to slight improvements in lid position, blink mechanics, and downward force vectors.

- Consider intense pulsed light therapy to the face and periocular structures to even out skin tone, photoco-agulate *Demodex*, lightly stimulate collagen remodeling, and control the inflammatory load. We call this the "neighborhood cleanup" effect.
- Consider radiofrequency rejuvenation procedures to lift and rejuvenate the tissues in a drug-free and cosmeticsfree manner.
- Consider CO<sub>2</sub> laser resurfacing as a superior method of addressing skin elasticity and fine wrinkles.

## CONCLUSION

Beauty practices can be ugly for the ocular surface. Eye care professionals must tell their patients: Do not sacrifice your eye health for the sake of vanity!

Educate yourself so you can educate your patients about how to age gracefully and safely. Expanding your knowledge of common ocular-surface–unfriendly practices, exacerbating ingredients, and more ocular-surface–friendly practices is a rewarding way to stake your claim as an ocular surface guardian. Do not neglect the unique opportunity and privilege to educate yourself and your deserving patients regarding ocular surface–friendly habits and hygiene practices.

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