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Exfoliating ETHNIC SKIN

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Not all exfoliating methods are created equal, especially when it comes to treating ethnic skin. In order to provide your patients of color with safe and effective exfoliation procedures, it is imperative to understand the differences in the structure and function of ethnic skin. As we become a more blended global society, many patients we treat will have mixed heritage. Even a patient who has very light skin, but has Asian, African, or Hispanic ancestry will need to be exfoliated with more gentle techniques as if they were a patient with very dark, Fitzpatrick VI skin.

IMPORTANT DIFFERENCES

A critical part of any consultation process prior to any professional exfoliation procedure is determining a patient's hereditary background. This will give you clues to how that particular patient will respond to a chemical peel. Making treatment determinations based solely on how a patient looks is not sufficient to avoid complications. You must ask about their family's hereditary history, as those from equatorial regions are more likely to have sensitive, reactive skin that can easily hyperpigment. Having a solid understanding of the specific characteristics of the skin of ethnic and blended heritage patients will allow you to make better and more appropriate treatment choices and provide outstanding outcomes to all of your patients.

So how is skin of color different from Caucasian skin? Although in general the differences are not dramatic, the variability in skin thickness, barrier function, melanogenesis, and inflammatory response can significantly affect the response to treatment. The epidermis shows differences in the outermost layer, the stratum corneum, and its ability to function as a barrier. One study demonstrated that the stratum corneum of African-American

skin contains 22 layers, while that of Caucasian skin has only 17. The thickness is similar, regardless of the number of layers, thus making the stratum corneum of dark skin more compact and prone to cohesion. In

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addition, transepidermal water loss (TEWL) tends to be greater in African-American and Asian skin. Losing excessive moisture leads to a reduced ability for the skin to protect itself against topical offenders. This impaired barrier function is thought to contribute to the heightened sensitivity to topical stimulation (e.g. peels) that is common in higher Fitzpatrick types. In 2001, Zoe Draelos, MD stated, "lack of an intact barrier can result in a heightened neurosensory input by inadequately protecting nerve endings."

There are significant differences in the dermis in skin of color, as well. It has been shown to be thicker and more compact than patients with fair skin and the superficial blood vessels are more prominent and dilated, although in pale skin the vessels often more apparent. African-Americans also tend to have larger oil glands, leading to more oil production and an increased incidence of acne.

Although all skin types have the same number of melanocytes, their function and the quality and distribution of melanosomes are different in ethnic versus Caucasian skin. Pigment deposition happens as a chain reaction in the melanocyte in response to inflammation or sun exposure. This reaction results in melanosomes (packets of pigment) being produced and distributed over the nuclei of the keratinocytes to protect their DNA. In

skin of color, the melanosomes are filled with larger melanin granules and are distributed more evenly throughout the epidermis. The melanocytes themselves have longer dendrites that reach up higher within the epidermis. The melanocytes of those with darker skin are more active and prone to excess pigment deposit, which is one important reason that skin of color must be treated gently during exfoliation procedures.

MORE THAN HYPERPIGMENTATION

When treating patients of color, our first thoughts usually go to pigmentation concerns because these patients are prone to pigmentary issues as well as pigmentation complications. The reality is that acne and dermatitis might be even more of an issue to patients with darker skin because they are more common and are frequent triggers of post inflammatory hyperpigmentation (PIH). Susan C. Taylor, MD of the Skin of Color Center at St. Luke's-Roosevelt Hospital Center recently spoke at the American Academy of Dermatology meeting in San Francisco, Calif. She highlighted three independent studies of dermatology practices that saw primarily African-American, Asian, and Hispanic patients respectively. One interesting statistic to come out of all three studies was that acne and dermatitis were as frequently treated as pigmentary challenges - and in some cases more frequently. Impaired barrier function and increased TEWL certainly play a role in the development of many types of dermatitis, while the tightly packed stratum corneum and larger oil glands in ethnic skin are clear contributing factors to acne. Acne papules are a result of reduced desquamation, keratinocyte discohesion and its resulting blocked pores, increased sebum production, and bacterial proliferation in all Fitzpatrick types. All of these details are important to take into consideration as we create



treatment plans for our patients of color.

The propensity for higher Fitzpatrick skin types to hyperpigment cannot be ignored, as PIH is a common treatment complication for these patients. PIH can be left behind after any inflammatory event such as: an overly aggressive exfoliation procedure (chemical or mechanical); overuse of aggressive topical products; or



following a dermatitis or acne breakout. In my experience, many of my higher Fitzpatrick patients believe that the discolorations on their skin after breakouts are scars rather than PIH and are thrilled to know that they are not permanent and can be corrected with peels and daily home care. Proper peel selection and application that avoids undue inflammation is critical to successful outcomes. Customizing

professional treatments that address many conditions, such as acne and pigment, simultaneously, while not causing unnecessary inflammation, is a clear choice.

MECHANICAL VERSUS CHEMICAL EXFOLIATION

Although the word chemical often is thought to indicate something aggressive, in the case of exfoliation methods it is actually the opposite, as it can be the most controlled and gentle form. Mechanical exfoliation (e.g. loofahs and scrubs or microdermabrasion) has the potential to cause quite a bit of surface irritation and poses a great risk to patients of color, as they are prone to PIH. Additionally, home mechanical exfoliants can easily be used too frequently and too aggressively by applying excess pressure on the skin while 'scrubbing.' It is wise to warn your ethnic patients if they choose to use these mechanical exfoliants, it is best to choose gentle products that contain smooth beads or micro-fine particles rather than nut pits whose jagged edges make micro cuts leading to inflammation.

Chemical exfoliants are typically administered by trained professionals, reducing the potential for improper or

Glossary Terms:

Melanin granules –small bits of pigment that congregate into a melanosomes or 'packets of pigment'; these melanosomes are what are deposited into the keratinocytes

Dendrites –the portions of the melanocyte that extend out into the keratinocytes. Think of the melanocyte as a spider and the dendrites are the legs of the spider.

Desmosome – (desmosome bonds) are complexes of adhesive and linking proteins that connect cells to one another.

Lipophilic – oil (lipid) loving or soluble (philic versus phobic) lipophilic substances can penetrate through oil

Regular, gentle exfoliation treatments keep the skin turning over at a more beneficial rate.

over-use that leads to negative outcomes. As professionals it is our responsibility to understand the risks and benefits of various exfoliation methods so we can choose the best options. Chemical peels typically are either straight acids in alcohol delivery vehicles or blends of several peeling agents. Be aware that single agent peels in alcohol create more heat in the skin and are more likely to cause inflammation and potentially PIH. Look for lower percentages of multiple acids rather than a high percentage of one peeling ingredient. For example, consider modified and enhanced blended Jessner's peels or TCA blends rather than straight glycolic acid or TCA peels. Blends of several peeling agents in combination with anti-inflammatory, antioxidant, and melanogenesis inhibiting ingredients are a safe and effective choice for exfoliation treatments on ethnic skin.

Every patient is different. Not all patients with darker Fitzpatrick skin types or mixed ancestry are sensitive; in fact some are actually quite resilient. However, just because a patient can

tolerate more discomfort does not mean one should be more aggressive with their treatment. Less really is more, especially when treating patients with any heredity that will make them prone to hyperpigmentation. Prepping with daily home care and keeping dark skin calm during exfoliation treatments is critical to a positive outcome.

COMMON EXFOLIATING AGENTS FOR SKIN OF COLOR:

Trichloroacetic acid (TCA) – this is an excellent peeling agent that has been safely used for over 50 years, is not absorbed into the bloodstream and works well for ethnic skin especially if used at concentrations of 10 percent or lower. At higher percentages, one must be much more cautious and it is especially important to pre-treat the skin with melanogenesis inhibitors and anti-inflammatories for several weeks prior to a peel.

Alphahydroxy Acids

These are a group of organic carboxylic acids that loosen desmosome bonds, decrease corneocyte cohesion, and increase shedding of excess stratum corneum. Each AHA has its own ancillary benefits.

Lactic acid –sourced from sour milk and sugars and is found naturally in human skin. It is an exceptionally gentle exfoliant that reduces bacteria, hydrates the skin, and fights hyperpigmentation by suppressing the formation of tyrosinase. Due to its multiple benefits, it is my AHA of choice, especially for skin of color.

Citric acid – dramatically increases the production of cell-plumping hyaluronic acid. It works to smooth, thicken, and hydrate skin to reduce stratum corneum impaction without irritation or inflammation. Citric acid is also a natural skin brightener.

Malic acid –works as a natural hydrating humectant and antioxidant.

Betahydroxy Acid

Salicylic acid – this betahydroxy acid is lipophilic, making it an exceptional choice for acne. It has the ability to penetrate through oil-filled pores and normalize the excess shedding of cells within the follicles. This peeling agent also possesses strong anti-inflammatory properties that reduce the chances of developing PIH following treatment.

BENEFITS OF EXFOLIATION

With age, normal cell turnover rates decline in all Fitzpatrick skin types. This slowed desquamation leads to increased impaction, reduced barrier function, reduced oxygenation, and bacterial proliferation. Regular, gentle exfoliation treatments keep the skin turning over at a more beneficial rate and rid the skin of the above mentioned challenges. And why is this so important for the ethnic patient? As we mentioned earlier, the top three skin conditions most seen in patients of color are hyperpigmentation, acne, and dermatitis. Professional exfoliation treatments remove excess stratum corneum. Speeding cell turnover also helps to bring excess melanosomes that are deposited in keratinocytes up and out of the skin. Bear in mind, these treatments must be gentle or the inflammation will likely trigger melanocyte stimulating hormone (MSH) and begin the whole melanogenesis process. Unfortunately, this would leave the patient with PIH rather than a clear complexion.

The normalizing of the stratum corneum and increase in cell turnover also offer benefits to the patient of color with acne. The bacteria responsible for acne, *P. acnes*, thrive in a de-oxygenated environment. Slowed desquamation exacerbates this situation, while also increasing the instances of follicular impaction and the formation of comedones. Using professional treatment products that not only contain some



of the previously mentioned peeling agents, but also utilize retinol is of great benefit to these patients. Retinol is an exceptional ingredient for many reasons, including its ability to normalize inter-follicular shedding and therefore, reduce the instance of impactions. This member of the vitamin A family also works to increase exfoliation through cell turnover, keeps healthy fresh cells rising within the skin, and binds moisture in the skin. It is an excellent addition to any professional treatment.

Dermatitis can also be addressed with professional peels. The clinician must address this carefully, as the skin of those with eczema and other forms of dermatitis does not have a properly functioning barrier. The application of acids can be too stimulating if the patient has a more dramatic case of dermatitis. The best treatment pathway for these patients is to apply hydrating, anti-inflammatory, and antioxidant topicals to rebuild moisture and strengthen the

skin, while moisturizing and occluding to allow the barrier to repair itself. Once the surface is not open and irritated, but simply overly dry and keratinized, low percentage superficial chemical exfoliation procedures can be quite helpful. A properly functioning barrier reduces the impact of external stimuli in the skin and reduces the formation of PIH.

GENTLE EXFOLIATION EQUALS RESULTS

Becoming well versed on the structure and function of skin of color allows you to make informed treatment choices for all your patients. Targeting the specific needs of ethnic patients' skin will allow you to achieve great success. Customized daily care regimens that consist of products containing multiple gentle ingredients to address pigment production, bacterial proliferation, and barrier function along with exfoliation methods utilizing gentle blended peel

solutions makes creating healthy, clear, and even complexions for all Fitzpatrick skin types well within reach.



Jennifer Linder, M.D., serves as Chief Scientific Officer for PCA SKIN®, guiding all product development and clinical trials for the company. A board-certified dermatologist and a fellowship-trained skin cancer surgeon using the Mohs micrographic technique, Dr. Linder is one of the foremost U.S. experts in the use of the cosmetic filler, Sculptra. She holds a clinical faculty position in the Department of Dermatology at the University of California, San Francisco.

