Plastic and Aesthetic Nursing

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Considerations for Laser Therapy, Microneedling, and Chemical Peels When Treating Patients With Skin of Color

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Over the past 10 years, we have seen exponential growth in the aesthetic industry. With this growth, we have also seen an influx of patients of differing ethnicities, in all varying shades of color. Some clinicians may not have the necessary knowledge and skill to appropriately treat these patients using modalities such as laser therapy, microneedling, and chemical peels. The aesthetic industry provides courses, conferences, and educational guides for helping aesthetic practitioners determine which patients are eligible to undergo these treatments. However, there is a considerable lack of information available for clinicians about treatment modalities that can be safely and effectively used on patients with Fitzpatrick skin types IV–VI. As the population of patients of various ethnic origins seeking aesthetic treatments continues to grow, it is imperative for clinicians performing these treatments to increase their knowledge and skill related to treating patients with skin of color. The purpose of this article is to educate aesthetic clinicians about appropriate treatments, procedures, and protocols for preventing adverse reactions in patients with skin of color who are undergoing aesthetic treatments using lasers, microneedling, and chemical peels.

Over the past 10 years, the aesthetic industry has experienced exponential growth. According to a market analysis report from 2021, the global medical spa industry had reached $14.4 billion and is expected to increase by 14.82% by 2030 (Grand View Research, 2022). With such substantial growth predicted, some clinicians may not possess the knowledge and/or equipment to treat patients of ethnicities with darker skin types. As aesthetic medicine continues to advance and grow, it is imperative that we, as practitioners, also advance and grow in our techniques when treating patients with darker Fitzpatrick skin types (FSTs) IV–VI (Fitzpatrick, 1975; see Figure 1), who desire to undergo laser-specific treatments, microneedling, and chemical peels. Those most at risk for an adverse skin event resulting from an aesthetic treatment are individuals with skin types IV–VI on the Fitzpatrick Scale.

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There is a considerable lack of literature specific to treating patients with skin of color. Researchers should study and provide treatment parameters for patients with FSTs IV–VI and investigate and compare the reaction of the skin following treatment. The purpose of this article is to educate aesthetic clinicians about appropriate treatments, procedures, and protocols for preventing adverse reactions in patients with skin of color who are undergoing aesthetic treatments using lasers, microneedling, and chemical peels.

SKIN STRUCTURE AND DIFFERENCES

The skin is made up of three main layers: epidermis (which holds the stratum corneum), dermis, and hypodermis (see Figure 2). Understanding these layers is instrumental when providing specific aesthetic treatments. The layers of the skin most likely treated in an aesthetic clinic setting are the epidermis and the dermis. The *stratum corneum* is the outermost layer of our skin. In individuals with skin of color, this layer contains greater numbers of cell layers than in individuals with light skin (Alam et al., 2009). Other physiological differences between skin of color and light skin include skin thickness, barrier function, *melanogenesis* (the production of melanin), and inflammatory response (Joelle Lee, 2020). Some of these differences can improve the effects of topical therapies and surface-level treatment modalities in clients with skin of color.

The *dermis*, located beneath the *epidermis*, is thicker in clients with skin of color than in clients with light skin. This additional thickness prevents accelerated skin aging

Please circle the appropriate answers below so we can properly assess your skin type.

Genetic Disposition:

Score	0	1	2	3	4
What is your natural eye color?	Light blue or green	Gray or hazel	Blue	Dark Brown	Brownish black
What is your natural hair color?	Sandy red	Blonde	Chestnut or Dark blonde	Dark brown	Black
What is the color of your untanned skin?	Reddish	Very pale	Pale	Light brown	Dark brown
Do you have freckles?	Many	Several	Few	Incidental	None
				Total	

Reaction to Sun Exposure:

Score	0	1	2	3	4
What happens when overexposed to the sun?	Red blistering peeling	Blistering peeling	Burns, sometimes peels	Rarely burns	Never burns
To what degree does your skin turn brown?	Hardly or not at all	Light color tan	Medium tan	Tans easily	Turns dark brown quickly
Do you turn brown within several hours after sun exposure?	Never	Seldom	Sometimes	Often	Always
How does your face react to the sun?	Very sensitive	Sensitive	Normal	Very resistant	No problem
				Total	

Tanning Habits:

Score	0	1	2	3	4
When was your most recent exposure to sun, tanning beds, or tanning cream?	More than 3 months ago	2-3 months ago	1-2 months ago	Less than 1 month ago	Less than 2 weeks ago
Was the planned treatment area exposed?	Never	Hardly ever	Sometimes	Often	Always
				Total	

Heritage:

For EACH parent of African American or East Indian decent, add 10 points	10	20
If your heritage is Latin America, Asian-Pacific Islander, Mediterranean, or Native American, add 5 points	5	
	Total	

Assessment completed. The section below will be determined by a licensed provider

Fitzpatrick Skin Type:

0 to 8	I
9 to 16	II
17 to 24	III
25 to 30	IV
31-34	V
35+	VI

Summary:

Total for Genetic Disposition	
Total for Reaction to Sun Exposure	
Total for Tanning Habits	
Total for Heritage	
Total	

FIGURE 1. Fitzpatrick skin type assessment.

but increases the risk for hypertrophic scarring. *Fibroblasts* are cells that help form connective tissue. Fibroblastic activity is greater in patients with skin of color, which puts these clients at a greater risk for abnormal scarring and keloid formation (Alam et al., 2009). There are also structural and functional differences unique to each ethnicity and skin tone that play a key role in how our skin reacts to a specific aesthetic treatment. Therefore, it is imperative that aesthetic clinicians are knowledgeable about these structural differences and implement safe treatment plans that will complement each individual and their unique skin tone.

Melanin is an essential pigment in the body that determines hair, eye, and skin color and also serves as a protective barrier. *Melanosomes* are intracellular organelles generated by *melanocytes* (melanin-producing cells) that synthesize and store melanin. Each person, no matter their ethnicity, has the same number of melanosomes present in the epidermis. The difference between individuals with skin of color and individuals with light or Caucasian skin is the concentration of the epidermal melanosomes. Individuals with darker skin tones have up to twice the number of melanosomes compared with individuals with lighter skin tones, and this increases their risk for postinflammatory dyspigmentation (Alam et al., 2009).

POSTINFLAMMATORY HYPERPIGMENTATION

Postinflammatory hyperpigmentation (PIH), also referred to as *postinflammatory pigment alteration*, is an acquired *hypermelanosis* (excessive melanin production) that occurs in the superficial dermis after cutaneous inflammation or injury. PIH can arise in individuals of all skin tones but occurs most frequently in individuals with skin of color (Davis & Callender, 2010). Pretreatment measures

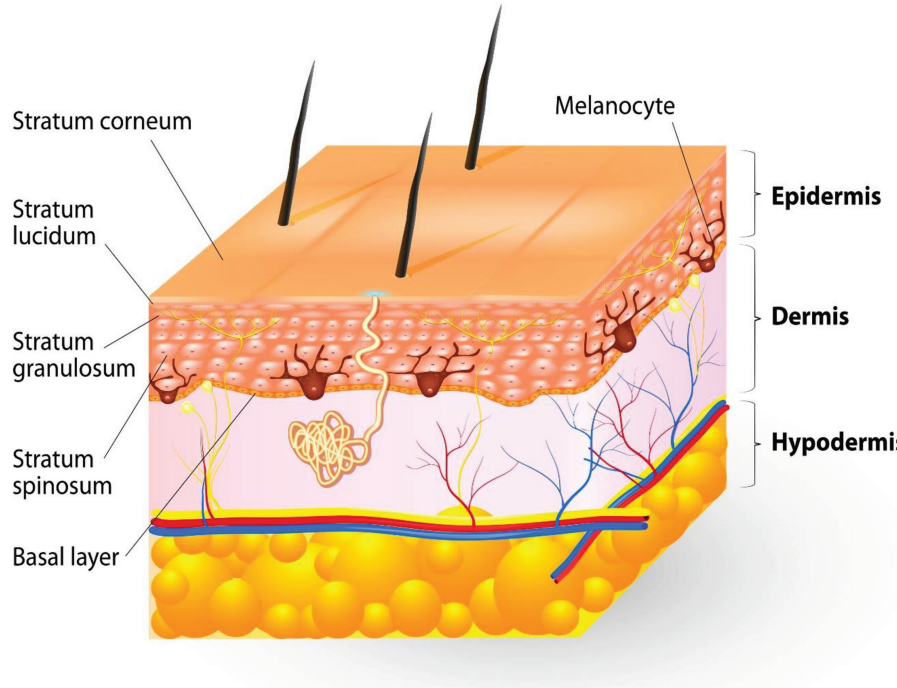

FIGURE 2. The layers of human skin. Designua/Shutterstock.com. This figure is available in color online (www.PANjournal.org).

to minimize PIH include having the patient avoid sun exposure for a minimum of 2 weeks before undergoing a chemical peel, laser treatment, or other treatment that may induce an inflammatory response (Alam et al., 2009).

Using a skin-brightening agent or *tyrosinase inhibitor* (a product that inhibits melanin production), such as hydroquinone (HQ), for 2 weeks prior to chemical peel, laser, or other aesthetic treatment can help prevent PIH. HQ is the most commonly used tyrosinase inhibitor and is considered the gold standard for suppressing the action of melanocytes and reducing pigmentation (Desai, 2014). Aesthetic practitioners can also use HQ as a pretreatment for patients undergoing treatments utilizing heat-induced or intense pulsed light (IPL) lasers. Maximum results from these treatments are achieved when HQ is combined with a retinoid and a corticosteroid (Schwartz et al., 2022).

Although HQ is well known as a treatment option for reducing hyperpigmentation, clinicians must be aware of the adverse effects that can be associated with HQ. Prolonged use of HQ can cause a disorder called *ochronosis* (a blue/black discoloration seen in patients with deeply pigmented skin tones). HQ toxicity can lead to severe side effects such as kidney and liver malfunction, blood poisoning, nausea, abdominal pain, convulsion, and even coma. Therefore, if the desired results have not been achieved after using HQ daily for 3 months, it should be discontinued. Other lightening agents that may be used to treat hyperpigmentation include arbutin, kojic acid, azelaic acid, retinoids, and vitamin C (Alam et al., 2009).

FITZPATRICK SKIN TYPING

In 1975, Thomas B. Fitzpatrick introduced the Fitzpatrick Skin Typing Scale (Fitzpatrick, 1975; see Figure 1). The scale was developed to assess the propensity of various skin tones to burning during phototherapy (Ware et al., 2020). The scale is widely used to assess the clinical benefits and efficacy of cosmetic procedures, including laser hair removal, chemical peels, dermabrasion, tattoo removal, spray tanning, and laser resurfacing for acne scarring (Ware et al., 2020). Ware et al. (2020) also suggest that although the scale has been used to classify human skin tone, some clinicians have mistakenly used the scale to describe race/ethnicity and/or *constitutive skin color* (i.e., genetic skin color in the absence of external factors such as sunlight). Consequently, to provide an accurate assessment of the clients' FST before performing treatments, aesthetic providers must be cognizant of the need to combine race and ethnicity with the FST classification before performing treatments.

The Fitzpatrick Scale is a very useful tool for determining a client's skin type; however, the scale has some limitations relative to the way that various human skin tones react to sunlight. For example, according to the scale, an individual with type VI skin "never burns." Clinicians should reconsider this classification because every person who experiences prolonged sun exposure is at risk for a sunburn. Patients with FST VI are at risk for sunburn, but the length of time it takes for the patient to experience a burn and/or for the skin to react may be longer than it is for individuals with FSTs I–V. For this reason, it

is important for aesthetic clinicians to explain this caveat to their clients.

As previously stated, clinicians should perform a thorough assessment of their client's history and not rely solely on the FST before selecting laser settings or chemical peel agents for a patient. In addition to determining an individual's FST, clinicians should ask the client about their ethnic origins, mixed ethnicities, history of hyperpigmentation or hypopigmentation, lifestyle, and product use. Including this information in the assessment will improve the clinician's knowledge of how the individual's skin will react to a laser, microneedling, or chemical peel procedure.

CHEMICAL PEELS

Chemical peels have been utilized for centuries, beginning in ancient Egypt, Greece, and Rome. Historical practices to improve skin tone and texture have included bathing in sour milk, grape juice, or lemon extracts.

Chemical peels improve skin texture and appearance and can decrease acne-causing bacteria residing on the skin's surface. In recent years, the use of chemical peels has increased in popularity and they have been used to treat various types of *skin dyschromia* (i.e., patchy, or irregular skin discolorations).

Chemical peels work by creating an injury to the skin, causing the skin to shed a layer, and promoting collagen synthesis. *Superficial peels* act on the epidermis while preserving the basal layer. *Medium-depth peels* penetrate the epidermis to the papillary dermis, and *deep* chemical peels reach the mid-reticular dermis (Vemula et al., 2018).

Clients with FSTs IV–VI may suffer from pigmentary disorders such as hyperpigmentation, PIH, *photoaging* (premature skin aging due to sun exposure), and *melasma* (dark patches or spots on the skin). To achieve success when performing chemical peels on clients with darker Fitzpatrick skin tones, it is imperative that clinicians select the correct peeling agent. Vemula et al. (2018) suggest that complications are more common when using deep peels for patients with skin types IV–VI. Therefore, clinicians must select patients undergoing chemical peel carefully and consider the appropriate peeling agent, determine the appropriate concentration of peeling agent(s), and use meticulous technique when applying the peeling agent. Each chemical peel agent has its own mechanism of action, and each FST skin tone will elicit different responses. For this reason, it is essential for clinicians to understand that patients with skin of color may respond unpredictably to chemical peeling (Roberts, 2004).

Before performing a chemical peel on any patient, clinicians should conduct a thorough history and skin assessment that identifies the client's ethnic origins. The Fitzpatrick Scale aids in determining the specific skin type of the client and in ascertaining whether or not the client will have a positive response from a chemical peel. Roberts (2004) warned clinicians to watch out for the blonde-haired, blue-eyed client from Oklahoma. Without a careful history and assessment, the clinician may not realize that the client is 50% Cherokee Indian until treating her for PIH. Conducting a thorough assessment and history of the client's ethnicity is imperative.

Assessment Plan

Although skin typing is not the only method for assessing how a patient with a particular skin tone will react, it is an essential component of the assessment process for determining the best treatment plan for your client.

Another essential component of the assessment plan is obtaining a thorough history of the client's current and previous medications, illnesses, and diagnoses. Clinicians should ask patients what medications they are taking and determine whether the medicine could affect the anticipated treatment results. Also, clinicians should ask the patient if they have been diagnosed with any skin disorders such as melasma, rosacea, psoriasis, or eczema, as these conditions may interfere with the desired results and prevent the chemical peel from achieving its full potential.

Chemical Peel Agents

Currently, there are numerous types of chemical peels available. When selecting chemical peel agents for clients with darker skin tones, clinicians should familiarize themselves with chemical peel agents that are *efficacious* (i.e., effective at producing the desired result) and have a strong safety profile. The *safety profile* of a chemical agent is determined by studying how a drug moves through the body and is absorbed, distributed, metabolized, and excreted. Drugs with a strong safety profile have fewer side effects. Refer to Table 1 for a list of chemical peels that are documented as being safe (Roberts, 2004).

INTENSE PULSED LIGHT

IPL is a light treatment method that emits broadband visible light (400–1,200 nm), with different cutoff filters allowing the clinician to target hemoglobin, melanin, and *Propionibacterium acnes* and stimulate collagen synthesis. IPL provides excellent skin rejuvenation and hair removal, but patient selection is vital to avoid unwanted outcomes. IPL has a high safety and efficacy profile when the settings are used appropriately and are based on the client's skin type. IPL remains the gold standard for removal of *lentigines* (dark spots) and vascular lesions in clients with FSTs I–IV (Shah & Alster, 2010). The process involves minimal downtime and presents a low risk for burning; nevertheless, the parameters for time of exposure to achieve the best results for each FST remain controversial (Sales et al., 2022).

TABLE 1 Safe Agents for Chemical Peels

Superficial agents	Medium-depth agents
Trichloroacetic acid 10%–35% and 50%	Trichloroacetic acid 25% + glycolic gel 70%
Glycolic acid 30%–50%	Jessner's solution + trichloroacetic acid
Glycolic gel 70%	
Salicylic acid 20%–30% in ethanol	
Jessner's solution	

Note. Jessner's solution = salicylic acid + resorcinol + lactic acid + ethanol. From "Chemical Peeling in Ethnic/Dark Skin," by W. E. Roberts, 2004, *Dermatologic Therapy, 17*(2), pp. 196–205 (doi:10.1111/j.1396-0296.2004.04020.x). Copyright 2004 by Wiley & Sons, Inc.

Currently, there is a limited amount of research related to using IPL for individuals with FSTs V and VI due to the risk for hyperpigmentation and hypopigmentation. Most studies on IPL have been conducted in the Western world with patients who have Caucasian skin types (Saritha, 2008). Therefore, clinicians should be cautious when considering using IPL devices on patients with darker Fitzpatrick skin tones. Using IPL on these individuals is highly discouraged because of the laser's inability to differentiate between the client's skin and a lesion.

Using IPL on individuals with darker FSTs places the client at risk for IPL burns, hypopigmentation, or hyperpigmentation. Clinicians are advised to use their best clinical judgment when choosing treatment modalities for patients with FSTs V and VI. There are treatment manuals with protocols for using IPL on patients with FST V; however, the literature that supports this practice is extremely limited. Until there is more evidence to support the use of IPL for individuals with FST V, laser operators should consider using alternative lasers that have longer wavelengths, pulse trains, pulse durations, and lower fluence. Fortunately, there are other treatment modalities that clinicians can use when treating patients with darker Fitzpatrick skin tones that are safe and effective.

Skin Type IV Considerations

Research suggests that in addition to being knowledgeable of the contraindications for IPL and adhering to the recommended precautions for use, when using IPL as a treatment option for patients with FST IV, clinicians should use longer wavelengths, double- or triple-pulse trains, and the lowest fluence possible. Patients who are FST IV have a greater risk for developing hyperpigmentation than patients who are FSTs I–III.

CASE STUDY

A 30-year-old patient classified as an FST V with ethnic origins from Egypt was treated with a new IPL device by a physician in a physician-owned medical spa. The patient stated that the physician was very eager to try her new device and stated that per the device manual, IPL was safe for use on clients with an FST V. During the procedure, the patient recalls experiencing a severe burning sensation. As the physician cooled the treated area, she reassured the client that the burning sensation was normal. When the client returned home, her face had developed a purple hue, and over the next few weeks, her skin became hyperpigmented and then became hypopigmented (see Figures 3–5).

During the client's healing process from her burns, the physician offered to perform additional IPL treatments to even out the remainder of the client's skin. The patient refused and sought corrective treatment from another physician. Six months later, after undergoing a series of microneedling treatments with stem cells, the patient's pigment in the affected area gradually returned. Following these traumatic events, the client reported that her skin had developed melasma on the once hypopigmented areas.

This case is a representation of one of the many reported IPL treatments that have led to burned skin and hypopigmentation. Although this case occurred in a pa-

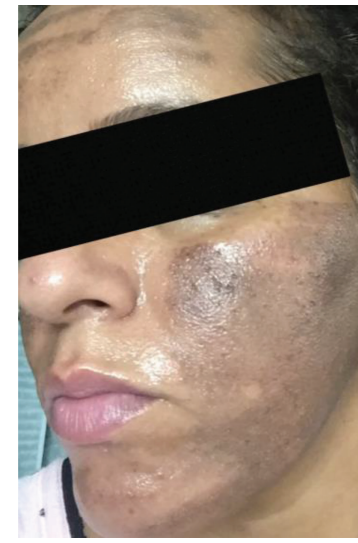

FIGURE 3. Day 2 following IPL treatment on a patient with FST V. *Note.* FST = Fitzpatrick skin type; IPL = intense pulsed light. Photograph courtesy of M. Amechi. Published with permission. This figure is available in color online (www.PANjournal.org).

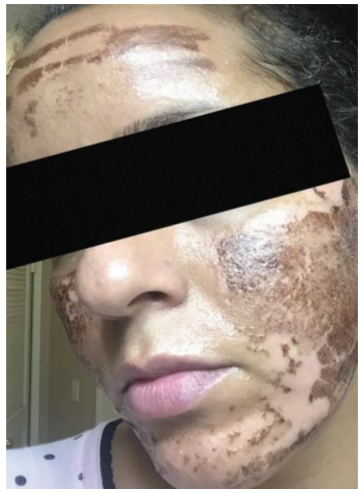

FIGURE 4. Day 4 following IPL treatment on a patient with FST V. *Note.* FST = Fitzpatrick skin type; IPL = intense pulsed light. Photograph courtesy of M. Amechi. Published with permission. This figure is available in color online (www.PANjournal.org).

tient with FST V, it is important for aesthetic clinicians to understand that all individuals are at risk for developing burns and hypopigmentation if treated inappropriately with IPL. To prevent adverse events, it is essential that clinicians have a thorough knowledge and understanding of the appropriate IPL settings that should be used for patients of each skin type. The number of patients who are burned by lasers each year is unknown. Currently, there are no databases for reporting burns associated with laser technologies.

LASERS AND SKIN OF COLOR

Over the past 30 years, laser therapy technologies have revolutionized the aesthetic industry. As the industry continues to evolve and grow, the demand for skin rejuvenation treatments for patients with darker FSTs will increase; however, unless additional research is conducted, the literature confirming safe and effective laser treatment protocols for patients with skin of color will remain limited. Lasers can be divided into ablative and nonablative.

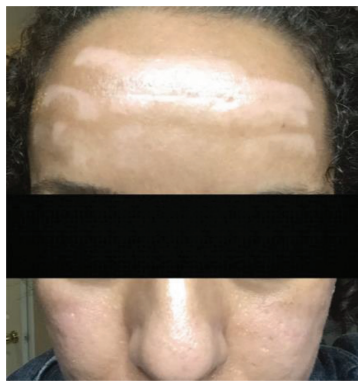

FIGURE 5. Day 10 following IPL treatment on a patient with FST V. *Note.* FST = Fitzpatrick skin type; IPL = intense pulsed light. Photograph courtesy of M. Amechi. Published with permission. This figure is available in color online (www.PANjournal.org).

Ablative Lasers

Ablative lasers damage the epidermis and allow for the formation of new collagen and elastin as well as the removal of pigmented and vascular lesions. Ablative lasers provide excellent results for patients with acne scarring and photoaging; however, when treating patients with darker FSTs, clinicians must weigh the benefit of improvement in skin texture against the potential harm of pigment changes and scarring (Alam et al., 2009). Using CO_2 and erbium neodymium-doped yttrium aluminum garnet (YAG) ablative lasers in patients with FST IV has been shown to increase risk for PIH by 68% (Battle & Soden, 2009).

Traditionally, clinicians have been cautioned to avoid using ablative lasers in patients with darker FSTs due to the risk for PIH and scarring. However, recent advances in laser technology (e.g., picosecond, nanosecond) have made unwanted outcomes less likely. To provide safe outcomes for patients with darker skin types, most millisecond lasers can be used as microsecond lasers (Battle & Soden, 2009). Fractional ablative lasers are becoming more commonplace for treating patients with acne scarring, pigmentation, and photoaging in patients with darker skin types. *Fractional lasers* create columns of thermal microinjury leaving intact skin between the injured areas, which provides for quick healing times and reduces the risk for PIH, hypopigmentation, and scarring.

Nonablative Lasers

Nonablative lasers leave the epidermis intact. Nonablative lasers target water in the dermal tissue at wavelengths of 1,000–1,500 nm. Commonly used nonablative lasers include the following:

- Q-switched (Nd:YAG) 1,064 nm
- 1,320 nm Nd:YAG
- 1,450-nm diode
- 1,550-nm erbium

The 1,550-nm erbium nonablative fractional laser has been shown to improve melasma in patients with FST IV (Battle & Soden, 2009). The nonablative fractional diode lasers (1,440 nm, 1,927 nm) have also improved melasma, PIH, and photoaging in patients with darker FSTs, although a series of multiple sessions is required.

When choosing a laser device for use on patients with skin of color, it is imperative for clinicians to select a nonmelanin absorbing device that reduces epidermal heating, uses longer wavelengths and lower fluences, and maximizes epidermal cooling. Clinicians should also space treatments farther apart than they would when providing

laser treatments for patients with light skin tones. Cooling prevents unwanted thermal injuries, but clinicians must understand and be aware that excessive cooling can also cause harm. Cryogen spray can reach temperatures of –25.2°C (–13.36°F). If overcooled, the patient can develop hyperpigmentation or blistering. Notably, contact cooling using sapphire tips reduces the incidence of dyspigmentation compared with noncontact cooling methods using air, gas, or cooling spray (Battle & Soden, 2009).

Laser Hair Reduction

Lasers that target melanin such as diode, IPL, Nd:YAG, and ruby have been used for decades for laser hair reduction. The challenge with performing laser hair reduction in patients with darker FSTs is that the melanin chromophore in the epidermis competes with the melanin in the hair follicle (Alam et al., 2009). The gold standard for laser hair removal in patients with FSTs V and VI is the Nd:YAG (Shah & Alster, 2010). The Nd:YAG laser bypasses the epidermis and reduces melanin absorption. Patients with FST IV can be safely treated using a diode 810 nm, IPL 700 nm, Alexandrite 755 nm, or an Nd:YAG. Clinicians must carefully consider the patient's potential for hypopigmentation, sun habits, or existing tans, and use of photosensitive topical products or oral medications. For the best results when treating patients with darker skin types, use the largest spot size, lowest fluence, and implement contact cooling.

MICRONEEDLING

Collagen induction therapy, referred to as *microneedling*, is a technique that uses a specialized instrument to induce microphysical trauma to the skin that initiates an inflammatory response and stimulates the production of collagen and elastin. This inflammatory process facilitates cell remodeling, which improves the appearance of the epidermis and dermal layers.

Microneedling can be effective as a single treatment option and offers a more advantageous safety profile than other modalities common in the aesthetic industry (e.g., skin resurfacing, lasers, chemical peels). Although microneedling is considered safe, it is not without its risks and considerations for clients with skin of color. Notably, the tolerability of microneedling and the associated preservation of the epidermis allow for the procedure to be repeated multiple times until satisfactory outcomes are achieved (Cohen & Elbuluk, 2016).

Despite the safety profile that microneedling offers, patients with darker FSTs can still be at risk for PIH (see Figure 6). Cohen and Elbuluk (2016) conducted a comprehensive review of the literature related to microneedling in patients with skin of color and found more than 15 studies involving microneedling performed on patients with FSTs III–V.

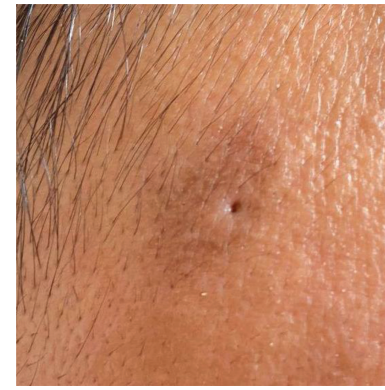

FIGURE 6. PIH after microneedling treatment of ice pick scar on forehead of a patient with FST V. *Note.* FST = Fitzpatrick skin type; PIH = postinflammatory hyperpigmentation. Photograph courtesy of M. Amechi. Published with permission. This figure is available in color online (www.PANjournal.org).

In these studies, the researchers reported adverse reactions that included erythema, PIH, tram track scars, milia, edema, and crusting. Currently, there is limited information related to microneedling treatments for patients with FST VI.

Providing microneedling treatments in combination with topical therapies has also been shown to improve skin appearance in dark-skinned clients. Budamakuntla et al. (2013) conducted a study of 60 patients with FSTs IV and V with dermal and epidermal melasma. The researchers treated the patients with microneedling, followed by topical tranexamic acid 4 mg/ml. The researchers found that after three treatments, 44% (n = 26) of the patients showed an improvement. Examples of topical agents that can be used to complement microneedling treatments include vitamin C, platelet rich plasma, stem cells, and exosomes that allow for deeper delivery into the epidermis (see Figure 7).

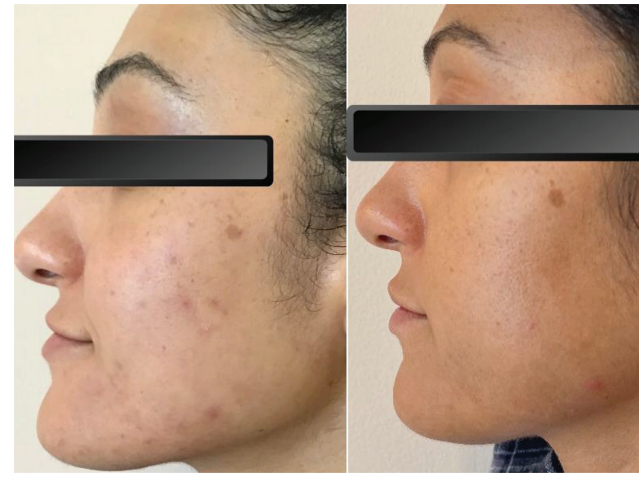

FIGURE 7. Patient with FST IV after 3 microneedling treatments with PRP and medium-depth chemical peels. *Note.* FST = Fitzpatrick skin type; PRP = platelet rich plasma. Photographs taken 10 months apart. Photograph courtesy of M. Amechi. Published with permission. This figure is available in color online (www.PANjournal.org).

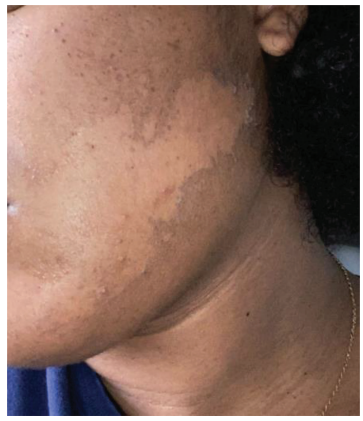

FIGURE 8. Three days after microneedling on a patient with FST V. *Note.* FST = Fitzpatrick skin type. Photograph courtesy of M. Amechi. Published with permission. This figure is available in color online (www.PANjournal.org).

Microneedling causes an initial erythema, soreness, and possible flaking and peeling of the skin. It is important to educate patients with skin of color about the normal and abnormal healing processes for microneedling. Inform the client that their skin may appear temporarily hypopigmented or hyperpigmented during the flaking process (see Figure 8). Clinicians should be aware that if tram track scars are observed after the healing process, this can be indicative of incorrect pressure and needle length used on bony areas.

Radiofrequency Microneedling

Radiofrequency microneedling (RFMN) uses insulated and noninsulated needles combined with thermal energy to increase collagen and fibroblast activity. Chandrashekar et al. (2014) studied the use of RFMN on 31 patients with FSTs III–V with Grade 3 and 4 acne scars (based on Goodman and Baron's Global Acne Scarring System; Goodman & Baron, 2006). After four treatments 6 weeks apart, the researchers found that 80.6% of patients (n = 25) saw a Grade 2 improvement in their acne scars whereas 19.3% (n = 6) saw a Grade 1 improvement. The researchers reported side effects that included erythema, edema, and hyperpigmentation.

CONCLUSION

Research regarding aesthetic treatment protocols for patients with FSTs IV–VI is limited. As the aesthetic industry continues to grow and increased numbers of patients with skin of color continue to seek aesthetic medical services, additional research is warranted to prevent adverse events and provide safe and efficacious aesthetic treatments for patients with skin of color.

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