QuickREAD

In recent years, manufacturers of laser and light-based technologies have developed equipment that physicians can adjust to safely and effectively treat darker-skinned patients, an expert says. He predicts such developments will continue.

Laser treatment of ethnic skin: Seeing the light

Requires adjustment for differences in physiology

By John Jesitus
Senior Staff Correspondent

Las Vegas — Safe, effective laser treatments for ethnic patients require lower energy settings, longer pulses and longer wavelengths than one would typically use for Caucasian patients, as well as greater attention to cooling techniques, an expert says.

"At one point a few years ago, laser manufacturers virtually ignored dark-skinned people and believed these technologies could not be used to treat them," Khalil Khatri, M.D., says.

Dr. Khalil

However, Dr. Khatri, who is medical director of Skin and Laser Surgery Center of New England, with offices in Chelmsford, Mass., and Nashua, N.H., says the current generation of laser technology is built in a way that allows physicians to change settings so that they can treat darker-skinned patients.

"Not only (in) the United States, but also worldwide there's a huge population whose skin is much darker than Caucasian skin," Dr. Khatri tells **Dermatology Times**.

And manufacturers' increasing attention to darker-skinned patients has boosted the popularity of laser and light treatments worldwide, he adds.

Idiosyncrasies of darker skin

Compared to lighter skin, the epidermis of darker-skinned patients possesses increased melanin (but the same number of melanocytes) and larger, more melanized melanosomes, which degrade more slowly than those of fair-skinned patients, Dr. Khatri says.

Because of these factors, he says, "Darker skin absorbs and scatters more UV light, which gives dark-skinned patients better photoprotection. This results in less photodamage, skin cancers and wrinkles" than Caucasian patients typically experience.

However, Dr. Khatri adds, "The dermis itself is also thicker in darker skin, and the mesenchymal activity within the dermis is higher, which leads to greater risk of developing hypertrophic and keloidal scars."

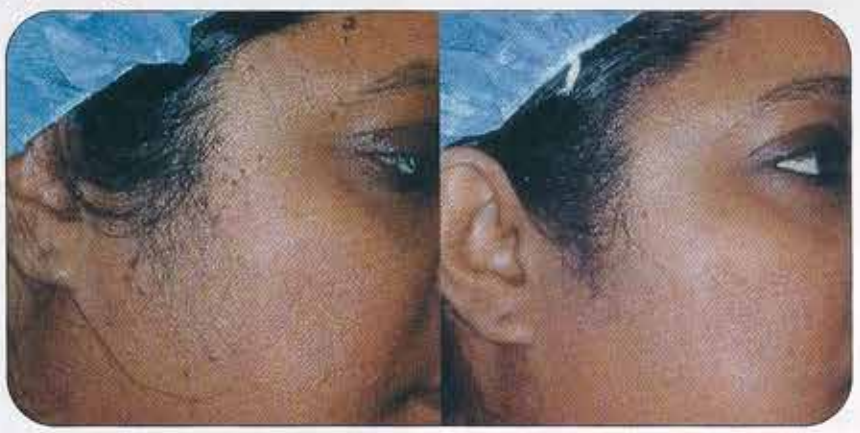
Accordingly, he says that if one treats dark-skinned patients with the same settings as one would use for Caucasian patients, the increased amount of melanin within the epidermis of the darker-skinned patients means their skin would absorb more energy and suffer more complications — namely, hyperpigmentation, hypopigmentation or depigmentation — as a result.

Cool it

To avoid these problems, common cooling techniques include use of gel packs, ice packs and cryogenic sprays, all of which physicians typically

A patient with skin type V before (left) and after Er:YAG laser ablation of dermatosis papulosa nigra.

Photos: Khalil Khatri, M.D.



employ before and, if desired, after treatment, Dr. Khatri notes.

"Contact cooling is probably the best way, because it allows one to cool the area being treated before treatment, during treatment and right after treatment," he says.

Contact cooling mechanisms include water-based systems and sapphire crystals.

With such mechanisms, Dr. Khatri says, "One can parallel cool as well — while one is delivering the pulse — because the pulse is going through the sapphire crystal, which is already making the epidermis cold."

One also can lower energy levels to make treatments safer for darker-skinned patients, although this practice decreases efficacy, he says.

In contrast, he says, "Cooling helps in two ways — it reduces the risk of complications and allows us to use higher energy settings, which can provide better efficacy."

Furthermore, Dr. Khatri says that with most laser devices, "We use a longer pulse when treating darker-skinned patients."

He likens this practice to pouring a pail of water slowly — which allows heat energy to dissipate during treatment — as opposed to dumping it all at once.

Regarding wavelengths, he says that for applications such as hair removal, 1,064 nm Nd:YAG lasers and intense pulsed light (IPL) devices (near the higher end of their 500 nm to 1,200 nm range) probably are safest for dark-skinned patients.

"With the 1,064 nm laser," Dr. Khatri explains, "the absorption of melanin is very low. That's one of the reasons it's better for darker skin."

As for pulse durations, he says that for hair removal in dark-skinned patients, "One would probably want to use a setting of 40 ms or higher," compared to 10 ms to 20 ms or perhaps lower in Caucasian patients.

Moves to meet the need

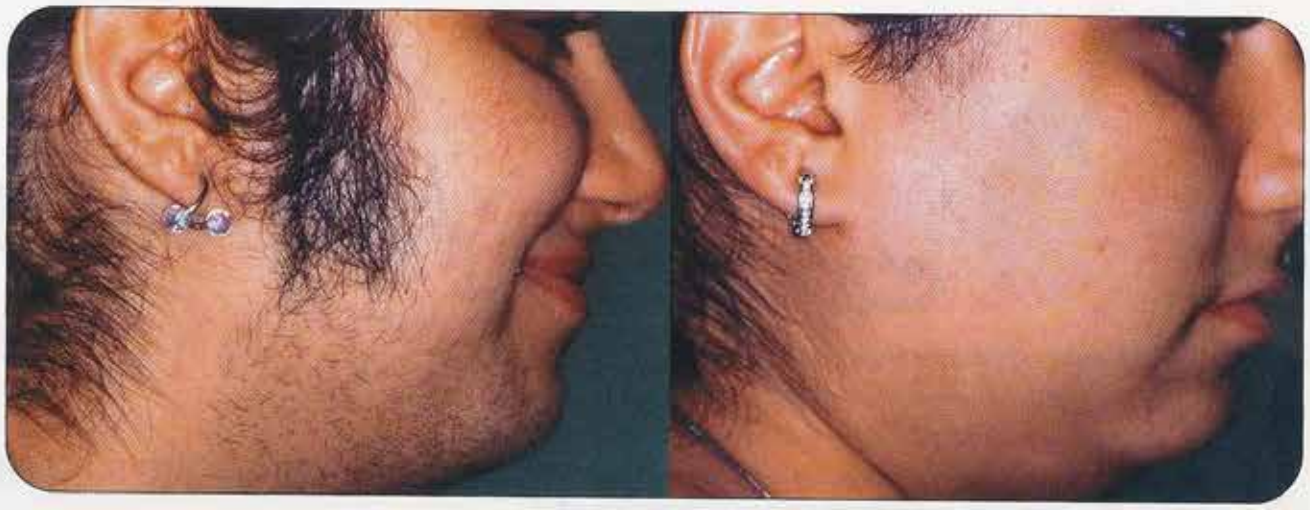
By the same token, he says one can use bleaching creams to lower dark skin's melanin content before treatment.

But if one does this, Dr. Khatri recommends making sure that patients use sunblock before and after laser or light treatments.

Along with hair removal, he says that state-of-the-art laser and pulsed-light technologies also can be used for photorejuvenation, skin resurfacing, vascular treatments and tattoo removal in darker skin. **DT**

Disclosure: Dr. Khatri reports no financial interests relevant to this article.

For more information: www.skinlaseronline.com



A patient with skin type IV before and after hair removal with an IPL device.

Photos: Khalil Khatri, M.D.