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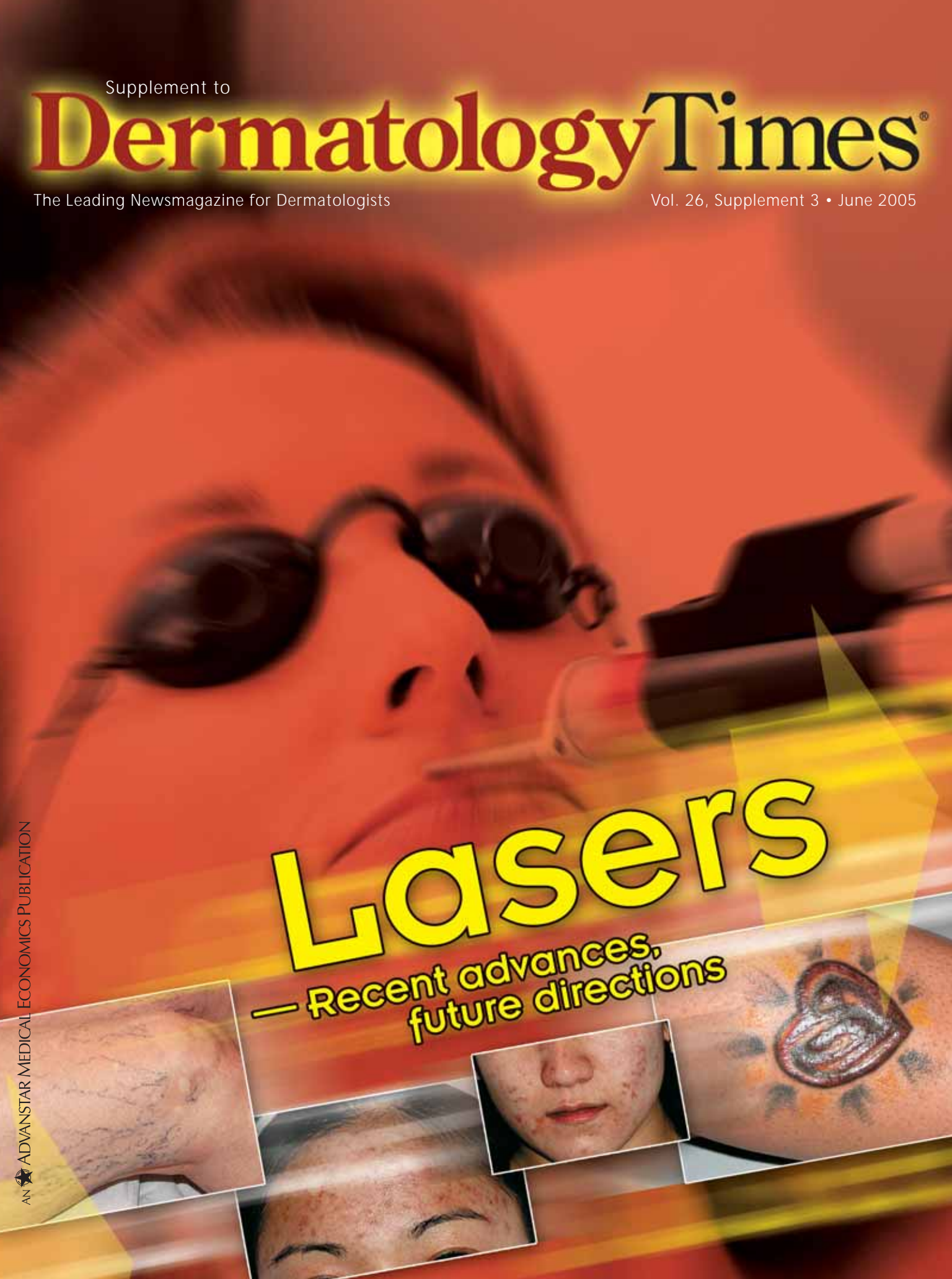
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Lasers

— Recent advances,
future directions

AN ADVANSTAR MEDICAL ECONOMICS PUBLICATION



Duo offers efficient, effective photon delivery

Pneumatic energy, broadband light promising for hair removal, rejuvenation

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Lake Buena Vista, Fla. — Photo-Pneumatic Technology Therapy™ (PPx), manufactured by Aesthera Corp., is showing promise as an innovative new approach for enhancing the safety and efficacy of hair removal and nonablative skin rejuvenation procedures, according to Vic A. Narurkar, M.D., who spoke at the



Dr. Narurkar

Annual Meeting of the American Society for Laser Medicine and Surgery. “Combining pneumatic energy with a 400 nm to 800 nm broadband light source, PPx manipulates the optical characteristics of the skin to deliver photons with increased efficiency and selectivity to hemoglobin and melanin using relatively lower overall fluences. As a result, PPx causes greater destruction of intended targets with less risk, while protecting adjacent tissue from collateral damage. PPx treatments have high patient comfort relative to conventional laser and intense pulsed light source treatments,” according to Dr. Narurkar, a San Francisco-based private practitioner and assistant clinical professor of dermatology at the University of California, Davis Medical Center, Davis, Calif.

Enhanced chromophore absorption

During PPx treatments, the skin is drawn up into a proprietary pneumatic energy-based tip (IntelliTip™) where it is thinned and stretched prior to light emission. This manipulation of the optical characteristics of the skin brings the target chromophores closer to the surface of the skin and reduces melanin concentration per unit area — resulting in an initial reduction in blood concentration. As a result, photon efficiency is maximized with a four-fold to five-fold increase in the amount of light penetrating to targets at any depth.

In addition, energy loss due to photon

scatter, absorption and reflection is minimized, so that the light can be delivered using fluences that are 60 percent to 80 percent lower than those used by conventional lasers or intense pulsed light sources.

“Those features translate into enhanced chromophore absorption and better treatment tolerance. None of the patients we’ve treated so far needed any topical anesthesia and patient ratings suggest the procedure is virtually painless,” Dr. Narurkar says.

Dr. Narurkar was the investigator for the initial alpha clinical study that evaluated the clinical efficacy and safety of the PPx system for hair removal and treatment of vascular and pigmented lesions. Conducted at the Bay Area Laser Institute in San Francisco where Dr. Narurkar is founder and director, the ongoing trial study has enrolled 60 adult patients with skin phototypes I to VI to date. Patients were treated for excessive hair on the legs, face, arms and axilla, as well as photorejuvenation procedures for vascular and pigmented lesions on the face, neck, chest, arms, hands, forearms and legs.

“Each PPx procedure is performed with a proprietary tip: IntelliTip. These microchip-driven treatment IntelliTips come in a range of configurations that are designed specifically for different anatomic sites and are pre-programmed for different procedures, i.e., initially, hair removal or the treatment of vascular and pigmented lesions,” Dr. Narurkar explains.

In the study, all patients received a single PPx treatment and all but one completed follow-up to six months. The results showed that PPx technology therapy resulted in a 75 percent or more improvement in 45 patients and a 50 percent to 75 percent improvement in the remaining individuals. Moreover, patient satisfaction was high as the participants previously treated with conventional light or laser treatments unanimously stated a preference for the PPx procedure.

No serious complications or long-lasting side effects developed in treated patients, although a few individuals developed petechiae that lasted from several hours to a week.

“Petechiae seemed to occur more in thinner-skinned individuals and was subsequently eliminated by reducing the level of pneumatic energy delivered,” Dr. Narurkar says.

Second study

Now, a second study involving 30 patients is comparing outcomes achieved with the Aesthera PPx system versus with the use of existing devices for hair removal and photorejuvenation, including a conventional IPL source, an 810 nm diode laser and a 1064 nm Nd:YAG laser.

Dr. Narurkar notes that much reduced treatment time, resulting from the elimination of numbing with topical anesthetics and the speed of the system, is another advantage associated with the efficient photon delivery of PPx. For the same procedure, the treatment time is four times to seven times faster using the PPx technology compared with conventional laser and light sources. For example, a full back or leg hair removal procedures take just 15 to 20 minutes.

Collagen remodeling

Future studies will also evaluate the potential efficacy of PPx treatment for stimulating collagen remodeling. Dr. Narurkar believes this technology holds promise as a pain-free method for achieving that benefit.

“It has always been my opinion that wavelengths in the 500 nm to 600 nm were best for inducing tissue tightening considering that the earliest studies of laser-induced collagen remodeling and textural improvement involved use the 585 nm flashlamp pulsed dye and 532 nm KTP lasers,” he says.

Targeting hemoglobin, melanin

Dr. Narurkar also theorizes that more effective targeting of hemoglobin and melanin in the skin with PPx will allow for greater collateral thermal damage to collagen and improved remodeling. That concept is supported by results from initial photorejuvenation studies that show that the best clinical and histological outcomes with respect to collagen remodeling are achieved in individuals with more extensive vascular and pigmentary photodamage.

PPx technology for hair removal and treatment of pigmentary and vascular lesions is currently undergoing FDA review. **DT**

Disclosure: Dr. Narurkar is a consultant to Aesthera and a member of its medical advisory board.