Fraxel Laser’s Potential Still Under Discovery

Some are experimenting with fluences to determine treatment possibilities for ‘therapy in flux.’

**By Betsey Bates**
Los Angeles Bureau

**Las Vegas** — The new 1,530-nm erbium Fraxel laser, by creating minute dots of destruction in the surface of the skin, produces color and texture changes, and may have the ability to significantly reduce wrinkles at high fluences, Mark Rubin, M.D., said at a facial cosmetic surgery symposium.

“Therapy, in my mind, is a therapy in flux. It’s where Thermage was 2 years ago,” said Dr. Rubin at the symposium, which was sponsored by the Multi-Specialty Foundation for Facial Aesthetic Surgical Excellence.

The Fraxel laser was approved by the Food and Drug Administration in March.

Using company-suggested parameters, the device can deliver perceptible improvement in the skin with significantly less traumatic healing than is required after carbon dioxide (CO2) laser treatments.

“Still, ‘the color and texture is really what knocks you out,’ said Dr. Rubin, who has no financial interest in, and receives no funding from, Fraxel manufacturer Reliant Technologies Inc.

“The big issue for me is what’s happening wrinklewise. I suggested that it may take some time to work out the ideal ways to use the Fraxel laser for different purposes. Nobody really knows how to use it correctly,” he said, urging colleagues to ‘look at it again in 6 months.”

Dr. Rubin, who practices dermatology in Beverly Hills, Calif., purchased a Fraxel laser in hopes of finding the holy grail for wrinklewise. So far, my experience has been very variable,” Dr. Rubin said.

“Many more profound changes” than the patient’s skin.

“After about 60 days, the epidermis regains its intact, even when the laser’s energy reaches depths of 700 micrometers and beyond, a level deep enough to promote collagen remodeling. But are the pinpoints of energy enough? Are the surface areas of each micrometrical laser treatment or epidermal zone impacted during each treatment at a low fluence, typically four to six passes, Dr. Rubin said. However, “in reality, as you go back forth and forth like this, you’re never really where you’re supposed to be.”

In certain places you hit the same spot two times, three times, four times, who knows?”

It may be that the microscopic zones of destruction are so small that overlap does not matter, either in terms of results or side effects, he said. However, it remains to be seen whether consistency will be achieved as the laser makes its way into general clinical practice.

A clear advantage of Fraxel lasers over CO2 lasers is the healing process, according to Dr. Rubin. “These patients aren’t weeping fluid. They’re not bleeding,” he explained.

When low fluences are used, edema typically lasts 1-2 days, and erythema lasts 1-3 days. Flaking and bronzing of the skin may persist for some time. Make-up can be worn because there is no open wound, but most patients need heavy makeup to cover the transient effects of the treatment.

“Therapy certainly don’t look normal enough to be fully functional a day or 2 days later. It’s not obvious, but there is an impact on patient’s lives as a result of this,” Dr. Rubin said.

Because the laser is nonablative, and some patients require supplemental oral pain medications. A blue dye is used to enhance skin surface contours for optical scanning.

“Without the target, there is no ef- fect,” said Dr. Dierickx, professor of the Skin and Laser Center, Brussels.

She was unsuccessful in her attempt to create a target by dying white hair, and has had mixed results with the use of radio frequency energy.

“With the steamroller effect that ablative lasers have, and the color and texture is really what knocks you out,” said Dr. Rubin, who has no financial interest in, and receives no funding from, Fraxel manufacturer Reliant Technologies Inc.

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The Fraxel 1,550-nm erbium laser may fill a niche for certain patients desiring skin rejuvenation, Dr. Rubin said.

These include:

- Patients with dark skin prone to hyperpigmentation. Because the damage inflicted by the Fraxel laser is done with microscopic pinpoints, it does not create the persistent erythema that often leads to hyperpigmentation following ablative therapies. Used at low fluences, it may be an excellent option for these patients.

- Patients with melasma. Melasma is essentially a condition of “misbe-having melanosomes,” according to Dr. Rubin.

“Where melanosomes aren’t functioning appropriately, we would love to kill them without killing the surrounding tissue and creating hypopigmentation.”

At low fluences with high density, the laser’s zone of thermal injury extends to the superficial papillary dermis, producing excellent improvement in the appearance of actinic dyschromia and photodamage.

There is no question color- and texture-wise, these patients can really do profoundly well. Although just 20% of the epidermis is being treated (at each session), they don’t look 20% better; they look 40%-50% better.

“I don’t know why; it doesn’t make sense. It obviously has to do with our ability to perceive changes in the skin,” he said.

A greater challenge is the best and safest use of the device at high fluences with low density. In this scenario, a deep wound is created over a smaller total area of the skin—about 10% per treatment session. Associated edema and erythema may persist for some time, but the potential exists for improvement of deeper wrinkles, just as he was hoping for, Dr. Rubin said.

Permanent Hair Removal in a Single Treatment? That’s a Myth

**By Patrice Wending**
Chicago Bureau

**Paris** — Technological advances in lasers and flashlamp devices have given rise to several hair removal myths, including the belief that permanent hair removal requires only a single treatment, that it can be performed on all hair colors and skin types, and that it is without side effects, Christine Dierickx, M.D., said at the Fourth International Academy of Cosmetic Dermatology World Congress.

Each laser treatment will temporarily remove all the hair and permanently remove about 20%. A hair-free period of about 1-3 months follows most laser treatments, which is then followed by partial regrowth of about 80% of the hairs.

The percentage of new hairs decreases with each laser treatment because additional permanent hair loss with each laser treatment is about 20%, she said.

Patients typically need five treatments, and should be warned not to pluck or wax their hair because photothermal energy is absorbed by melanin in the hair. “When the target, there is no ef-fect,” said Dr. Dierickx, professor of the Skin and Laser Center, Brussels.

She was unsuccessful in her attempt to create a target by dying white hair, and has had mixed results with the use of radio frequency energy.

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Photopneumatic therapy or PPx is a new treatment modality that combines light-based hair removal and vacuum suction to lift the patient’s skin.

The technology manipulates the optical characteristics of the skin, potentially allowing four to five times more energy to be transmitted to the follicles, Dr. Dierickx said.

Preliminary 3-month results were comparable with conventional 800-nm and 1,064-nm lasers, with 5 of 19 patients achieving 90% hair clearance.

No hair removal system is without risks. Recent reports (J. Am. Acad. Dermatol. 2004;51:774-7) and personal experiences show that livedo reticularis is a new possible side effect of laser-assisted hair removal, she said.