

AESTHETIC DERMATOLOGY

Fraxel Beats Pulsed Dye for Scar Treatment

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VANCOUVER, B.C. Fractional photothermolysis is superior to pulsed dye laser treatment for improving the cosmetic appearance of Mohs surgical scars and was preferred by all patients, despite being more painful, according to the first study comparing the two modalities.

The pulsed dye laser is the standard treatment for surgical scars, but it seems to primarily improve erythema, while fractional photothermolysis seems to mainly improve scar consistency, lead author Dr. Emily P. Tierney said in an interview.

It was surprising, then, to find that fractional photothermolysis outperformed the pulsed dye laser in reducing scar erythema. "My hypothesis in doing the study was that [fractional photothermolysis] would have improvements above and beyond the pulsed dye likely in terms of scar thickness and scar texture, but that the pulsed dye would have greater improvements in terms of the red component of scars," explained Dr. Tierney, a dermatologic surgeon with the Henry Ford Health System, Detroit.

The randomized, double-blind study, presented as a poster at the annual meeting of the American College of Mohs Surgery, involved 12 patients who had undergone Mohs surgery. All 12 scars were located on the face, neck, or chest, and 8 of them were hypopigmented.

In each patient, after application of lidocaine gel, half of each scar was treated with fractional photothermolysis (Fraxel SR, Reliant Technologies Inc.) and half treated with a pulsed dye laser (V-Beam, Candela Corp.). The patients received four treatments at 2-week intervals.

Dr. Tierney reported that she had no conflicts of interest in association with the research.

The same blinded physicians assessed the scars at each treatment and 1 month after the last treatment. All assessments were done in person, which permitted better evaluation of the scars' 3-D features. The physicians rated cosmetic outcomes using a quartile scale, so a one-quartile increase corresponded to a 25% improvement.

Compared with pulsed dye laser, fractional photothermolysis resulted in significantly greater improvements in scar thickness (mean improvement, 50%-75% vs. 0-25%), scar dyspigmentation (75% vs. 25%), color and texture of the subset of hypopigmented scars (50% vs. 0), and overall cosmetic outcome (75% vs. 50%). The two treatments both yielded a 50% improvement in scar texture.

Patients experienced significantly greater pain with the fractional photothermolysis than with the pulsed dye laser, according to Dr. Tierney, but neither treatment produced any other adverse effects.

At the end of the study, patients were offered additional treatment for the half of the scar with lesser improvement, and "uniformly, all of my 12 patients wanted the entire scar treated with Fraxel, so patients could see the significant difference between the two sides as well," she said, concluding that fractional photothermolysis appears to be the superior treatment and may expand the options available to patients.

All of the study patients started treatment 23 months after their surgery, but the best timing is unknown.

"That is something that we are going to have to look at in future studies just where that optimal window is for scar remodeling," she commented. "Perhaps 2 months is too late or it may even be a little bit on the early side." To better define that optimal window, she and her colleagues are planning studies in which patients will be treated at varying times after surgery.

"The frequency of treatment is also an incredibly important variable in the success of both devices," she asserted, noting that treating patients every 2 weeks is very aggressive.

"I think the results that we got in terms of the before and after photos are greater than anything I have seen where people have treated with monthly or every-other-month types of intervals," Dr. Tierney concluded.