Microdroplets Provide Less Aggressive Brow Lift

BY JEFF EVANS
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VAIL, COLO. — The superficial injection of many botulinum toxin type A microdroplets may create a more natural-looking brow lift than more aggressive treatment of the central frontalis and nearby depressor muscles, Dr. Kenneth D. Steinsapir said at a symposium sponsored by the American Academy of Facial Plastic and Reconstructive Surgery.

In the area where Dr. Steinsapir practices, a common technique for raising the brow includes botulinum toxin type A (Botox) injections to the central forehead (leaving the lateral frontalis alone), aggressive treatment of the corrugator and procerus muscles, and "pretty aggressive treatment" in the crow's feet area, he said.

This technique creates a central depression and smoothing of the forehead and significant, unopposed elevation of the frontalis, which produces a taut, arching central brow. Extreme versions of this have been given the moniker "Klingon forehead," said Dr. Steinsapir, a cosmetic, eye, and facial plastic surgeon in private practice in Los Angeles.

These patients have smoother horizontal forehead lines, but often at the expense of brow position depression in which the eyebrows crowd into the eyes.

"We have these treatment patterns because we're concerned that we'll get a ptosis after Botox treatment," he noted.

"Aesthetically, I think we can all agree that there is something not optimal about these faces," which are often seen in actresses, Dr. Steinsapir said. "This type of fakeness creates an impression in the public that Botox is a paralytic and undesirable at best."

"The key is, I think, to have a clearer picture of the anatomy and how these muscles interact," he continued.

"Brow position is really determined by the antagonists—the frontalis is really the only elevator in the brow. A substantial portion of the other muscles are brow depressors—the corrugators, the procerus, and the depressor supercilii," he said at the symposium, which was also sponsored by the American Society for Dermatologic Surgery and the American Society of Ophthalmic Plastic and Reconstructive Surgery.

To lessen the pronounced brow arch that occurs with that technique, Dr. Steinsapir developed his microdroplet technique, in which he aggressively treats the frontalis at and below the brow by injecting "smaller and smaller volumes of fluid in multiple locations." These microdroplets have volumes of 10-50 mcL of injectable saline; he has worked with microdroplets that contain 0.001-1 U Botox.

Dr. Steinsapir's currently preferred starting treatment is based on 100 U Botox and 3 mL of injectable saline, which equals about 0.33 U of Botox per 10 mcL.

He uses 32- and 33-gauge needles, which are more comfortable for the patient than a 30-gauge needle. He also uses magnification and subsurface illumination to see the subsurface vasculature "a little bit better," although he has not performed a study to determine if it reduces the rate of bruising, he said.

A typical treatment involves a total of about 100 microdroplets placed in double or triple rows just above, in, and below the brow, stopping around the level of the lowest brow cilia. The microdroplet injections are placed superficially about 1 mm into the skin to trap the Botox at the interface between the orbicularis oculi and the skin. For crow's feet, he will usually stop just before the midline of the lateral palpebral raphe. The glabellar area is also treated. The combination of these treatments produces a "uniform brow-lift effect," he said.

Dr. Steinsapir estimated that his starting treatment of about 100 microdroplets (about 33 U) works well for about 70% of women and about 50% of men. Of 75 consecutive patients (56 of them women) that he has treated with this technique, 61 returned at 3-week follow-up and had no ptosis, he said.

Caution should be used in performing this technique on patients who have had aggressive upper eyelid surgery, because their anatomy is slightly different and they may be at higher risk for ptosis, especially if their eyelids are thin, Dr. Steinsapir advised.

"If your patients are used to other techniques, it's a tough road because this is a very different treatment paradigm," he said.

Dr. Steinsapir has filed for a patent on the method and has asserted a trademark for the term microdroplet. "If you adopt it in your practice, you'll have to come up with a different name for it," he said. ■