

Get on the grid: 'Micro-doses' of Botox provide up-close improvement of facial skin

November 6 2020

Botulinum toxin—best known by the brand name Botox—is a popular treatment to reduce facial lines and wrinkles. Over the years, plastic surgeons have explored alternative approaches to maximize effectiveness while minimizing side effects of botulinum toxin injection, including smaller doses and more-diluted concentrations.

Now a team of [plastic surgeons](#) is developing an innovative, less-invasive "Microbotulinum" injection technique—using many tiny doses of [botulinum](#) toxin injected in a grid pattern just under the surface of the facial [skin](#). In a [preliminary report](#), this micro-dose technique provides objective improvement in skin texture and roughness, backed up by a high patient satisfaction rate.

The Microbotulinum technique is a safe and effective method of facial rejuvenation, yielding objective improvements of about 20 percent in skin texture, microroughness and pore size, according to the report by Alberto Diaspro, MD, MSc, of the Rigeneralab Centre for Regenerative Medicine in Turin, Italy, and colleagues. The researchers present a description and initial evaluation of their approach in the November issue of *Plastic and Reconstructive Surgery*, the official medical journal of the American Society of Plastic Surgeons (ASPS).

Cosmetic botulinum toxin injection is by far the most common cosmetic procedure, performed about 7.7 million times in US patients in 2019, according to ASPS statistics. In the standard technique, a few injections are made to treat common problems such as frown lines, forehead

creases and crow's feet around the eyes.

The new, less-invasive technique uses a series of tiny "blebs" of botulinum toxin A injected just under the skin surface. The injections follow a one-centimeter grid pattern, extending from the forehead to the cheek and down to the jawline. "This targets the superficial fibers of the facial muscles and weakens their insertion into the undersurface of the skin, which is responsible for the fine lines and wrinkles on the face and neck," Dr. Diaspro and colleagues write.

The researchers used a specialized, high-resolution "skin scanner" system to provide objective data on how the Microbotulinum procedure performed in improving the skin appearance. Graded on a 10-point scale (0 being best, 10 being worst), average skin texture improved from 6.0 to 4.0, while scores for skin "micro-roughness" improved from 7.5 to 5.0. There was a similar and significant reduction in enlarged [pore size](#).

The improvements were backed up by subjective ratings: 90 days after micro-dose treatment, 95 percent of patients were satisfied or very satisfied with their results. As in any botulinum [toxin](#) procedure, the effects were temporary, lasting up to 120 days. After that, treatment would need to be repeated in order to maintain the improvement.

The results of the Microbotulinum technique appeared best in middle-aged patients. Dr. Diaspro and colleagues believe it will be most appropriate for patients ranging from their mid-thirties to early fifties. The researchers emphasize the need for further studies to determine the optimal dose of [botulinum toxin](#) to produce a longer-lasting effect at the dilution used.

More information: Alberto Diaspro et al. Microbotulinum: A Quantitative Evaluation of Aesthetic Skin Improvement in 62 Patients, *Plastic & Reconstructive Surgery* (2020). [DOI](#):

[10.1097/PRS.00000000000007248](https://doi.org/10.1097/PRS.00000000000007248)

Provided by Wolters Kluwer Health

Citation: Get on the grid: 'Micro-doses' of Botox provide up-close improvement of facial skin (2020, November 6) retrieved 19 January 2023 from

<https://medicalxpress.com/news/2020-11-grid-micro-doses-botox-up-close-facial.html>

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