Neurotoxins: Past, Present, and Future

WITH ALASTAIR CARRUTHERS, MD, JEAN CARRUTHERS, MD

The Beginning. “It started off that botulinum toxin was seen as the ’most poisonous poison’ and there was tremendous fear about using in the therapeutic area. And then when we introduced it as a cosmetic treatment, there was frank disbelief,” says Jean Carruthers, MD. Many thought it would never take off, but it’s gone from being the scariest, most crazy idea to “the most commonly used aesthetic treatment in the entire world,” she explains.

“You have to go back to 1991 when we first stood up and started talking about this,” says Alastair Carruthers, MD. “That was the time when the FDA was threatening to throw the board of directors of Ortho Pharmaceuticals into jail for the illegal promotion of Retin A for wrinkles—something that we all know is very simple, safe, no big deal. And then we stand up and say we want to use the most deadly material known to humanity for something as frivolous as wrinkles, and by the way it’s not approved by the FDA, and it took over 10 years to be approved by the FDA. Meanwhile, people were saying to us, ’You want to inject what?’”

Evolving Uses. Dr. Alastair Carruthers says that when they first began investigating botulinum toxin, they expected what neurotoxins would be used for and how the actual materials would be used to evolve. And while the use of neurotoxins has evolved—for example using them to treat hyperhidrosis—the neurotoxins themselves have not changed that much. “We still don’t have the topical toxin, we don’t have longer-acting toxins, we don’t have toxins that work on specific things. These are things we look at in the future, but they aren’t here yet. So really we’re still using good old botulinum toxin for frown lines and it’s still just as good as it ever was.”

Drs. Jean and Alastair Carruthers says that it’s exciting to see new uses for neurotoxins evolve, particularly in areas such as treating depression and headaches and migraines. And both anticipate topical toxins to expand treatment further, noting that they could be used to treat migraines, to treat patients with needle phobia for any number of conditions, and for treating large areas, such as for hyperhidrosis.

Looking Ahead. “We know that botulinum toxins in the face affect sweat glands, it also affects oil glands, and it affects blood vessels,” says Dr. Alastair Carruthers. “So imagine having something you can put on the face once every few months and it’s going to reduce excessive sweating, reduce excessive oil glands, acne, redness, blushing. What’s not to like?” Dr. Jean Carruthers adds that research has found that botulinum toxins can reduce pigment in the face. “The thing we found about this molecule is that the more you look at it and the more you try it on different things, the more fascinating new insights it gives you,” she says.

“Botulinum toxin is one of the most remarkable drugs. We think of it as a generational drug like penicillin—something that is going to define this period in time because of the very
wide range of uses,” says Dr. Alastair Carruthers.

“The development of the cosmetic use of botulinum toxin opened up the whole field of noninvasive treatments. It’s just like you walked into a room and it was dark and you flipped on the light switch,” says Dr. Jean Carruthers.

—Excerpts from a recent edition of Modern Aesthetics Journal Club. To see the full interview with Drs. Alastair and Jean Carruthers, visit www.modernaesthetics.tv.

Strategies for Filling off the Face

WITH SABRINA FABI, MD

“The chest is usually what we really see juxtaposed to the face—and we’re always limited with what we can do to the chest and neck. And with the chest, a lot of our fractionated CO₂ treatments don’t do very well because we have to decrease their densities in order to not get scarring, since we know we have a decrease in pilosebaceous units in that area,” explains Dr. Fabi. So, in her practice, Dr. Fabi says they inject dilute poly-L-lactic acid (PLLA) into the chest with “really wonderful results.”

She says she uses Ultherapy as a single treatment that’s FDA approved for the improvement of fine lines and wrinkles, but not everyone has devices in their practice and suggests PLLA offers a great alternative. Her treatment protocol calls for using about a 16cc dilution of one vial of Sculptra once a month for anywhere between two to three months.

“And when we did a study looking at 28 patients we treated that way, we saw significant improvement in chest wrinkles.”

When combining skin tightening devices, the lasers, and the injectables, Dr. Fabi says she generally uses microfocused ultrasound followed with treatment the same day with an intense pulsed light treatment to address the red and the brown because people who present with these deep rhytide usually have some level of dyschromia as well. “You can plump up a face, plump up a chest all you want, but if it’s covered with redness and brown, you’ll never appreciate that volume,” she explains. Immediately after microfocused ultrasound followed by IPL, Dr. Fabi says she’ll even inject PLLA the same day in the chest and has not seen any increase in incidence of adverse events.

To watch Dr. Fabi’s entire interview from the Vegas Cosmetic Surgery & Aesthetic Dermatology symposium (VCS), visit ModernAesthetics.tv.
Non-Invasive Combinations
WITH HEIDI WALDORF, MD

"It’s a very exciting time for non-invasive rejuvenation. When I started in practice 20 years ago, we were very limited in what we could do," says Dr. Waldorf. "We could deeply resurface with lasers, we could put some filler in a few fine lines, but we really couldn’t reshape, and we also couldn’t prophylactically do things for patients to keep their skin more youthful," she adds.

Dr. Waldorf says now it’s possible to work on many levels to treat patients. Before starting any treatment, Dr. Waldorf assesses the patient to decide what they need and then suggests the appropriate options.

“We have skin tightening—whether it’s with radiofrequency or whether it’s with ultrasound—either way you now tighten the skin.” While this is not the equivalent of surgery, Dr. Waldorf explains that are many patients who are either not ready for surgery emotionally, financially, or medically, and for those patients these skin-tightening procedures represent an excellent choice. The choice of which procedure to offer depends on the patient’s skin. You need to assess if the skin is healthy or has a lot of skin damage and choose based on that the best option to tighten the skin envelope, she observes.

“We obviously have talked a lot in *Modern Aesthetics* and elsewhere about reshaping with injectables and volumizing. We now have longer-lasting, yet still temporary, fillers that we can use and adjust as the patient’s needs change as the patient gets older to lift, to shape,” Dr. Waldorf says.

“We have toxins, which we use to change the vectors of movement, to allow patients to have a lifted eyebrow, to not look angry all the time, and to soften the neck,” she adds.

“And now what’s very exciting to me is we now have the first injectable that will be able to dissolve fat. This is not a competing product to the others, but this is latest arrow in our quivers of noninvasive rejuvenation. So that was the last frontier. I could send patients to my colleagues for liposuction of that area and while that’s a wonderful treatment and still going to give you the fastest result, many patients don’t want anything that they consider invasive,” Dr. Waldorf notes. “And now with Kybella, we will be able to reduce the fat in submental area, which will then give an even better outcome…"

*Watch more from Dr. Waldorf’s interview from VCS by visiting ModernAesthetics.tv.*