A Practical Primer for Dysport, Part 1: Speaking the Language and Strategies for Success with the Glabella and Forehead

By Hema Sundaram, MD

To gain the most benefit from the newest botulinum neurotoxin, clinicians need to think about the product in its own terms.

It is a hallmark of dermatology that one never stops learning. Every year, new therapies, and new ways to use them, must be incorporated into our existing paradigms of patient care. This is consummately the case in the fast-moving world of aesthetics. The ongoing emergence of new technologies and techniques meriting our attention is the norm, and the old Chinese proverb—that learning is like rowing upstream and not to advance is to drop back—is in full force. In this field, we can only truly master what is new by learning its specific language: the treatment parameters for a laser, the flow characteristics of a dermal filler...or the injection strategy for a botulinum neurotoxin. Clinicians who are already familiar with the language of Botox® (botulinum toxin A, Allergan) should have no difficulty mastering the language of Dysport® (abobotulinumtoxin A, Medicis), provided they understand a concept that is familiar to any linguist, not to mention countless devotees of Rosetta Stone software:

The most effective way to learn a new language is to think directly in it from the outset, rather than converting mentally from another language.

Starting Out: Basic Injection Patterns on the Upper Face

Dysport and Botox are both FDA-approved for the temporary improvement of moderate to severe glabellar lines. When starting out with Dysport, it’s a relatively easy transition from on-label treatment of the glabella to off-label treatment of the forehead and crow’s feet. I have performed hundreds of Dysport treatments during FDA studies with placement of injection sites in the basic pattern, just as they are placed for Botox; my experience is that this approach consistently yields clinical success and a high degree of patient satisfaction, just as it does with Botox. Re-evaluation two to three weeks after injection allows results to be adjusted, if needed, through the injection of more Dysport.

With our linguistic maxim in mind, I recommend avoidance of conversion ratios between Botox Units (BU) and Dysport Units (DU), which are akin to translating from one language to another. Instead, I suggest a simple, original formula for calculating Dysport dosage: the “Rule of Tens and Fives.” Injection of 10 DU at each of the five standard glabellar injection sites (for a total of 50 DU) constitutes the standard, on-label Dysport treatment. Good results will also be obtained by injecting 10 DU at three to five sites on the forehead (for a total of 30 to 50 DU) and 10 DU at three to five sites on each side for the crow’s feet (for a total of 60 to 100 DU on both sides).

Once clinicians have gained experience with this basic injection pattern, they have the option of moving to more advanced injection patterns, by varying Dysport dosage or injection sites. It must be emphasized that advanced injection patterns are purely optional and need only be employed by clinicians who feel comfortable going beyond previous treatment paradigms for botulinum neurotoxin A with the aim of achieving better results.

The Next Step: Variable Dosing in the Upper Face

Rather than simply follow pre-set templates for the dosages and injection sites of botulinum neurotoxin A (BoNT-A), experienced clinicians are now guided by each patient’s individual facial anatomy, pattern of muscle activity, muscle mass and treatment objectives. The rationale for variable dosing of botulinum neurotoxin A is that facial muscle mass, placement, and depth differ from individual to individual and between genders.

Assessment of these differences enables BoNT-A dosage to be optimized for individual patients. Variable dosing has been particularly well defined for Dysport by a randomized, double-blind, placebo-controlled study of 816 subjects, 544 treated with Dysport and 272 treated with placebo. Females in the Dysport arm of the study received 50 to 70 DU to the glabella depending on muscle mass, and males received 60 to 80 DU. This resulted in a median clinical duration of 109 days and no significant dose-
related adverse events.

A practical method of incorporating variable dosing into our treatment paradigms is to simply add 10 to 20 DU to the standard 50 DU (for a total of 60 to 70 DU) when treating women with larger than average glabellar muscle mass; and to start treatment of men at 60 DU, with the addition of 10 to 20 DU more if they have larger than average glabellar muscle mass. The additional DU can be divided between the five glabellar injection sites.

Moving On: Variable Injection Sites in the Upper Face

The rationale for decreasing the number or slightly varying the position of injection sites is to harness the distinct properties of Dysport, again with the objective of individualizing treatment and optimizing results. As previously discussed,4 Dysport may have a slightly wider zone of activity—also known as field of effect—than Botox in certain situations. It is important to note that this wider field of effect is not associated with any increase in adverse effects; Dysport, like Botox, has a low rate of adverse effects. This includes eyelid ptosis, an indicator of spread or diffusion after glabellar injection, for which the incidence is comparable with both BoNT-A products: Combined data from the Dysport studies show a ptosis rate of 2.1 percent and the package insert reports a ptosis rate of 2 percent from a study of 398 subjects5 while the package insert for Botox contains a similar rate.

PRACTICE PEARL: Before injecting a patient with BoNT-A, it is important to document individual patient features, including muscle mass, pre-existing facial asymmetry and treatment objectives, and to obtain pre-treatment photographs.

Case 1: Treatment of Glabella and Forehead

History: 45-year-old man. Non-smoker.

Treatment Objectives: • Softening of facial wrinkles • Improvement in skin texture • Decrease in prominence of acne scars on the cheeks • Retention of forehead mobility and expressivity • A youthful, wide-eyed look

Previous Treatment: Five months previously: BoNT-A injections (35 units of BOTOX Cosmetic, botulinum toxin A) to the forehead; During the same session: injections of large and small particle hyaluronic acid (HA) fillers (Perlane 2cc and Restylane 1cc) to the nasolabial folds and scars on the cheeks.

Examination of Glabellar and Forehead Regions:
• Fitzpatrick Type I skin with moderate skin elasticity.
• Deep pitted and trough-like scars of the cheeks.
• In repose: Moderate glabellar rhytides, prominent frontal rhytides and slight right-sided eyebrow ptosis. (Fig. 1, In repose).
• On facial animation (raising eyebrows and frowning): Accentuation of glabellar and frontal rhytides.
• Glabellar muscle mass (evaluated at maximal frown): Medium.

Fig. 1.

Fig. 2 & 3: Before treatment, in animation (frowning, raising eyebrows.)

Fig. 4: The patient was injected with BoNT-A (abobotulinumtoxin A, Dysport) into the glabellar and forehead regions. 10 DU were injected at each of 5 points into the glabella and at each of 5 points into the forehead. (*Note: BoNT-A treatment of this patient’s crow’s feet, cheeks and lower face will be discussed in a subsequent article).

Fig. 5 & 6: Before treatment, in animation (frowning, raising eyebrows.)

Fig. 5:

Treatment of Glabella with BoNT-A

Fig. 5:
Target muscles: 3 sets of facial depressor muscles: • Corrugator superciliaris (bilateral). Causes vertical and oblique glabellar lines • Procerus Causes horizontal glabellar lines • Depressor supercilii (bilateral). Contributes to horizontal glabellar lines

Fig. 6:

Treatment of Forehead with BoNT-A

Fig. 6:
Target muscle: Facial elevator • Frontalis (bilateral). Causes horizontal forehead lines

KEY TO FIGURES 4-6: ● = 10 DU
Cosmetic reports a ptosis rate of five percent based on literature reports and a ptosis rate of 3.2 percent from a study of 405 subjects. The experienced injector may therefore slightly modify the position of injection sites depending on the BoNT-A product that is selected. It may also be possible to modify the number of injection points necessary to achieve the desired clinical results particularly when treating the forehead and the crow’s feet and also to reduce the number of residual lines post-treatment.

Mastering the Pragmatics

Dysport for aesthetic use is supplied in a sterile vial containing 300 DU of freeze-dried abobotulinumtoxin A. As with Botox Cosmetic, on-label reconstitution of Dysport is with sterile unpreserved 0.9% (normal) saline, and the vial is labeled for single use within four hours of reconstitution. A recent Brazilian study showed no loss of efficacy or safety with reconstituted Dysport that was stored at a temperature between 2°C and 8°C for up to 15 days prior to glabellar injection at a dose of 50 DU into 105 study subjects. The results were evaluated clinically during the study by the investigators and the subjects, and blinded photographic evaluation was performed at the end of the study. In the same study, microbiological analysis of the reconstituted and refrigerated Dysport vials showed no evidence of microorganisms or bacterial growth as long as 10 months after reconstitution.

Figs. 7-8: The most lateral abobotulinumtoxin A (Dysport) injection points to the forehead were placed 0.5 cm more medially than injection points for previous botulinum toxin A (Botox Cosmetic) treatment, with the aim of preserving lateral eyebrow mobility and achieving patient’s desired brow shape. Five abobotulinumtoxin A injection points were made to this patient’s forehead (Fig. 7), while seven were made with previous botulinum toxin A treatment (Fig. 8).

Figs. 9-11: In repose before (Fig. 9); three days, 19 hours (Fig. 10); and 33 days (Fig. 11) after abobotulinumtoxin A (Dysport) treatment. The patient noted onset of clinical effect within 24 hours of injection and full clinical effect three days after injection. He stated that he was very happy with the results and particularly appreciated that tenacious lines on his forehead and cheeks had been improved while preserving facial expressivity and function. External hordeolum of right upper eyelid (Fig. 11) is unrelated to abobotulinumtoxin A (Dysport) treatment.

Figs. 12-13: Frowning before (Fig. 12) and 33 days after (Fig. 13) treatment. Note minimal glabellar mobility after treatment, in accordance with patient’s wishes. External hordeolum of right upper eyelid (Fig. 13) is unrelated to abobotulinumtoxin A (Dysport) treatment.

Figs. 14-17: Raising eyebrows before and 33 days after abobotulinumtoxin A (Dysport) treatment. Note preservation of some forehead mobility after treatment, in accordance with patient’s wishes. Both patient and author noted fewer residual lines immediately above the middle and lateral one-thirds of his eyebrows (arrowed) after the abobotulinumtoxin A than after the previous botulinum toxin A. This improvement in the lines immediately above the eyebrows was not accompanied by eyebrow ptosis or by forehead immobility (lack of ptosis evident in Figs. 10 and 11).
Cosmetics Challenge

Case 2: Treatment of Glabella and Forehead

![Image](image.png)

**Fig. 18.** Patient treated by Hema Sundaram, MD. Images courtesy of the PharmAdura CME initiative, Advances in Cosmetic Therapy—A Focus on Botulinum Neurotoxin A.

**Fig. 18a** Fig. 18b

The rates of temporary eyelid ptosis is low and comparable after either Dysport or Botox injection into the glabella.1–5 Injection of BoNT-A low over the eyebrows reduces the activity of frontalis in raising the eyebrows and may result in temporary eyebrow immobility or ptosis to relatively unopposed activity of the brow depressors, procerus, corrugator supercilii and depressor supercilii. Therefore, it is generally recommended that BoNT-A injections to the forehead should be kept 1 to 2 cm above the orbital rim.


On-label reconstitution of Dysport is with either 2.5 mL or 1.5 mL of 0.9% saline. In my experience, Dysport reconstituted with either diluent volume is equally easy to work with. Individual clinicians may select a preferred diluent volume based upon the volume of Dysport they prefer to inject at each site and the type of syringe that they wish to use. There will be 10 DU per 0.08 mL in a Dysport vial reconstituted with 2.5 mL of saline, and 10 DU per 0.05 mL in a vial reconstituted with 1.5 mL of saline. As with Botox, various types of syringe may be used to inject Dysport successfully. My personal choice is the

Injekt-F Low-waste 1 cc luer slip syringe (available from Physician Sales & Service, Inc. and other medical supplies companies). Although it costs more than the standard tuberculin or insulin syringe, I find that it increases injection precision and decreases Dysport or Botox waste. I inject with a 32-gauge needle whenever possible to minimize tissue trauma.

Understanding New Safety Labeling

Last April, the US Food and Drug Administration (FDA) announced safety labeling changes and a risk evaluation and mitigation strategy (REMS) that apply to all FDA-approved botulinum neurotoxin (BoNT) products: Botox and Botox Cosmetic (botulinum toxin A), Dysport (abobotulinumtoxin A) and Myobloc (botulinum toxin B).13

As clinicians, our responsibility is to inform patients that all BoNT products now carry a boxed warning stating that their effects may spread from the area of injection with symptoms, including life-threatening or fatal events, reported hours to weeks after injection. Manufacturers are specifically required to collect safety data in children and adults with spasticity. In regards to aesthetic use of BoNT products, the FDA has issued a statement noting that it has not identified any definitive serious adverse event reports of a distant spread of toxin effect when these products are used in accordance with the approved label—for temporary improvement in the appearance of glabellar lines. The REMS includes a Medication Guide that is to be given to patients who are treated with BoNT. A primary motivation for the change in labeling of BoNT products is to underscore the fact that these products are not the same and that clinical doses expressed in units are not interchangeable from one product to another.

Besides making patients whom we treat with Dysport or Botox aware of
safety labeling changes and giving them the Medication Guide, I believe that there are other safety measures we should take. One is to uphold the highest standards of patient care via thorough pre-procedural evaluation and fully informed consent, including the disclosure of off-label use of Dysport or Botox, meticulous product inventory and procedural documentation, and consistent maintenance of product sterility and integrity. Another measure is to employ injection techniques that optimize patient safety.

**Going Further: CME and Preceptorship Programs**

Both Continuing Medical Education (CME) programs and individualized preceptorship programs are helpful in developing clinical expertise with a new product such as Dysport. The interested reader may wish to register to attend local or regional workshops for a new CME initiative entitled, “Advances in Cosmetic Therapy – A Focus on Botulinum Neurotoxin A” (see registration information below), which provides a clinical and scientific overview of botulinum neurotoxin A therapy, including consensus recommendations for both on-label and off-label aesthetic use of Dysport and innovative, synchronized video of injection techniques and clinical results. Preceptorships can be arranged by directly contacting physician colleagues with the requisite experience and expertise in the relevant field.

As one of my favorite writers, William Gibson, astutely observed, language is to the mind more than light is to the eye. The opportunity—indeed, the imperative—to continually learn new aesthetic languages in order to best serve our patients illuminates our minds and makes the field of cosmetic dermatology endlessly engaging and inspiring. I have found that the learning curve to master a new aesthetic treatment within an already existing genre is relatively small, and more than compensated for by the benefits that patients perceive to selecting clinicians who stay on the cutting edge and offer them up-to-date procedural choices.

**Case 4: Complications of Botulinum Neurotoxin A (BoNT-A) Injection to the Glabella and Forehead: Cocked Eyebrow**

Botox-A injections restricted within mid-pupillary lines reduce elevator activity of Frontalis in medial forehead

Relatively unopposed Corrugator superciliii, Procerus and Depressor superciliii depress medial portion of eyebrows

![Fig. 20](image)

Cocked eyebrows in a patient who consulted the author for the first time requesting correction of previous suboptimal treatment with botulinum toxin A (Botox). Note that cocked eyebrow may also occur as a result of suboptimal treatment with abobotulinumtoxin A (Dysport). BoNT-A injections that are restricted to the medial portion of the forehead, between the midpupillary lines, may cause relatively unopposed activity of the brow depressors medially, resulting in cocking of the eyebrow, also known as the Mephisto or Dr. Spock sign.

**Dr. Sundaram has performed media work for Allergan, Inc., serves as a Consultant and Speaker for ColBar Life Science Ltd./Ortho Dermatologics and serves as a Clinical Investigator, Consultant and Speaker/Trainer for Medicis Pharmaceutical Corp. She has no stocks, shares, or other financial interest in these or in any other pharmaceutical or device companies.**

The PharmAdura Continuing Medical Education initiative, “Advances in Cosmetic Therapy – A Focus on Botulinum Neurotoxin A” (ACT) is supported by independent educational funding from Medicis Pharmaceutical Corp. Physicians may register to attend a local ACT program by calling 1-877-252-5100 or by faxing information to PharmAdura, LLC. at 1-845-398-5108.


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