Is Less More?
Pediatric Intractable Migraine and OnabotulinumtoxinA Treatment

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OBJECTIVES
A retrospective chart analysis was performed in all patients who received onabotulinumtoxinA (Botox) from Nemours Neurology Division between February 2014 and March 2016 to assess age, headache type and effectiveness of Botox dose administered.

BACKGROUND
Chronic migraine occurs in approximately 1.75% of adolescents in United States. Preventive and abortive medication with a combination of integrative therapy is standard practice in headache programs. This approach is ineffective or limited by adverse responses in some patients. OnabotulinumtoxinA 155-200 unit dose was approved by the FDA for treatment of Chronic Daily Headache (CDH) in adults in 2010. OnabotulinumtoxinA is used off-label in refractory pediatric and adolescent patients but no standard dose has been established.

METHODS
A retrospective chart analysis was performed on Forty-four patients (35 females, 9 males, and age range 11-20 at time of treatment) received onabotulinumtoxinA using a modified dose approach based on location and tolerance. Parent and patient consent was obtained. The location of pain reported, determined the location of injections provided. OnabotulinumtoxinA 100 units was reconstituted with 1 mL of normal saline. Five units per injection was administered. If patients reported only frontal pain, only frontal injections were administered. If patients reported frontal and temporal pain only frontal and temporal regions were injected, etc. The dose was based on their tolerance of the procedure as well.

RESULTS
Forty-one percent had chronic migraine without aura (CMO) and fifty-nine percent had chronic migraine with aura (CMA). Significant improvement in migraine intensity and frequency was reported in 70% of patients who received Botox. Significant improvement is defined as a decrease of intensity or frequency of 50% or more. Of those that responded, 6% responded to 115-155 units, 61% responded to 80-110 units, 19% percent responded to 55-75 units and 13% responded to 35-50 units. Soreness at the injection sites was the only reported side effect.

CONCLUSION
OnabotulinumtoxinA was well tolerated using a modified dose approach and provided improvement in migraine intensity and frequency in the majority of adolescents who failed standard treatment (at least three preventative medications: Topiramate, amitriptyline, divalproex, propranolol, cyproheptadine). The data support prospective studies of optimal dosing in medically refractory pediatric migraine patients. Significant improvement is defined as a decrease of intensity or frequency or both of 50% or more. However, of those that did not respond, 84.6% have had three or less sets of injections. Of those that did respond, 48% had less than 2 headaches a month that lasted less than one hour. These data, if projectable to the general population, suggest a greater efficacy in lower doses for children compared to adults.

REFERENCES