Accepted Manuscript

The effect of botulinum toxin-augmentation on strabismus surgery for large-angle, infantile esotropia

Michael J. Wan, Aubrey Gilbert, Melanie Kazlas, Carolyn Wu, Iason S. Mantagos, David G. Hunter, Ankoor S. Shah

PII: S0002-9394(18)30068-0

DOI: 10.1016/j.ajo.2018.02.010

Reference: AJOPHT 10421

To appear in: *American Journal of Ophthalmology*

Received Date: 10 August 2017

Revised Date: 11 February 2018

Accepted Date: 14 February 2018

Please cite this article as: Wan MJ, Gilbert A, Kazlas M, Wu C, Mantagos IS, Hunter DG, Shah AS, The effect of botulinum toxin-augmentation on strabismus surgery for large-angle, infantile esotropia, *American Journal of Ophthalmology* (2018), doi: 10.1016/j.ajo.2018.02.010.

ABSTRACT

Purpose: To determine whether botulinum toxin augments the effect of strabismus surgery in pediatric patients with large-angle, infantile esotropia.

Design: Retrospective, comparative, case series.

Methods:
Setting: Tertiary-care pediatric hospital.
Study Population: Patients with large-angle, infantile esotropia.
Intervention: Treatment with botulinum toxin-augmented bilateral medial rectus muscle recession ("augmented-surgery group") or traditional bilateral medial rectus muscle recessions ("surgery-only group").
Main outcome measure: The effect of surgery on ocular alignment at 4 months, measured in prism diopters of change per mm of surgery (PD/mm).

Results: There were 14 patients in the augmented-surgery group and 16 patients in the surgery-only group. The mean effect on alignment was significantly greater in the augmented-surgery group compared to the surgery-only group at 4 months (5.7 +/- 1.3 vs 4.0 +/- 1.4 PD/mm, p = 0.002) and at 1 year (5.4 +/- 1.2 vs 3.7 +/- 1.2 PD/mm, p = 0.002). There was a partial loss of treatment effect between 4 months and 1 year in both groups, which was similar in magnitude (p = 0.57). On linear regression, there was a trend toward a positive correlation between botulinum toxin dose and treatment effect, but this was not statistically significant (p = 0.09).

Conclusions: Botulinum toxin augments the surgical effect of bilateral medial rectus muscle recessions. Botulinum toxin-augmented surgery may be an alternative to traditional options for large-angle, infantile esotropia. A surgical dosing table is proposed for this technique.