Dose-effect relationship of bilateral medial Rectus advancement in the treatment of consecutive exotropia

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Background

Overcorrection of hyperopia or surgery for esotropia may cause a condition with overt deviation known as consecutive exotropia. There is a variety of surgical techniques to treat consecutive exotropia such as lateral rectus muscle recessions of unoperated or formerly resected muscles, medial rectus muscle advancement and/or resection, or a combination of them. Medial rectus muscle advancement is considered the tradition technique in those with limited adduction and higher degree of deviation at near than distance. This study aims to examine the success rate of this technique and to report the dose–effect relationship for bilateral medial rectus muscle advancement in patients with consecutive exotropia.

Methods & Materials

A total of 26 patients with consecutive exotropia who had undergone bilateral medial rectus muscle advancement in Nikookari Eye Hospital were enrolled in this interventional study. After 9.7 months follow-up in average, success rate (≤10 prism diopters (PD) esotropia or no deviation) was reported. The dose–effect relationship between millimeters of advancement and the change in deviation at follow-up was also calculated.

Results

Eleven males (42.3%) and 15 females (57.7%) with a mean age of 19.42±10.10 years at the time of operation were studied. The mean preoperative deviation was 29.50±10.60 PD, which decreased to a mean value of 26.23±13.20 PD at the end of follow-up. At the endpoint a successful outcome was evident in 20 cases (76.9%). There were 8 patients (30.8%) with exotropia, 10 patients (38.5%) with

orthotropia, and 8 patients (30.8%) with esotropia. Each 1 mm advancement of the medial rectus muscles led to 5.35 PD correction in deviation at the end of follow-up.

Conclusion

The dose–effect relationship at 9.7 months after bilateral advancement of the medial rectus muscle for consecutive exotropia could be a useful guide for planning surgical correction.

Keywords: *Consecutive Exotropia, Bilateral Medial Rectus Muscle Advancement; Dose–Effect*