

Myopic Shift 5 Years after Intraocular Lens Implantation in the Infant Aphakia Treatment Study.

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Abstract

PURPOSE:

To report the myopic shift at 5 years of age after cataract surgery with intraocular lens (IOL) implantation for infants enrolled in the Infant Aphakia Treatment Study (IATS).

METHODS:

Refractions were performed at 1 month and every 3 months postoperatively until age 4 years and then at ages 4.25, 4.5, and 5 years. The change in refraction over time was estimated by linear mixed model analysis.

RESULTS:

Intraocular lens implantation was completed in 56 eyes; 43 were analyzed (median age, 2.4 months; range, 1.0-6.8 months). Exclusions included 11 patients with glaucoma, 1 patient with Stickler syndrome, and 1 patient with an IOL exchange at 8 months postoperatively. The mean rate of change in a myopic direction from 1 month after cataract surgery to age 1.5 years was 0.35 diopters (D)/month (95% confidence interval [CI], 0.29-0.40 D/month); after age 1.5 years, the mean rate of change in a myopic direction was 0.97 D/year (95% CI, 0.66-1.28 D/year). The mean refractive change was 8.97 D (95% CI, 7.25-10.68 D) at age 5 years for children 1 month of age at surgery and 7.22 D (95% CI, 5.54-8.91 D) for children 6 months of age at surgery. The mean refractive error at age 5 years was -2.53 D (95% CI, -4.05 to -1.02).

CONCLUSIONS:

After IOL implantation during infancy, the rate of myopic shift occurs most rapidly during the first 1.5 years of life. Myopic shift varies substantially among patients. If the goal is emmetropia at age 5 years, then the immediate postoperative hypermetropic targets should be +10.5 D at 4 to 6 weeks and +8.50 D from 7 weeks to 6 months. However, even using these targets, it is likely that many children will require additional refractive correction given the high variability of refractive outcomes.