Ophthalmology. 2017 May;124(5):730-733. doi: 10.1016/j.ophtha.2017.01.010. Epub 2017 Feb 10.

Globe Axial Length Growth at Age 5 Years in the Infant Aphakia Treatment Study.

Wilson ME[1], Trivedi RH[2], Weakley DR Jr[3], Cotsonis GA[4], Lambert SR[5]; Infant Aphakia Treatment Study Group.

PURPOSE:

To report the longitudinal change in axial length (AL) from the time of unilateral cataract surgery at age 1 to 7 months to age 5 years, and to compare AL growth of operated eyes with that of fellow unoperated eyes.

DESIGN:

Comparative case series.

PARTICIPANTS:

Infants enrolled in the Infant Aphakia Treatment Study (IATS).

METHODS:

The AL at baseline and age 5 years and change in AL were analyzed relative to treated versus fellow eye, visual outcome, and treatment modality (contact lens [CL] vs. intraocular lens [IOL]). Eyes with glaucoma or glaucoma suspect were excluded from primary analysis but reported separately.

MAIN OUTCOME MEASURES:

The AL growth from preoperative to age 5 years.

RESULTS:

Seventy patients were eligible; however, AL data for both eyes were available for 64 patients at baseline and 69 patients at age 5 years. The AL was significantly different between treated and fellow eyes preoperatively (18.1 vs. 18.7 mm, $P < 0.0001$) and at the final follow-up (21.4 vs. 22.1 mm, $P = 0.0004$). The difference in AL growth between treated and fellow eyes was not significant (3.3 vs. 3.5 mm, $P = 0.31$). The change in AL in eyes was similar with both treatments (CL 3.2 mm and IOL 3.4 mm, $P = 0.53$) and did not correlate with visual outcomes ($P = 0.85$). Eyes receiving additional surgery to clear the visual axis opacification grew significantly more compared with eyes not receiving surgery to clear the visual axis (3.8 vs. 2.7 mm, $P = 0.013$). Patients with glaucoma showed significantly more eye growth (5.7 mm) than those without glaucoma (3.3 mm) and glaucoma suspects (4.3 mm).

CONCLUSIONS:

Eyes treated for monocular cataract in infancy have axial growth similar to that of fellow eyes, despite having a shorter AL at the time of surgery. The change in AL in eyes was similar with both treatments (CL and IOL), did not correlate with visual outcomes, and was higher in eyes receiving additional surgery to clear the visual axis or eyes diagnosed with glaucoma.