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Rate of ocular trauma in children operated on for unilateral cataract in infancy—data from the Infant Aphakia Treatment Study

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To determine whether the fellow eye of children who have undergone unilateral cataract extraction in the first year of life are at increased risk of injury and vision loss, the 10.5-year data on 109 of 114 children enrolled in the Infant Aphakia Treatment Study were examined. Based on this limited data, it was estimated that the fellow eye is at greater risk of injury than the operated eye. Our data do not support the risk being higher in children with the worst vision.

It has been reported that patients with reduced vision in one eye are more likely to sustain trauma to the better-seeing eye than individuals in whom both eyes have normal vision^{1,2}—hence the importance of appropriately treating children with a unilateral cataract with early surgery and part-time patching of the fellow eye to maximize vision in the worse seeing eye. Few publications in the literature estimate the cumulative incidence of ocular injuries in children with amblyopia; none reports on patients with a unilateral congenital cataract. Using prospectively collected data on children enrolled in the Infant Aphakia Treatment Study (IATS),³ we reviewed occurrences of ocular injuries, with the goal of elucidating risk of injury in this patient population.

*See eSupplement 1 (available at jaapos.org) for a listing of administrative units and participating clinical centers.

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Results

We used data pertaining to eye injuries from medical records of the 109 of 114 children (95.6%) who were enrolled in the IATS and followed prospectively to age 10.5 years. We found that of the 109 patients, 4 (3.7%) had sustained a corneal abrasion or traumatic subconjunctival hemorrhage in the unoperated eye at some point during the study period (Table 1). The corneal abrasions healed without ocular sequela in all patients. Two patients reported an injury to the operated eye (1.8%). One was an inconsequential conjunctival abrasion; the other resulted in a subluxed intraocular lens after an ocular injury sustained during a soccer match.

The risk of an injury to either eye was higher in boys than girls (4/51 boys [7.8%] vs 2/58 girls [3.4%]; RR = 2.3; 95% CI, 0.4–11.9). Similarly, injuries to the fellow eye were also more common in boys than girls (3/51 boys [5.9%] vs 1/58 girls [1.7%]; RR = 3.4; 95% CI, 0.4–31.8). This parallels the findings of previous studies.⁴ None of the children with an injury to the fellow eye had visual acuity better than 20/40 in their treated eye (0/26 in this vision category), with 3 of the 4 eyes having a visual acuity between 20/40 and 20/200 (3/35 [8.6%]) and 1 eye (1/48 [2.1%]) with a visual acuity of 20/200 or worse. Only 1 of the 4 patients whose visual acuity was 20/80 in the operated eye had measurable stereoacuity of 3000 arcsec at 4.5 years and 800 arcsec at 10.5 years. In a previous study we found a similar rate of measurable stereoacuity in roughly 1 in 4 IATS patients (28/110).⁵ Further, the choice of initial treatment (intraocular lens vs aphakia) was not associated with the risk of injury to the fellow eye (2/55 [3.6%] vs 2/55 [3.7%]). Both injuries to the treated eye were in patients randomized to receive an intraocular lens.

Discussion

We caution against drawing any definitive conclusions from these data, given the small sample size. Based on our limited data, we estimate, nevertheless, that the fellow eye is at greater risk of injury than the affected eye. These results align with other studies of ocular injuries in individuals with amblyopia. Tommila and Tarkkanen¹ reported 35 patients with amblyopia in Finland who lost vision in the nonamblyopic eye between 1958 and 1978; in more than 50% of cases, this was the result of trauma. The incidence of loss of vision in the nonamblyopic eye was 1.75 ± 0.30 per thousand. During the same period in Finland, the overall rate of childhood blindness was only 0.11 per thousand and 0.66 per thousand for patients 15–64 years of age.

Our data do not support the risk being higher in children with the worst vision. This may be because children with poor vision in their treated eye were more likely to wear eye protection.⁵ Fortunately, the overall number of injuries was small, and none was vision threatening. We emphasize the importance of children treated for unilateral cataract wearing protective eye gear at all times, especially because a number of these injuries occurred during normal daily activities, and not just during sports activities.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1.

Details of IATS cases with injuries to the fellow eye

Case	Sex	Operated eye	VA in operated eye	Age, years, when AE occurred to fellow eye	Nature of injury to fellow eye
02–103	M	Right	20/40	8 10/12	Central corneal abrasion: tree branch
04–102	F	Left	20/800	7 5/12	Corneal abrasion
08–112	M	Right	20/100	2 3/12	Trauma with ecchymosis and subconjunctival hemorrhage
10–113	M	Right	20/80	9 11/12	Corneal abrasion: hit eye on stake in the ground

AE, adverse event; *VA*, visual acuity.

Table 2.

Details of IATS cases with injuries to the operated eye

Case	Sex	Operated eye	VA in operated eye	Age, years, when AE occurred to operated eye	Nature of injury to operated eye
04–119	M	Right	20/400	6 8/12	Subluxed IOL from soccer ball
10–110	F	Left	20/250	5 7/12	Conjunctival abrasion from door handle

AE, adverse event; *IOL*, intraocular lens.