April 4, 2017

Lessons learned about cataract surgery in infants from the Infant Aphakia Treatment Study

Summary:

The workshop will present the latest findings from the Infant Aphakia Treatment Study regarding the management of children with unilateral congenital cataracts.

Most common and/or significant complications associated with IOL implantation

1. What should be the work-up for a child with a unilateral congenital cataract? Does the prognosis vary depending on the type of cataract?

Elias Traboulsi

• Systemic diseases/syndromes are very rare in patients with unilateral infantile cataracts. Of the 114 patients enrolled in the IATS, only 3 patients were found to have systemic disorders on follow-up: Stickler syndrome (1), mitochondrial disease (1), autism (1), and presumed congenital rubella syndrome (1).
• No patient developed a cataract in the fellow eye.
• PFV and its variants are the most common associated ocular findings in about a quarter of cases of unilateral congenital cataracts.
• Although patients with a unilateral cataract may have significant associated abnormalities in the affected eye, most commonly PFV and its variants, the prevalence of associated significant systemic disease is quite low. Hence, aside from a thorough physical examination and review of system, there is no need for any laboratory investigation in such patients.
• The type of cataract does not appear to influence the later development of glaucoma in infants with unilateral congenital cataracts

2. How can intra and postoperative adverse events be minimized?

David Plager

• Visual axis opacification
• Poorly predictable refractive error

3. What are the pros and cons of Silsoft vs. RGP contact lenses? What effect does contact lens wear have on an infant's cornea?

David Morrison

• Use of Silicone (Silsoft) vs RGP lenses in first 5 years
- 24 (46%) treated with Silicone lens only (most sleeping in lenses)
- 11 (19%) using RBP only
- 17 (29%) used both lens types at one point

- **Adverse Events in CTL wear**
  - 13 CTL related AEs in first year
  - 1 broken RGP in the eye
  - 8 episodes bacterial keratitis or ulcer (all in children sleeping in silicone lens)

- **Cost of Lenses**
  - 5-year cost of CTLs is over $7000
  - Multiple lenses lost or changed in first 5 years (average 6/year)

- **Impact on Corneal Endothelium**
  - Specular microscopies reveal higher endothelial densities in CTL treated eyes compared to fellow eye (3921 vs 3495 cells/mm²)
  - Coefficient of variation in EC size higher in CTL treated eye compared to fellow eyes
  - Oxygen deprivation may result in corneal polymegathism in extended wear CTL treated eyes

4. **What can be done to reduce the incidence of glaucoma following cataract surgery?**

**Sharon Freeman**

- Remember to use standard definitions of Glaucoma and Glaucoma Suspect
- Wait a little longer to remove the cataract (~6 weeks for unilateral, ~7-8 bilateral)
- Younger age at surgery (38-48 days vs. 49-210 days) increased risk
- Beware the very small cornea (corneal diameter < 10 mm vs >10 mm increased risk)
- IOL vs CL, cataract type, and even PFV did not increase risk once age/corneal diameter considered
- Diligent clinical care to catch cases early since most can be effectively treated
  - Almost all cases were open angle
  - 95% in IATS used medication (19/20 at five year mark)
  - 40% had surgery - trabeculotomy worked very well in this cohort

5. **Factors Associated with Both Good Visual Outcome and Stereopsis**

**Scott Lambert**

- Early Cataract Surgery (4-6 weeks of age)
- Patching 3-4 hours/day during first year of life
• Gradually reduce patching from age 1 to 4 years
• Patching 2 hours/day age 4-5 years
• Orthotropia

6. Factors Associated with Strabismus (or lack there of)

Erick Bothun

• Aphakia management did not affect the high rate of strabismus
• Early cataract surgery (4-6 weeks of age) was associated with
  o Higher rates of orthophoria
  o Lower rates of strabismus surgery
• Visual acuity was better in eyes that maintained better alignment
• Stereopsis was more frequently detected in eyes with better alignment
• Strabismus surgery benefited patients, especially after age 1 year.
• Consecutive deviations were commonly identified

7. How does unilateral cataract surgery effect a child’s behavioral and motor development?

Carey Drews-Botsch

• Having a UCC may affect risk of poor motor functioning prior to entering school.
• Visual Acuity in children treated for UCC may be related to caregiver reported behavior problems, particularly those related to attention and aggressive behavior.
• These findings may have implications for academic performance and social functioning.
References:


extraction of unilateral infantile cataract in the Infant Aphakia Treatment Study (IATS). IOVS 2014;55:5332-5337.


38. Lambert SR. The timing of surgery for congenital cataracts: Minimizing the risk of glaucoma following cataract surgery while optimizing the visual outcome. JAAPOS 2016;20:191-192.


