

# Long term follow up of paediatric cataract surgery in Bangladesh

- Guy Negretti
- Tariq Ayoub
- Johurul Jewel
- Muhamit Muhit
- Clare Gilbert
- Richard Bowman



- Lions Sight First Pediatric Cataract Initiative

# Outcomes of Bilateral Cataract Surgery in Tanzanian Children

---

Richard J. C. Bowman, MD, FRCOphth,<sup>1,2</sup> Joy Kabiru, MD, MMed,<sup>1</sup> Guy Negretti, MA,<sup>1</sup>  
Mark L. Wood, FRCS (Can)<sup>1</sup>

**Objective:** To investigate outcomes of bilateral pediatric cataract surgery in east Africa.

**Design:** Retrospective interventional case series.

**Participants:** Two hundred forty-three children who underwent bilateral cataract surgery at the Comprehensive Community-Based Rehabilitation for Tanzania Disability Hospital between 2001 and 2004.

**Methods:** Demographic, surgical, preoperative, and postoperative clinical characteristics obtained from patient records were entered into a database (Microsoft Excel; Microsoft, Redmond, WA), and statistical analysis was conducted using SPSS software for Windows (SPSS, Inc., Chicago, IL).

**Main Outcome Measures:** Postoperative visual acuities and factors affecting them and postoperative refraction results.

**Results:** Intraocular lenses were inserted in the first eyes of 232 children (149 Alcon AcrySof [Alcon Laboratories, Fort Worth, TX], 83 polymethyl methacrylate [PMMA]). Fifty-eight (62%) of 94 patients with final follow-up acuities recorded in both eyes achieved 20/60 or better in their better eye and 13 (13%) of 94 patients were blind. Of the various predictors of good visual outcome identified for children or eyes, only absence of preoperative blindness (odds ratio [OR], 7.3; 95% confidence interval [CI], 3.0–18.0;  $P < 0.0005$ ) remained significant in a multivariate logistic regression model. One hundred nine (51%) of 212 refracted first eyes had early postoperative refractive error spherical equivalent magnitudes of 2 diopters (D) or more. Ninety-nine (47%) of 212 eyes had initial postoperative cylinders of 3 D or more, dropping to 30 (18%) of 164 of those who had later follow-up refraction. Presence of biometric data was not associated with smaller postoperative refractive errors. Eyes with AcrySof lenses were less likely (OR, 2.5; 95% CI, 1.04–6.06) to have more than 3 D of astigmatism at latest follow-up. AcrySof lenses also were more likely (OR, 2.1; 95% CI, 1.2–3.7) to be fixated in the bag than PMMA lenses. Acute fibrinous uveitis occurred in 30 cases (12%), and transient corneal haze occurred in 20 cases (8%). Twenty-seven (11%) had chronic complications, 69 (28%) underwent a further general anesthetic procedure, and 9 (4%) underwent yttrium–aluminum–garnet capsulotomy.

**Conclusions:** Preoperative blindness was the strongest predictor of poor postoperative visual outcome; the use of AcrySof lenses as opposed to PMMA lenses made in-the-bag fixation more likely and also reduced postoperative astigmatism. *Ophthalmology* 2007;114:2287–2292 © 2007 by the American Academy of Ophthalmology.

---

# Collaborators

Child Sight Foundation

BNSB Eye Hospital, Sirajganj

Islamia Eye Hospital, Dhaka

- Childhood cataract is the leading cause of visual impairment and blindness in children in Bangladesh (Muhit et al. 2007, Cohen et al 1985). Bangladesh currently ranks 146 in the United Nation's human development index. It is one of the most populated countries in the world and 37% of its population is under 18 years of age (UNICEF).

- Over a period of 10 days we examined the eyes of 472 patients who had undergone cataract surgery across Bangladesh on average 9 years previously.

# KIM in Bangladesh

Country: Bangladesh

Region: Rajshahi

Districts:

- Sirajganj
- Natore
- Bogra

Sample Population: 1,000,000

KIs Trained: 1,510

	PWD	Others	Total
Male	38	997	1035
Female	15	460	475
Total	53	1457	1510



- Our study recruited children from the large database of children originally identified by the Key Informants. 6 districts were selected for recruitment for this study: Sirajganj, Natore, Dhaka, Bogra, Tangail and Manikganj
- They were selected as reasonably close to each other for logistical reasons but also to encompass a range of urban and rural areas.
- Of the 850 children identified from the original database, we were able to contact and invite 656 to attend for follow up examination. 471 attended (55%)
- The families were invited by key informants from their communities and invited to attend a local examination centres on a particular day to be examined by the visiting team. Transport was either provided or paid for by the project.

# Examination

- 3 Ophthalmologists and 2 Optometrists
- Distance visual acuity was then recorded with Tumbling E Snellen Charts at 4 metres where possible. (Cardiff cards) and Preferential Looking were used as alternatives
- Near vision (Lea symbols)
- A 'recruitment' visual acuity was first recorded
- The child was then refracted and a best-corrected visual acuity was recorded
- Slit-lamp examination and indirect ophthalmoscopy
- In case where the operative records were not available (the majority) judgement was made by the examining ophthalmologist through slitlamp examination as to whether an IOL had been inserted and a posterior capsulotomy performed
- The majority of eyes had intraocular pressure (IOP) measured using only re-bounce tonometry (Icare, Finland).



# *Demographic*

- 471 children were recruited to the study. Of these 64 were excluded from the main analysis:
  - 15 children had never undergone surgery.
  - 19 children had undergone surgery in their better eye after 16 years of age.
  - 30 children had undergone only unilateral surgery.
- Therefore the denominator for the main analysis was 407
- Mean age of child at the time of examination was 16 years (range, 5-28 years, standard deviation (SD) 4.60 years)
- This was on average 8.78 years (range, 1-23 years, SD 3.78 years) after their first cataract operation.

# Lag time between noticing problem and surgery

- Parents first noticed cataracts in their children at an average age of 2.17 years (SD 3.13, median 1)
- Mean lag was 5.37 years (SD 4.42)
- Mean age at 1<sup>st</sup> op was 7.39 years (SD 4.59)
- In those older than 1 year when the cataract was first noticed (n=50%) mean lag was 4.17 years (SD 3.90)
- In those younger than 1 year (n=50%) the mean lag was 6.39 years (SD 4.57) (p=0.000)

# Site of surgery

- Majority conducted in 3 hospitals
  - BNSB Eye Hospital Sirajganj 248 (41%)
  - Islamia Eye Hospital, Dhaka 253 (42%)
  - Bangladesh Eye Hospital, Dhaka 66 (11%)
- No significant difference in visual acuity outcomes between hospitals

# Discussion: weaknesses

- Lack of hospital records
- 55% follow up
- National strikes

# Discussion: strengths

- Large sample size
- Long follow up
- Community based
- Slit lamp examination allowed accurate judgement of previous surgery in most cases