

Challenges in the management of paediatric cataract in a developing country

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Abstract

- **AIM:** To review the management of cataract in children in a tertiary hospital in a developing country, and to highlight the challenges therein.

- **METHODS:** The hospital records of children aged 15 years or less that had cataract surgery at University of Nigeria Teaching Hospital, Enugu from 2005 to 2008 were reviewed retrospectively. Information was obtained on bio-data, pre- and post-operative visual acuity (VA), biometry, and type of surgery, use of intraocular lens (IOL) and presence of co-morbidity. SPSS was used for data entry and analysis.

- **RESULTS:** The hospital records of 21 children (26 eyes) were analyzed. There were 12 males (57.1%) and 9 females (42.9%). Pre-operative VA could not be assessed in 11 eyes (42.3%), 14 eyes (53.9%) had VA <3/60 and 1 eye (3.8%) had VA 6/60. Biometry was done in only 5 eyes (19.2%). All eyes had standard extracapsular cataract extraction without primary posterior capsulectomy; 12 eyes (46.2%) had posterior chamber intraocular lens (PC-IOL) implant while 13 eyes (50.0%) had no IOL. After 12 weeks of follow up, vision assessment was available in only 15 eyes. With best correction, VA of 6/18 or better was achieved in only 5 eyes (33.3%).

- **CONCLUSION:** Inadequate facilities and inadequate follow up after surgery are some of the challenges in managing paediatric cataract in the developing countries. If these challenges are not addressed, cataract will remain a major cause of childhood blindness and low vision in Africa for many years. There should be collaboration between Paediatric Ophthalmology Centres in industrialized and developing countries to enhance skill transfer. Governmental and International Non-governmental Organizations can go a long way to facilitate this exchange.

- **KEYWORDS:** challenges; childhood cataract; developing countries

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INTRODUCTION

Childhood cataract is emerging as an important cause of childhood blindness in developing countries^[1-3]. In the past corneal blindness arising from measles and vitamin A deficiency was the leading cause of childhood blindness in Africa and Asia^[4-6]. The decline in incidence of corneal blindness is attributed to improvement in measles immunisation and mass vitamin A supplementation. With this success, congenital anomalies such as cataract, microphthalmos and anophthalmos are becoming priority diseases in causes of childhood blindness in developing nations^[7,8]. Some of the surgical techniques advocated for paediatric cataract in literature include lensectomy with anterior vitrectomy and extracapsular cataract surgery + primary posterior capsulectomy + anterior vitrectomy^[9,10]. This entails a tertiary level of paediatric eye care. It has been documented that surgery for childhood cataract marks the beginning not the end of management of paediatric cataract^[9]. Commitment to follow up after surgery is essential to enable review of refraction and screening for amblyopia.

The World Health Organization recommends that one child eye health tertiary facility be established per 10M of the population^[11]. University of Nigeria Teaching Hospital Enugu has a paediatric ophthalmology unit that is being developed to cater for the people of southeast Nigeria and neighbouring Benue state with a population of about 20M people. The present study reviews the management of paediatric cataract in this centre highlighting the challenges therein.

MATERIALS AND METHODS

The hospital records of children aged 15 years or less that had cataract surgery at University of Nigeria Teaching

Hospital Enugu from 2005-2008 were reviewed retrospectively. Information was obtained on bio-data, pre- and post-operative visual acuity (VA), biometry, type of surgery, use of intraocular lens (IOL) and presence of co-morbidity. SPSS version 15.0 was used for data entry and analysis.

Visual acuity in children in our centre is normally assessed with Snellen's chart or Lea symbols. For very young children who cannot use any of the above, ability to reach out to or to pick small objects placed in front of them is assessed or ability to fixate on targets.

The standard surgery for paediatric cataract in our centre is extracapsular cataract extraction. Primary posterior capsulectomy is not practised. Children who develop posterior capsular opacification have second surgery to remove it. Biometry became available in our centre in later part of 2007. Biometry could only be done in children who were old enough to co-operate for keratometry.

Aphakia is corrected by spectacles in infants and very young children. IOL is implanted from the age of about 4 years. Standard adult size polymethylmethacrylate IOL is used as paediatric size IOL are not available in our centre.

RESULTS

The hospital records of 21 children (26 eyes) were analyzed. There were 12 males (57.1%) and 9 females (42.9%) giving a male/female ratio of 4:3. The youngest child at the time of surgery was 4 months old and the oldest was 15 years.

Pre-operative VA could not be assessed in 11 eyes (42.3%), 14 eyes (53.9%) had VA <3/60 and one eye (3.8%) had VA of 6/60. Biometry was done in only 5 eyes (19.2%).

Twelve eyes (46.2%) had posterior chamber IOL implant, 13 eyes (50.0%) had no IOL and 1 eye (3.8%) had anterior chamber IOL.

After 12 weeks of follow up, VA was available in only 15 eyes (Table 1). With best corrected VA of 6/18 was achieved in only 5 eyes (33.3%). VA could not be assessed in 2 children (4 eyes, 26.7%) but they could pick objects placed in front of them.

Eleven eyes (42.3%) had trauma preceding the cataract and 5 eyes out of these (19.2% of total) had corneal scarring following penetrating injury.

DISCUSSION

Delay in presentation to hospital for surgery has been noted in east Africa [12]. In the current study, some of the children had their surgery at 1 year even though the white patch had been noticed in their eyes since birth. It is desirable to have cataract surgery early before irreversible changes occur in the cortical pathways. Effective health education can help to make parents or caregivers bring their children to hospital early so as to optimize outcome of surgery. Institutional

Table 1 Post-operative visual acuity with best correction after 12 weeks of follow up

Visual acuity	n	Percentage
6/6-6/18	5	33.3
<6/18-6/60	1	6.7
<6/60-3/60	3	20.0
<3/60	2	13.3
Can pick objects	4	26.7
Total	15	100.0

delays such as inability of parents to pay bills, industrial action by workers *etc* should also be minimized.

The number of cataract surgery done during the study period is low for a tertiary centre. The key informant (KI) method for finding blind children was a success in Bangladesh, Ghana and Malawi [13-15]. KIs are local volunteers recruited from a community who are trained to enlist blind children in their community. Subsequently, an eye clinic is organized to screen the identified children and select those that are blind amongst them. Many children that are cataract blind have been identified in this way. Perhaps adoption of the key informant method in our community can increase the turnover of paediatric cataract surgeries. Recently, there has been a downward revision of fee for cataract surgery in our centre and the number of patients taking up surgery is increasing. Waiving full fee for children will go a long way to increase the number of cataract surgeries.

To maintain a clear centre after surgery it is advocated that a primary posterior capsulectomy and anterior vitrectomy be done at the time of surgery for patients aged 8 years or less; after 8 years the anterior vitrectomy can be skipped [10]. Vitrector instrument is not widely available in many centres in Nigeria. This challenge needs to be addressed to get optimum results after surgery.

As is the experience elsewhere [16], many patients are lost to follow up after surgery. Their refraction is not checked regularly and amblyopia is not looked out for and managed. Adequate counselling of parents/caregivers will help to secure better follow up so that ultimately the children will have enough vision to attend normal school and achieve their full potential in life.

In spite of these challenges, at 12 weeks of follow up, 33.3% of the eyes achieved visual acuity of 6/18 or better with best correction; 44% was documented in east Africa [16] and 19% in India [17] though both studies had larger study population. Moreover, the visual acuity was not documented at the same length of time post-operatively.

In conclusion, delay in presentation, inadequate facilities and inadequate follow up after surgery are some of the challenges in managing paediatric cataract in developing countries. If these challenges are not addressed, cataract will

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remain a major cause of childhood blindness and low vision in Africa for many years. There should be collaboration between paediatric ophthalmology centres in industrialized and developing countries to enhance skills transfer. Governmental and International Non-governmental Organizations can go a long way to facilitate this exchange.

REFERENCES

- 1 Waddel KM. Childhood blindness and low vision in Uganda. *Eye* 1998;12(Pt 2): 184–192
- 2 Ezegwui IR, Umeh RE, Ezepue UF. Causes of childhood blindness: results from schools for the blind in southeastern Nigeria. *Br J Ophthalmol* 2003;87(1):20–23
- 3 Maida JM, Matters K, Alley CL. Pediatric ophthalmology in the developing world. *Curr Opin Ophthalmol* 2008;9(5):403–408
- 4 Rahi JS, Sripathi S, Gilbert CE, Foster A. Childhood blindness in India: causes in 1318 blind school students in nine states. *Eye* 1995;9(Pt 5):545–550
- 5 Scwab L, Kagame K. Blindness in Africa: Zimbabwe schools for the blind survey. *Br J Ophthalmol* 1993;77(7):410–412
- 6 Sandford-Smith JH, Whittle HC. Corneal ulceration following measles in Nigerian children. *Br J Ophthalmol* 1979;63(11):720–724
- 7 Gogate P, Deshpande M, Sudrik S, Taras S, Kishore H, Gilbert C. Changing pattern of childhood blindness in Maharashtra, India. *Br J Ophthalmol* 2007;91(1):8–12
- 8 Gogate P, Kalua K, Courtright P. Blindness in childhood in developing countries: time for a reassessment? *PLoS Med* 2009;6(12):e1000177
- 9 Yorston D. Surgery for congenital cataract. *Comm Eye Health* 2004;17(50): 23–25
- 10 Wilson ME, Pandey SK, Thakur J. Paediatric cataract blindness in the developing world: surgical techniques and intraocular lenses in the new millennium. *Br J Ophthalmol* 2003;87(1):14–19
- 11 World Health Organization. Preventing blindness in children report of a WHO/IAPB Scientific Meeting. WHO/PBL/00.77. Geneva World Health Organization; 1999
- 12 Mwende J, Bronsard A, Mosha M, Bowman R, Geneau R, Courtright P. Delay in presentation to hospital for surgery for congenital and developmental cataract in Tanzania. *Br J Ophthalmol* 2005;89(11):1478–1482
- 13 Muhit MA, Shah SP, Gilbert CE, Hartley SD, Foster A. The key informant method: a novel means of ascertaining blind children in Bangladesh. *Br J Ophthalmol* 2007;91(8):995–999
- 14 Boye J. Validating key informant method in detecting blind children in Ghana. *Comm Eye Health* 2005;18(56):131
- 15 Kalua K, Patel D, Muhit M, Courtright P. Productivity of key informants for identifying blind children: evidence from a pilot study in Malawi. *Eye* 2009;23(1): 7–9
- 16 Yorston D, Wood M, Foster A. Results of cataract surgery in young children in east Africa. *Br J Ophthalmol* 2001;85(3):267–271
- 17 Khandekar R, Sudhan A, Jain BK, Shrivastav K, Sachan R. Pediatric cataract and surgery outcomes in Central India: a hospital based study. *Indian J Med Sci* 2007;61(1):15–22