Original Article

Indications for Surgery amongst New Patients Presenting to the Paediatric Ophthalmology Unit of the University College Hospital, Ibadan

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Abstract

Objective: The objective of the study was to determine the proportion of children requiring ocular surgery amongst new patients presenting to the Paediatric Ophthalmology Unit of the University College Hospital, Ibadan, over a 2-year period, to enhance planning and improve the efficiency of service delivery. **Methods:** The study was a retrospective review of records of all new patients aged 0–16 years who presented to the Paediatric Ophthalmology Unit of the University College Hospital, Ibadan, over a 2-year period (May 2015–April 2017). Information on age and gender, clinical diagnosis and indications for surgery and type of surgery scheduled were retrieved from the diagnosis register of the unit, and a descriptive analysis was performed. **Results:** Of the 1240 children who presented to the clinic within the study period, 142 (11.5%) needed surgical interventions. Their ages ranged from 1 month to 16 years, with a mean age of 6.4 ± 4.7 years. Seventy-nine (55.6%) of these were males. The most common indications for surgery were cataract and cataract-related indications (n = 122, 85.9%), followed by glaucoma and strabismus. Other less common indications for surgery were nasolacrimal duct obstruction and epibulbar dermoid. **Conclusion:** Paediatric cataract, the leading cause of childhood blindness in this environment, presents the greatest surgical burden in our unit. It should, therefore, be a major focus of personnel training and equipment procurement for paediatric ophthalmology services in our environment.

Keywords: Cataract surgery, child eye health, indications, paediatric cataract surgery

Introduction

Preventing childhood blindness is one of the priorities of the Vision 2020 initiative.[1] Child eye health services include medical, surgical and rehabilitative services and should be tailored to the needs of the setting, in which they are situated. Globally, 1.4 million children are estimated to be blind.[2] About three-quarters of affected children live in low-income countries, and most cases can be prevented or treated.[3] Treatable causes of childhood blindness such as cataract, glaucoma, strabismus and corneal scars require surgical intervention as the mainstay of therapy. Surgical services are, therefore, an indispensable aspect of child eye health.

Special skills and competence are required to provide paediatric ophthalmology care. Furthermore, these skills are quite different from those for adults as the eyes of children have features distinctly peculiar to them.[4] The World Health Organisation (WHO) recommends that there should be one Child Eye Health Tertiary Facility (CEHTF) per 10 million population.[1]

As at 2010, it was reported that Nigeria had only seven such CEHTF centres.[3] However, the paediatric ophthalmology subspecialty in Nigeria has developed over the years with training of fellows and setting up of more centres within eye departments of tertiary hospitals. Currently, reports suggest that they are about twenty centres offering child eye care and surgical services in Nigeria. It is, however, noteworthy that not all centres are equally equipped to offer the full complement of child eye care surgical services.

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The aim of this study was to determine the indications for ophthalmic surgery amongst new patients presenting to the paediatric ophthalmology clinic over a 2-year period to provide evidence to enhance planning and delivery of paediatric ophthalmology surgical services in similar facilities across Nigeria.

Methods

The study was a retrospective review of records of all new patients aged 0–16 years presenting to the paediatric ophthalmology clinic from May 2015 to April 2017 (24-month period). The paediatric ophthalmology team comprises three consultant paediatric ophthalmologists with full fellowships and a paediatric anaesthetist. In addition, there are three optometrists with several years of experience with paediatric refractions as well as one low vision expert who also serve other clinics. The unit runs two clinic days and one theatre day per week and handles all paediatric cases except orbital pathologies and oncology cases.

At the University College Hospital, paediatric eye care services provided can be classified into preventive and therapeutic services. Preventive services include screening for retinopathy of prematurity, pre-school screening and outreach services. Therapeutic services include refractive error services, amblyopia treatment, low vision services, medical care for anterior and posterior segment pathologies, surgical care for cataract, glaucoma (including tube surgeries), strabismus, ptosis, laser services, surgeries for retinal detachment in collaboration with the retina unit, corneal transplants in collaboration with cornea and anterior segment unit. Retinoblastoma and other oncology services are catered to by the oncology and oculoplastic unit and thus do not feature in this review.

Information on demographic characteristics (age and gender), clinical diagnosis based on the International Classification of Disease-10 classification and indications for surgery and type of surgery scheduled were manually retrieved from the paediatric ophthalmology unit logbook. These basic details of all new patients seen by the unit at each clinic session are immediately manually entered into this register which is audited weekly to ensure it is up to date. Descriptive analysis was performed using the Statistical Package for the Social Sciences software version 16.0. (SPSS Inc, Chicago, Illinois, USA).

The diagnostic criteria that are routinely used for some of the clinical conditions seen in the clinic are as follows:

- *Cataract* – Any opacity of the lens or a clouding of the lens in the eye
- *Cataract requiring surgery* – Any visually significant cataract or cataract occupying more than 3 mm of the visual axis
- *Congenital cataract* – Any cataract with onset reported as before the age of 1 year or associated with nystagmus or squint if onset is unknown
- *Traumatic cataract* – Cataract that develops following trauma to the eye
- *Cataract-related diagnosis* – Any ocular condition that occurs following cataract surgery and requires repeat surgical intervention, for example, posterior capsule opacity, pupil capture and visual axis opacification
- *Congenital nasolacrimal duct obstruction* – A condition in which there is failure of the tear duct to open at the time of birth
- *Childhood glaucoma* – A type of progressive optic neuropathy characterised by disc cupping with pallor and visual field loss and is usually associated with elevated intraocular pressure. Types include congenital, infantile, juvenile and secondary glaucomas
- *Strabismus* – A misalignment of visual axes of the eyes including horizontal, vertical and cyclotorsion deviations.

Results

Of the 1240 new patients who presented to the clinic within the study period, 142 (11.5%) needed surgical interventions. Their ages ranged from 1 month to 16 years, with a mean age of 6.4 ± 4.7 years. Seventy-nine (55.6%) of these were males. The most common indications for surgery [Figure 1] were cataract and cataract surgery-related complications (n = 122, 85.9%).

Surgery for congenital cataracts comprised more than

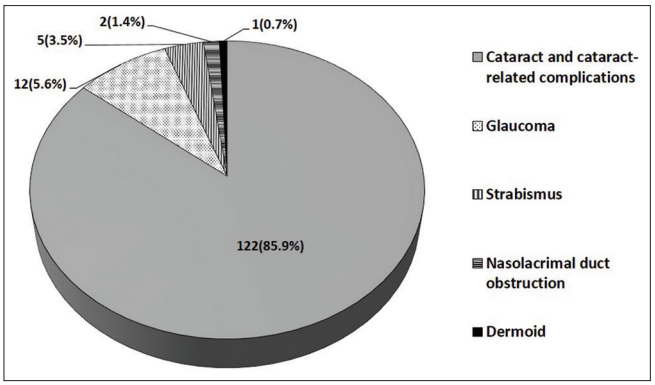


Figure 1: Indications for surgical intervention amongst new patients attending the Paediatric Ophthalmology Clinic, University College Hospital, Ibadan

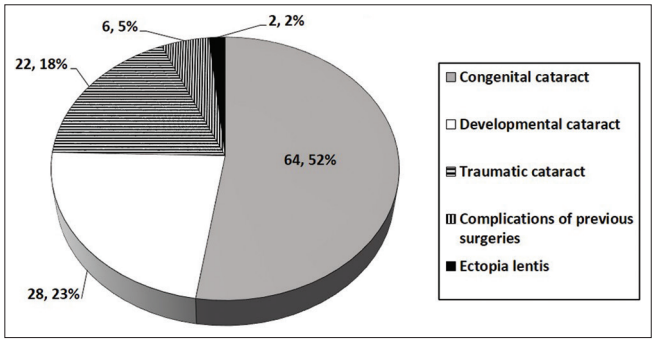


Figure 2: Distribution of patients with different types of cataract and cataract surgery-related complications at presentation

Table 1: Age of presentation of children and their diagnoses (row percentages have been shown)

Diagnosis	Age at presentation			
	≤5 years (%)	6- 10 years (%)	>10 years (%)	Total (%)
Cataract and cataract-related diagnoses	54 (44.3)	40 (32.8)	28 (22.9)	122 (100)
Glaucoma	5 (41.7)	2 (16.6)	5 (41.7)	12 (100)
Strabismus	3 (60)	1 (20)	1 (20)	5 (100)
Nasolacrimal duct obstruction	2 (100)	0	0	2 (100)
Dermoid	0	1 (100)	0	1 (100)
Total	64 (45.1)	44 (31)	34 (23.9)	142 (100)

half (n = 64, 52%) of all cataract and cataract-related indications [Figure 2].

Table 1 shows the age of presentation of children and their diagnoses. Fifty-four (44.3%) of those who had cataract and cataract-related conditions were 5 years or less.

Discussion

Paediatric cataract is the leading cause of childhood blindness in Nigeria[4] as well as the most common surgically treatable cause of blindness and severe visual impairment.[5] In this study, paediatric cataract comprised the majority of paediatric ophthalmic cases requiring surgery. This finding is invaluable in the efficient planning of surgical services for new and existing paediatric ophthalmology centres. Such centres should be comprehensively established with the full complement of facilities, equipment and human resources (multidisciplinary) for optimum management of paediatric cataract and its related complications in addition to the facilities for treating other paediatric blinding eye diseases.[6]

The WHO recommends a multidisciplinary approach to the management of child eye care.[1] To provide comprehensive care, the child eye care team should include the following health personnel – paediatric ophthalmologists, refractionists, orthoptists, low vision specialists, counsellors, paediatricians (preferably paediatric cardiologists) and paediatric anaesthetists.[1,4,7] The availability of a paediatric anaesthetist and a paediatric cardiologist should be of paramount importance in centres offering paediatric cataract services in Nigeria, as we observed that congenital cataract formed the majority of cases. This group of children are usually operated on at a younger age and require complex anaesthetic care as some of them have cardiac problems in addition to their cataracts.

Furthermore, a comprehensive complement of infrastructure and equipment is vital for the proper functioning of a child eye health tertiary centre. These include operating theatre with paediatric anaesthetic machine and monitor, operating microscope, cryotherapy with paediatric probes, anterior vitrectomy machine, low vision equipment, paediatric vision assessment tests, A-scan and B-scan ultrasonography, as well as portable (hand-held) slit-lamp microscope, tonometer and keratometer.[8,9]

The study also provides evidence for the ideal training focus for paediatric ophthalmologists in this and similar settings. Training programmes should pay particular attention to paediatric cataract surgeries and medical and surgical management of complications that may arise subsequently.

Visual rehabilitation is another indispensable part of the management of paediatric cataracts. Therefore, visual rehabilitation and low vision services should be incorporated into the planning of any child eye health programme.[4]

Other ophthalmic surgical procedures that should also be focussed on include those for glaucoma and strabismus as they were also indications for surgery in this series. Nasolacrimal duct procedures were not common in our series. Could this be a true rarity of nasolacrimal duct obstruction in our environment or a failure of affected patients to seek care? This can be explored further by a community-based study.

A limitation of the study is that it does not include data on follow-up patients who required secondary surgical procedures which we expect would contribute to the expected surgical burden of a paediatric ophthalmology unit.

Conclusion

The most common indication for surgical intervention in our paediatric ophthalmology practice is cataract. Thus, childhood cataract should be a major focus of personnel training and equipment procurement for paediatric ophthalmology services in our environment. However, expertise for the other less common surgical conditions would also be invaluable as these cases are likely to be referred to tertiary centres for expert care. Finally, we recommend that similar national studies are conducted to provide data for advocacy and policymaking with regard to child eye care in Nigeria.

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Conflicts of interest

There are no conflicts of interest.

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