

Delays in uptake of surgery for childhood cataract at a child eye health tertiary facility in sub-Saharan Africa

European Journal of Ophthalmology
2020, Vol. 30(2) 280–283

© The Author(s) 2019

Article reuse guidelines:

sagepub.com/journals-permissions

DOI: 10.1177/1120672119827770

journals.sagepub.com/home/ejo



MO Ugalahi^{1,2}, BA Olusanya^{1,2}, OO Fagbemi² and AM Baiyeraju^{1,2}

Abstract

Background: Timely uptake of surgery is vital in the control of childhood blindness due to cataract. The aim of this study is to determine the uptake of surgery as well as the frequency and reasons for rescheduling of surgery for childhood cataract in a tertiary hospital in southwest Nigeria.

Methods: A retrospective study of children with childhood cataract seen at the Paediatric Ophthalmology unit of the University College Hospital, Ibadan between 2011 and 2015. Demographic and clinical information was retrieved from case records. Caregivers of children who did not have surgery were contacted by telephone to elicit reasons why surgery was not done.

Results: A total of 164 children were included in the study; 90 (54.9%) were male. The median age at presentation was 4 years with a range of 2–180 months. A total of 64 (39.0%) children had unilateral cataract. All patients were scheduled for surgery, but 123 (75%) underwent surgery. Surgery was rescheduled in 42 (34.1%) of those who had surgery. Reasons for rescheduling included financial constraints, illness, delay in paediatrician evaluation to ascertain fitness for anaesthesia and strike actions by health workers in the hospital.

Conclusion: Three quarters of the children had surgery, though it had been rescheduled, at least once, in about one-third of them. Delayed uptake of surgery was mainly due to inability to afford treatment and strike actions. The need for improved coverage of health insurance especially for the paediatric age group in developing countries cannot be overemphasized. This is because good vision is an integral part of child development.

Keywords

Surgery, uptake, childhood cataracts, Nigeria

Date received: 12 July 2018; accepted: 11 January 2019

Introduction

Childhood blindness remains the second leading cause of blind person years worldwide, next to age-related cataract. The control of blindness in children is a priority within the World Health Organization's VISION 2020 – 'The Right to Sight' programme.¹ This is because individuals who are born blind or who become blind during childhood have a lifetime of blindness ahead of them, with significant economic costs to the family and society.

Childhood cataract is becoming a major cause of childhood blindness in developing countries.^{1,2} Globally, approximately 190,000 children are estimated to be blind from childhood cataracts,² and in sub-Saharan Africa, it was estimated in 2011 that about 82,000 children were blind from non-traumatic cataracts.³ Studies from Nigeria

and Uganda report that cataract is the main cause of childhood blindness ahead of corneal blindness.^{4,5} This may be largely due to improvement in immunization coverage for measles and vitamin A supplements. In low- and middle-income countries, it is estimated that the prevalence of childhood cataract blindness ranges from 0.42/10,000 to 22.7/10,000.⁶ This is higher than figures from developed

¹Department of Ophthalmology, College of Medicine, University of Ibadan, Ibadan, Nigeria

²Department of Ophthalmology, University College Hospital, Ibadan, Nigeria

Corresponding author:

BA Olusanya, Department of Ophthalmology, University College Hospital, Queen Elizabeth Road, 200212, Ibadan, Nigeria.

Email: bolutifeo@yahoo.com

countries and portrays the magnitude of the problem in developing countries as well as the need for effective strategies to address the burden.

There is a peculiar urgency with regards to the timing of treatment of childhood cataract. This is because when treatment is delayed, childhood cataract causes failure of normal visual maturation which results in a severe form of amblyopia. Hence, there is a pressing need for early detection and prompt treatment of cataracts occurring in childhood.⁷ Surgery is the definitive treatment modality for cataracts. However, the proportion of children with cataracts in developing countries, who have had surgery is low.⁸

One of the vision 2020 targets for the control of childhood blindness is the provision of appropriate surgery to all children, with immediate and effective optical correction in suitably equipped specialist centres. The strategies to achieving these targets have to be region specific; hence, this study aims to determine the uptake of surgery for childhood cataracts in our setting, as well as to establish the factors influencing uptake with a view to designing strategies to improve uptake of childhood cataract surgical services.

Methods

This was a retrospective review of case records of children presenting with childhood cataract to the Paediatric Ophthalmology unit of University College Hospital, Ibadan from 2011 to 2015. Demographic data and clinical information including age at onset, age at presentation, associated systemic diseases, time interval between presentation and surgery and number of times that surgery was rescheduled were retrieved from the clinical records of the patients.

Outcomes of interest were the proportion of children with cataracts who had surgery and reasons for deferring or rescheduling of surgery. Caregivers of patients who had been scheduled for surgery during the period but defaulted were contacted by telephone to enquire about reasons why surgery had not been performed on their children or wards.

Retrieved data were anonymized and kept confidential. In addition, the study followed the tenets of the Declaration of Helsinki. Data were analysed with Statistical Package for Social Sciences Version 20 (IBM Corporation, New York, USA) using appropriate summary statistical measures for qualitative and quantitative variables.

Results

A total of 164 children with childhood cataract were included in this study. Of these, 90 (54.9%) were male and 74 (45.1%) were female with a male to female ratio of 1.3:1. The median age at presentation was 4 years with a range of 2–180 months.

The cataracts were unilateral in 64 (39.0%) of the children while they were bilateral in 100 (61.0%). The types of cataracts identified in these children varied; congenital cataracts were seen in 74 (45.1%) children, developmental cataracts in 51 (31.1%), traumatic cataracts in 35 (21.3%) and other types in four (2.4%) children.

All the patients were scheduled to undergo surgery within 4–6 weeks of presentation. A total of 123 (75%) children had surgery, while the remaining 41 (25%) who did not have surgery, defaulted and were lost to follow-up. The median time interval between presentation and surgery was 2 months with a range of 1–13 months. Among the children who had surgery, 82.6% of males had surgery compared to 66.7% of the females. This difference was statistically significant ($\chi^2=5.509$, $p=0.019$).

A total of 73 (59.3%) of the children who underwent surgery had bilateral cataracts, the remaining 50 (40.7%) children had unilateral cataract. These proportions were not significantly different from the proportions of bilateral and unilateral cataracts within the total population of 164 children ($z=0.387$; $p=0.70$). Furthermore, of the 100 children with bilateral cataract, 73 (73%) had surgery, while of the 64 children with unilateral cataracts, 50 (78.13%) had surgery. This difference was also not statistically significant ($p=0.58$).

In 42 (34.1%) out of the 123 children who underwent surgery, the booking for surgery was rescheduled at least once prior to surgery. A total of 33 of these children (78.57%) were rescheduled once, while 9 (21.43%) were rescheduled twice. The reasons for rescheduling of surgery are presented in Table 1. A total of 16 (32%) of the children with unilateral cataract who had surgery, were rescheduled at least once before the surgery, compared to 26 (35.6%) children with bilateral cataract who had surgery after being rescheduled. This difference was not statistically significant ($p=0.678$).

Among the 41 children who did not undergo surgery, only 29 (70.73%) had phone numbers in their records that were in use and only 18 (43.9%) of the caregivers responded to phone calls and were interviewed. Of those interviewed, the reasons stated for default included inability to afford the cost of surgery in 7 (39%) children, fear of surgery in 2 (11%) and illness in the caregiver in 1 (5.5%) child. Other reasons given were ignorance of caregiver about surgery booking in 1 (5.5%) child, and demise of 2 (11%) children before scheduled date of surgery.

Table 1. Reasons for rescheduling of surgery among 42 children.

Reason	Frequency	Percent (%)
Strike actions by health workers	13	31.0
Financial constraints	11	26.1
Delayed evaluation by paediatrician	5	11.9
No specific reason stated	13	31.0

Discussion

The fact that three of every four of the patients presenting to our facility with childhood cataract undergoes surgical intervention is fairly positive. This is similar to the findings of a study at National Eye Centre, Kaduna, Nigeria,⁹ where majority (84.3%) of their patients had surgery within 6 months of presentation. Correspondingly, the proportion of those who failed to undergo surgery in our study is similar to another study done in Calabar, where it was reported that 36% of children with cataract defaulted from care following booking for surgery.¹⁰

The need for timely surgical intervention in the management of childhood cataract cannot be overemphasized. There is a strong consensus among experienced paediatric ophthalmologists that surgery should be performed within 4–6 weeks of age for visually significant unilateral congenital cataracts when diagnosed within the first month of life.¹¹ For visually significant bilateral congenital cataracts, the consensus is that surgery should be performed before the age of 2 months.¹¹

Therefore, irreversible loss of vision from dense amblyopia is a very likely outcome for those of our patients who did not access cataract surgery for various reasons, and this contributes significantly to the burden of childhood blindness in our environment. Consequently, it is important for paediatric eye care centres in developing countries to develop strategies towards ensuring that such children, when scheduled for surgery, are closely monitored until surgery is performed. Home visits and telephone reminders may be useful in this regard. Such monitoring could also be useful post-operatively to ensure adequate follow-up.

The proportion of males with cataract in our study was slightly more than females, which is comparable with reports from studies in Kaduna Nigeria⁹ and Madagascar.¹² Although, no gender predilection has been reported for cataracts, differences in utilization of cataract surgical services by men compared with women may also be valid for childhood cataract. The female gender has been identified as a risk factor for cataract blindness due to the fact that they are less likely to access care than males.¹³ Anecdotal evidence from our environment suggests that more importance is placed on the male child than female child. We also observed that males were more likely to undergo surgery than females in this series.

There was no difference in the uptake of surgery and rescheduling of surgery among the children with bilateral cataracts compared to those who had unilateral cataract. Therefore, it appears that laterality of cataract may not play a significant role in influencing the uptake of surgery. Bilateral cataracts are more likely to be visually incapacitating to the affected child, which implies that better uptake and less delay would be associated with bilateral cataracts. Our finding may be an indication that decision-making by

parents/ caregivers is not readily influenced by the severity of visual impairment of children with cataract. Further studies are necessary to shed more light on this issue.

Rescheduling of surgery was quite common among the patients and was often due to strike action within the hospital, financial constraints or delayed paediatric evaluation. These reasons, which are mainly related to economic factors and system inefficiency, can impact negatively on the outcome of surgery as timeliness of surgery is a very important aspect of paediatric cataract care.⁷ Improvement in health insurance coverage for children in our environment will likely go a long way in improving access to surgery for childhood cataract. In addition, long-term resolution of reasons for industrial disharmony in the health system will ensure children get surgeries done in a timely manner.

Financial constraints and fear of surgery were the main reasons cited by the caregivers of the children for not accessing surgery in our series. Insufficient funds, long distance from an eye clinic and ignorance of caregivers on the role of surgery in childhood cataract were also other barriers to cataract surgery uptake identified in previous studies.^{14–17} Some of the reasons reported by these other studies were not explored in our study due to the retrospective nature and our inability to get in touch with a significant proportion of those who did not have surgery.

Furthermore, we acknowledge that the reasons given by those that we interviewed, who were less than half of the target population, may not be a true reflection of all the barriers to uptake of childhood cataract surgery in our environment. This is a major limitation of the study and we recommend that record keeping should be improved upon in our facility by ascertaining that the phone numbers recorded for patients are accurate. This will facilitate tracing of patients. In addition, a prospective study design is preferable for investigating the reasons for rescheduling of surgery for childhood cataract as well as barriers to surgical uptake after presentation in hospital.

Conclusion

Cataract surgery uptake was good in our study population, as three quarters of the patients with childhood cataract underwent surgery; however, rescheduling of surgery date was quite common and was often due to inability to afford cost of treatment and strike actions in the hospital.

Better funding for healthcare, wider health insurance coverage and industrial harmony may help address some of the reasons for delayed uptake of paediatric cataract surgery in our environment.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship and/or publication of this article.

References

- Gilbert C and Foster A. Childhood blindness in the context of VISION 2020: the right to sight. *Bull World Health Organ* 2001; 79(3): 227–232.
- Shamanna BR and Muralikrishnan R. Childhood cataract: magnitude, management, economics and impact. *Community Eye Health* 2004; 17(50): 17–18.
- Courtright P. Childhood cataract in sub-Saharan Africa. *Saudi J Ophthalmol* 2012; 26(1): 3–6. DOI: 10.1016/j.sjopt.2011.10.006.
- Aghaji AE, Ezegwui IR, Shiweobi JO, et al. Using key informant method to determine the prevalence and causes of childhood blindness in south-eastern Nigeria. *Ophthalmic Epidemiol* 2017; 24(6): 401–405. DOI: 10.1080/09286586.2017.1320412.
- Waddell KM. Childhood blindness and low vision in Uganda. *Eye (Lond)* 1998; 12(Pt2): 184–192. DOI: 10.1038/eye.1998.45.
- Sheeladevi S, Lawrenson JG, Fielder AR, et al. Global prevalence of childhood cataract: a systematic review. *Eye (Lond)* 2016; 30(9): 1160–1169. DOI: 10.1038/eye.2016.156.
- Birch EE. Amblyopia and binocular vision. *Prog Retin Eye Res* 2013; 33: 67–84. DOI: 10.1016/j.preteyeres.2012.11.001.
- Muhit M and Gilbert C. A review of epidemiology and control of childhood blindness. *Trop Doct* 2003; 33(4): 197–201.
- Umar MM, Abubakar A, Achi I, et al. Pediatric cataract surgery in National Eye Centre Kaduna, Nigeria: outcome and challenges. *Middle East Afr J Ophthalmol* 2015; 22(1): 92–96.
- Duke R. Delay in surgical uptake for cataract services in a pediatric population in Cross River State Nigeria. *Niger J Ophthalmol* 2014; 22: 56.
- Serafino M, Trivedi RH, Levin AV, et al. Use of the Delphi process in paediatric cataract management. *Br J Ophthalmol* 2016; 100(5): 611–615. DOI: 10.1136/bjophthalmol-2015-307287.
- Nkumbe HE and Randrianotahina HC. Meeting the need for childhood cataract surgical services in Madagascar. *Afr J Paediatr Surg* 2011; 8(2): 182–184. DOI: 10.4103/0189-6725.86058.
- Lundstrom M, Stenevi U and Thorburn W. Gender and cataract surgery in Sweden 1992–1997. *Acta Ophthalmol Scand* 1999; 77(2): 204–208.
- Gogate P, Parbhoo D, Ramson P, et al. Surgery for sight: outcomes of congenital and developmental cataracts operated in Durban, South Africa. *Eye (Lond)* 2016; 30(11): 1523–1524. DOI: 10.1038/eye.2016.158.
- Mehari ZA, Zewedu RT and Gulilat FB. Barriers to cataract surgical uptake in central Ethiopia. *Middle East Afr J Ophthalmol*. 2013; 20(3): 229–233. DOI: 10.4103/0974-9233.114798.
- Schulze Schwering M, Finger RP, Barrows J, et al. Barriers to uptake of free pediatric cataract surgery in Malawi. *Ophthalmic Epidemiol* 2014; 21(3): 138–143.
- Vinluan ML, Olveda RM, Olveda DU, et al. Access to essential paediatric eye surgery in the developing world: a case of congenital cataracts left untreated. *BMJ Case Rep*. Epub ahead of print April 2015. DOI: 10.1136/bcr-2014-208197.