ORIGINAL ARTICLE

Audit of Visual Outcome of Cataract Surgeries in a Private Eye Hospital in Port Harcourt, Nigeria

Chibuike Sydney Ejimadu, Chinyere N. Pedro-Egbe

Department of Surgery, Faculty of Clinical Sciences, University of Port Harcourt, Port Harcourt, Nigeria

ABSTRACT

Aim: The aim was to determine the quality of cataract surgeries in Port Harcourt, and ascertain the difference in the outcome, if any, between small incision cataract surgery (SICS) and extra capsular cataract extraction (ECCE). **Materials and Methods:** This is a retrospective study carried out in a Private Eye Hospital in Port Harcourt between August 2006 and November 2012. Case notes of 83 consecutive patients (92 eyes) who had either SICS OR ECCE with posterior chamber intraocular lens (PCIOL) were included in the study. Demographic data and data concerning ocular and systemic co-morbidities were retrieved from patients' case notes. Best-corrected visual acuity was measured with Snellen's chart preoperatively, and 6 weeks following surgery. The visual outcome was categorized, using the World Health Organization (WHO) recommendation, as good (>6/18), borderline (6/24-6/60), or poor (<6/60). Statistical software package Epi-info version 6.04d was used to analyze our data. **Result:** A total of 92 eyes of 83 patients who had cataract surgeries was included in the study. Sixty-seven eyes (73%) had ECCE + intraocular lens (IOL) while 25 eyes (27%) had SICS + IOL. At 6 weeks postoperative, 66.3% of cases had good visual outcome while about 9.8% of cases had a poor outcome. **Conclusion:** Since only 66.3% of cases had good visual outcome and 9.8% had poor outcome, cataract surgical outcome in Port Harcourt is below the acceptable WHO standards of >85% and <5% for good and poor outcomes respectively. Steps to improve good outcome will include proper postoperative hygiene of patients, good preoperative evaluation of all cases, and improvement in surgeons' skills. Good visual outcome was associated more with ECCE (71.7% of 67 eyes) than SICS (52% of 25 eyes) probably due to inadequate experience of the surgeons in SICS. This difference was, however, not statistically significant.

Keywords: Audit, cataract surgery, visual outcome

INTRODUCTION

Cataract surgery is the most common operation performed in ophthalmology.[1] Cataract blindness is reversible by this surgery. However, some patients are still skeptical about visual outcome after surgery, hence the low surgical uptake in this study is, therefore, intended to determine the quality of cataract surgeries in Port Harcourt, and ascertain the difference in outcome, if any, between small incision cataract surgery (SICS) and extra capsular cataract extraction (ECCE).

Access this article online	
Quick Response Code	Website: www.nigerianjournalofophthalmology.com
	DOI: ***

Ophthalmologists can only ensure quality control and be better armed to counsel patients to accept surgical treatment of cataract if regular surgical audit is performed.[2] This will help to achieve the targets of the VISION 2020 initiative and attain the World Health Organization (WHO) recommendation that more than 85% of operated eyes should have good outcome (≥6/18 vision) and less than 5% should have poor outcome (<6/60 vision) at 6 weeks following cataract surgery.[3]

The WHO categorization of visual outcome following cataract surgery was employed in this study.[4] This places outcomes, as "good" (≥6/18), "borderline"

Address for correspondence
Dr. Chibuike Sydney Ejimadu, Department of Surgery, Faculty of Clinical Sciences, University of Port Harcourt, Port Harcourt, Nigeria.
E-mail: theraphaproject@yahoo.com

(6/24-6/60), and "poor" (<6/60). In Nigeria, where most surgeons still perform ECCE and SICS with insertion of intraocular lens (IOL) as against newer methods like phacoemulsification, the visual outcome leaves much to be desired as seen in another study in Orlu, Nigeria.[3] An audit such as this will objectively update cataract surgeons on the successes or otherwise (limitations) of their preferred surgical method and encourage improvement or conversion to newer methods.

MATERIALS AND METHODS

This was a retrospective study of ninety-two eyes of 83 consecutive patients who had either SICS or ECCE with Insertion of IOL for all forms of cataract, in a Private Eye Hospital in Port Harcourt between August 2006 and November 2012. Port Harcourt, with a population of about 1.3 million, has two big tertiary health institutions that offer eye care services to most of its population. It also has many Private Eye Hospitals. This may have accounted for the small number of eyes (92) operated over a period of 6 years in the index eye hospital. The adults were operated under local anesthesia while the children had general anesthesia. There was no specific indication for the choice of any particular procedure, by the two surgeons who performed the cases, but ECCE was generally preferred in cases of huge nuclear cataracts. Every patient who had cataract surgery within this period was included in this study. The surgeons had long experience in ECCE (over 10 years) but their experience in SICS was about 5 years. Patients' demographic data including relevant past medical and ocular history, as well as family ocular history, were extracted from their case notes. Analysis of the complete clinical evaluation record to identify co-morbid ocular and systemic conditions was done. The record included fundus examination findings and best-corrected visual acuity measured with Snellen's chart preoperatively and at 6 weeks following cataract surgery. Preoperative ultrasound results were also analyzed where available. Biometry and fasting blood sugar was done for all patients. Visual outcome was categorized, using the WHO recommendation as good (≥6/18), borderline (6/24-6/60), and poor (<6/60).[4]

Statistical software package Epi-info version 6.04d (Centre for disease control and prevention, USA.) was used to analyze the data.

This study was conducted in accordance with the Declarations of Helsinki on studies involving human subjects.

RESULTS

A total of 92 eyes of 83 patients who had cataract surgery was included in the study. Sixty-seven eyes (73%) had ECCE with IOL implantation, while 25 eyes (27%) had SICS with IOL [Table 1].

More than 70% of the patients were blind (VA <3/60) in the affected eye before surgery [Table 2]. Six weeks following surgery and with best correction, 9 (9.8%) eyes (8 ECCE and 1 SICS) had poor outcome, 22 (23.9%) eyes (11ECCE and 11 SICS) had borderline outcome while 61 (66.3%) eyes (48 ECCE and 13 SICS) had good outcome [Table 3].

Two patients who had ECCE developed endophthalmitis compared to one for SICS. Fourteen (14) patients had vitreous loss, and the co-morbid eye conditions were slightly different for both groups of patients [Table 6].

Table 1: Number of patients and eyes operated

Type of surgery	Number of eyes operated (%)	Number of patients (%)
ECCE	67 (73)	61 (73.5)
SICS	25 (27)	22 (26.5)
Total	92 (100)	83 (100)

ECCE: Extra capsular cataract extraction, SICS: Small incision cataract surgery

Table 2: Preoperative VA of patients

VA preoperative	Number of patients (%)		Chi-square	*P*
	ECCE	SICS		
6/6-6/18	0 (0)	0 (0)		
6/24-6/60	15 (22.4)	3 (12.0)	0.41	0.522
<6/60-3/60	5 (7.5)	2 (8.0)	0.13	0.719
<3/60	47 (70.1)	20 (80.0)	0.04	0.848
Total	67 (100.0)	25 (100.0)		

ECCE: Extra capsular cataract extraction, SICS: Small incision cataract surgery, VA: Visual acuity

Table 3: Visual outcome 6 weeks postoperative with best correction

VA postoperative	Number of patients (%)		Chi-square	*P*
Outcome	ECCE	SICS		
Poor<6/60	8 (11.9)	1 (4.0)	0.43	0.514
Borderline=6/24-6/60	11 (16.4)	11 (44.0)	3.29	0.069
Good≥6/18	48 (71.7)	13 (52.0)	0.40	0.528
Total	67 (100.0)	25 (100.0)		

ECCE: Extra capsular cataract extraction, SICS: Small incision cataract surgery, VA: Visual acuity

Table 4: Possible causes of poor outcome

Causes of poor outcome	Type of surgery (%)		Total (%)
	ECCE	SICS	
Endopthalmitis	2 (2.98)	1 (8.95)	3 (3.26)
Vitreous loss	6 (8.95)	0 (0)	6 (6.52)

ECCE: Extra capsular cataract extraction, SICS: Small incision cataract surgery

DISCUSSION

Regular cataract surgery audit is a very important requirement for health institutions in order to improve on the outcome of their cataract services. WHO recommends that <5% of operated eyes should have poor outcome (i.e. <6/60 vision) at 6 weeks following cataract surgery with best correction[3] but 9.8% of the operated eyes had poor outcome in our study [Table 3]. Though this is higher than the recommended value, it compares with figures got from similar studies in Orlu[3] (9%), Onitsha[5] (9.7%), and Kaduna[6] (10.4%), all in Nigeria. However, it is better than the higher figures reported in Abak[7](14.3%), a high volume cataract center in Nigeria and Sierra Leone[8] (18.9%), a West African country.

A study in India using standardized cataract surgical records also reported poor outcome of 11.5% at 4-6 weeks follow-up among 1806 eyes treated in hospitals.[9] Complications of cataract extraction such as endophthalmitis (3 cases) and poorly handled posterior capsular rupture where there was vitreous loss with vitreous not properly cleared from the anterior chamber and wound site (6 cases) contributed to the poor outcomes. Vision may have also been compromised by other existing eye diseases such as glaucoma and retinopathies. Poor outcome was associated more with ECCE (11.9%) than with SICS (4%) probably due to the fact that there were more cases of ECCE (67) than SICS (25). Poor vision outcome following any cataract surgery is one of the most important barriers to cataract surgery uptake because dissatisfied patients spread negative information about their experiences, thereby making prospective cataract patients sceptical of what to expect.

Table 5: Possible causes of borderline outcome (VA 6/24-6/60)

Causes of poor outcome	Type of surgery (%)		Total (%)
	ECCE	SICS	
Endophthalmitis	0 (0)	0 (0)	0 (0)
Vitreous loss	8 (8.69)	6 (24)	14 (15.2)

ECCE: Extra capsular cataract extraction, SICS: Small incision cataract surgery, VA: Visual acuity

Table 6: Summary of surgery type and associated morbidity

Type of surgery	Complication		Co-morbid conditions	
	Endophthalmitis (%)	Vitreous loss (%)	Glaucoma	Retinopathy
ECCE=67	2 (2.98)	14 (20.89)	3 (4.48)	1 (1.49)
SICS=25	1 (4.0)	7 (28.0)	5 (20.0)	0 (0)
Total	3 (3.23)	21 (22.83)	8 (8.70)	1 (1.08)

ECCE: Extra capsular cataract extraction, SICS: Small incision cataract surgery

Eliminating avoidable blindness due to cataract is, therefore, bound to face a set back if poor outcomes following surgery are not reversed. This can be done by promoting early cataract surgeries, use of modern equipment, improving surgical skills, and proper management of co-morbidities. A study in Kenya[10] recorded only 1.5% poor outcome due to probably better surgical techniques. A similar work in 100 hospitals in the UK[11] showed a poor outcome in only 3% of all cases where phacoemulsification technique was used in 77% of the surgeries performed.

A total of 66.3% eyes operated in our study had a good outcome. This does not meet the WHO recommendation of 85% good outcome at 6 weeks postoperative. This could also be attributed to the failure of the patients to adhere strictly to postoperative instructions as majority of them are elderly and uneducated and may not be instilling their eye drops according to the instruction. The success rate for SICS was 52% while it was 72% for ECCE as shown in Table 3. Poor technique during nucleus delivery could damage the corneal endothelium, especially if the surgeon is not very experienced. Both surgical methods, however, fall below the 85% target recommended by WHO.

More than 70% of the patients had visual acuity of <3/60 before surgery [Table 2] while following surgery, 66.3% had a good outcome, and 23.9% had borderline outcome [Table 3]. This gives a total of 90.2% appreciable improvement in vision, that is, visual acuity ≥6/60. Considering the conditions of cataract services in developing countries, this can be said to be encouraging though there is still room for improvement.

The prevalence of endophthalmitis was 3% that is high compared to studies in Sierra Leone,[8] Kaduna,[6] and Ibadan[12] (latter two cities are both in Nigeria) with prevalence of 0.47%, 0.6%, and 0.6%, respectively. Though the surgeons' experience may have contributed to the visual outcome but endophthalmitis in this study may have been due to the small sample size, quality, and storage of the drugs used, patient's hygiene and drug handling postsurgery. Other contributors to the visual outcome were vitreous loss and co-morbidities such as glaucoma and retinopathies. The three children operated upon had juvenile cataracts and did not show any sign of amblyopia after surgery as they all had good outcomes. They were aged between 11 and 16 years old.

CONCLUSION

Since only 66.3% of cases had good visual outcome and 9.8% had poor outcome, cataract surgical outcome in

Port Harcourt is below the acceptable WHO standards of >85% and <5% for good and poor outcomes, respectively. Steps to improve good outcome will include proper postoperative hygiene of patients, good preoperative evaluation of all cases, and improvement in surgeons' skills. Good visual outcome was associated more with ECCE (71.7% of 67eyes) than SICS (52% of 25 eyes) probably due to inadequate experience in SICS. This difference was, however, not statistically significant. Tables 4 and 5 show possible causes of poor and borderline outcomes respectively.

ACKNOWLEDGMENTS

We wish to thank Dr. CS Nwozor (Optometrist) who was helpful in collating the data.

REFERENCES

1. Limburg H, Foster A, Gilbert C, Johnson GJ, Kyndt M. Routine monitoring of visual outcome of cataract surgery. Part 1: Development of an instrument. Br J Ophthalmol 2005;89:45-9.
2. Yorston D, Gichuhi S, Wood M, Foster A. Does prospective monitoring improve cataract surgery outcomes in Africa? Br J Ophthalmol 2002;86:543-7.
3. Obiudu HC, Obi BI, Anyalebechi OC. Monitoring cataract surgical outcome in a public hospital in Orlu, South East Nigeria. Niger Med J 2009;50:77-9.
4. Pararajasegaram R. Importance of monitoring cataract surgical outcomes. J Community Eye Health 2002;15:49-50.
5. Nwosu SN, Onyekwe LO. Intraocular lens implantation surgery in Onitsha, Nigeria. Niger J Ophthalmol 2002;1:5-9.
6. Alhassan MB, Kyari F, Achi IB, Ozemela CP, Abiose A. Audit of outcome of an extracapsular cataract extraction and posterior chamber intraocular lens training course. Br J Ophthalmol 2000;84:848-51.
7. Ezegwui IR, Ajewole J. Monitoring cataract surgical outcome in a Nigerian mission hospital. Int Ophthalmol 2009;29:7-9.
8. Cook NJ. Evaluation of high volume extracapsular cataract extraction with posterior chamber lens implantation in Sierra Leone, West Africa. Br J Ophthalmol 1996;80:698-701.
9. Limburg H, Foster A, Vaidyanathan K, Murthy GV. Monitoring visual outcome of cataract surgery in India. Bull World Health Organ 1999;77:455-60.
10. Yorston D, Foster A. Audit of extracapsular cataract extraction and posterior chamber lens implantation as a routine treatment for age related cataract in east Africa. Br J Ophthalmol 1999;83:897-901.
11. Desai P, Minassian DC, Reidy A. National cataract surgery survey 1997-8: A report of the results of the clinical outcomes. Br J Ophthalmol 1999;83:1336-40.
12. Olawoye OO, Ashaye AO, Bekibele CO, Ajayi BG. Visual outcome after cataract surgery at the university college hospital, Ibadan. Ann Ib Postgrad Med 2011;9:8-13.

How to cite this article:***

Source of Support: Nil, **Conflict of Interest:** None declared