

Evaluation of the outcome of ECCE Surgery with PC IOL at Ago-Iwoye, Ogun State, Nigeria.

BEKIBELE C. O.

From: Department of Ophthalmology, University College Hospital, Ibadan

SUMMARY:

Objective: To evaluate all extracapsular cataract extractions with PC-IOL done at St Mary's Catholic Eye Hoapital between October 1998 and October 1999.

Materials and Methods: The case recrods of all patients who had extra-capsular cataract extraction (ECCE) with posterior chamber intra lens (PC-IOL) insertion between October 1998 and October 1999 were reviewed retrospectively to determine complication rate and outcome of surgery.

Results: 61 ECCE with PC IOL surgeries were done in 55 patients. 35 (63.6%) were males and 20 (36.4%) were females, 49 (89.1%) had unilateral surgery. The youngest age was 9 years and the oldest was 90 years. Intra operative complications occurred in 8 cases (13.1%) and consisted of posterior capsule rent 3 (4.9%), Iridodialysis, 1(1.6%) Iris tear 2, (3.3%) and hyphema 3 (4.9%). The post operative complications included striae keratitis 6 (9.8%), posterior capsule opacity 2 (3.3%), raised intra-ocular pressure 10 (16.4), uveitis 10, (16.4%) irregular pupil 6, (9.8%) hyphema 4, (6.6%) and endophthalmitis 3 (4.9%). The uncorrected visual acuity improved to better than 6/18 in 28 (45.9%) of the operated eyes. There was improvement in visual acuity (better than 6/18) after refraction in 40 of 43 eyes that were refracted. Post-operative residual astigmatism was minimal in most cases.

Conclusion: ECCE with IOL is an excellent method of curing cataract Blindness but there is need for the use of A-scan biometry and keratometry to determine the power of the inserted IOL as well as preventive measures against endophthalmitis for better results.

KEY WORDS: *Cataract, intra-ocular lens, visual acuity, astigmatism*

INTRODUCTION

Cataract is the commonest cause of blindness worldwide and in Nigeria accounts for over 50% of blindness¹. Cataract blindness is treatable by cataract extraction followed by adequate visual rehabilitation by spectacles, contact lens or implantation of an intraocular lens, Until recently the most popular method of surgery was intra-capsular cataract extraction (ICCE) followed by spectacle correction. Compliance with spectacle wear which is the safest and commonest method of correcting aphakia has been reported to be poor due to a number of reasons including, unavailability, unsuitability and cultural

preferences². Spectacles are not acceptable in cases of unioocular aphakia. Contact lenses are useful in correcting unioocular aphakia in developed countries but a place has not been established for their use in developing countries because of problems of handling and resulting infections especially in an environment with inadequate supply of clean and safe water.

Use of intra-ocular lens (IOL) in Nigeria and other developing countries for the correction of aphakia has only been recently introduced and promoted⁹. In 1994 the first report of 51 intra-ocular lens implantations done at the University College Hospital Ibadan was published³. There have been other

**Author for Correspondence*

reports of early experiences with IOL implantation in Nigeria. A report from Kaduna was published in 1997⁴. This study has been done with view to outcome of 61, extra capsular cataract extractions (ECCE) with IOL implantation done at St Mary's Catholic Eye Hospital Ago-Iwoye between October 1998 and October 1999. The evaluation has been done in line with previous recommendations^{5,6}. The focus is on visual outcome as well as complication rate as indices of quality of care.

MATERIALS AND METHODS

Medical records of fifty-five consecutive patients who had ECCE with posterior chamber (PC-IOL) implantation between October 1998 and October 1999 were reviewed retrospectively. Information obtained include, age and sex of patients, all patients had visual acuity of 6/60 or worse not improved with pinhole or spectacle correction. Optic nerve and retinal functions were inferred from response to pupillary reaction to light and light projection test respectively. Slit lamp examination was done to determine corneal integrity as well as examination for evidence of previous trauma, past or present intra-ocular inflammation. Intra-ocular pressure measurement was done with Goldman applanation tonometer. No biometric studies were done because the equipment was not available. Patients were admitted one day before the operation and were commenced on topical antibiotic Chloranphenicol or gentamycin, oral diazepam 5mg at night, vitamin C 100mg three times daily and acetazolamide 250mg at night. On morning of operation, the eyelashes were trimmed, the same dose of acetazolamide was repeated, the pupil was dilated with phenylephrine and topical tropicamide (phenylephrine was omitted in hypertensives). Pre-medication with promethazine 12.5 – 25mg and pentazocine 15 – 30mg given intra-muscularly were reserved for young or anxious patients only. Local anaesthesia was used for all cases and consisted of peribulbar injection of 3 – 4ml 2% xylocaine with adrenaline 1:100,000 without hyalase as well as facial anaesthesia using O'Brien method. Ocular massage was done for between 5 – 10 minutes to ensure a soft eye before surgery. A fornix based conjunctival flap was used in all cases and minimal cautery was applied. A limbal groove incision was made between 2 and 10 o'clock before anterior chamber (AC) was penetrated with a blade fragment. AC was reformed with 2% Hydroxylmethylcellulose and an improvised cystotome fashioned from a size 25G needle was used to achieve

a can opener capsulotomy. The lens nucleus was delivered by counter pressure at the superior and inferior limbus. A Simcoe irrigation and aspiration canular was used for irrigation aspiration of soft lens matter using normal saline in which 0.5ml adrenaline was added to 500ml irrigation fluid. Cortical fibres were stripped from the posterior capsule from the periphery towards the centre in all quadrants. AC was reformed with 2% methylcellulose before IOL insertion. Majority of the IOLs were from Aurolab, the rest were from Alcon. They were of modified J loop or C loop varieties. Power of IOL was determined from the patients' refraction in the operated eye before the development of cataract or from the refraction of the other eye. Where neither is possible a power was chosen arbitrarily from a standard hospital stock of lenses that ranged from +19 to +21 diopters. IOLs were inserted into the posterior chamber by initially sliding in of the inferior haptic into the capsule bag or in the sulcus behind the iris followed by insertion of the superior haptic using compression dailing technique with the aid of Shepherd's forceps or Kelman - McPherson forceps. Final centration was done with Sinsky's hook to dial the lens into position. Viscoelastic materials were washed out using the irrigation fluid. The incision was closed with five 8-0 virgin silk sutures or 9-0 nylon. The wound was covered with conjunctival flap without suturing. Subconjunctival gentamycin 20mg, and methylprednisolone 20mg, were given, topical antibiotic was instilled and the eye was padded overnight. Post-operative examination included daily slit lamp examination, intra-ocular pressure measurements and visual acuity using Snellens chart with and without pinhole. Patients were discharged as from the third Post operative day on topical steroid, antibiotic and tropicamide. Initial follow up was at two weeks. Subsequent visits were at 3 weeks intervals and by 6–8 weeks topical drops were tailed off and refraction was done.

RESULTS

In all, 61 eyes of 55 patients were reviewed. 35 (63.6%) were males and 20 (36.4%) females (ratio 1.75:1), 49 (89.1%) of the patients had unilateral surgery while 6 (10.9%) had bilateral surgery. The youngest patients was 9 years, the oldest was 90 years the mean age was 58.2 years \pm 2 standard deviation of 10.9 (Figure 1).

Cataract type: Senile cataracts were the majority 49

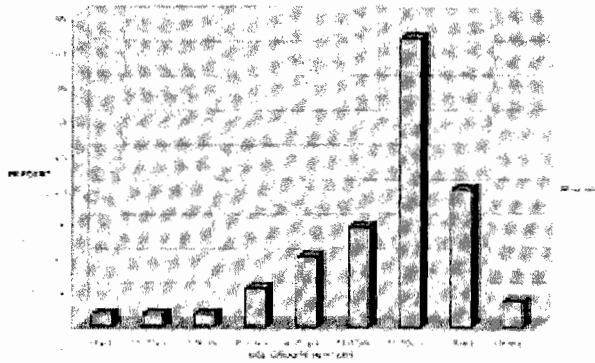


Figure 1: Age Distribution of 55 ECCE + PC IOL Patients

Table 1: Post operative complications of ECCE with PC-IOL Surgery

	No	%
Striae/mild corneal oedema	6	9.8
Posterior capsule opacity	2	3.3
Transient elevations of IOP	10	16.4
Wound gape	1	1.6
Uveitis	10	16.4
Peaked/irregular pupil	6	9.8
Pupil Capture	1	1.6
Hyphema	1	1.6
Soft lens matter	4	6.6
Endophthalmitis	3	4.9

(80.3%), pre-senile 5 (8.2%) post uveitic, 5 (8.2%) developmental 1 (1.6%) and traumatic 1 (1.6%).

Intra-operative complications: Occurred in 8 cases (13.1%) posterior capsule rent 3, (4.9%) iridodialysis 1 (1.6%), Iris tear 2 (3.3%) and hyphema 3 (4.9%).

The post-operative complication: Is as shown in Table.

Post operative visual acuity: The post-operative uncorrected and corrected visual acuity after six week of surgery is as shown in Table 2.

28 eyes (45.9%) had visual acuity of 6/18 or better post operatively. After refraction in 43 eyes the number of eyes with post operative visual acuity of 6/18 or better increased to 40 (65.6%).

Residual post-operative astigmatic correction: 18 eyes (29.5%) had residual astigmatic correction.

The minimum astigmatic correction was 0.75

Table 2: Visual acuity of PC-IOL patients

	Without correction		After correction	
	No	%	No	%
6/5-6/9	6	9.8	22	36.1
6/12-6/18	22	36.1	18	29.5
<6/24-6/60	26	42.6	2	3.3
6/60-3/60	4	6.6		
3/60-1/60	1	1.6	1	1.6
1/60-LP	-	-	-	-
NLP	2	3.3	-	-
Total	61	100%	43	70.5

Note: 18 (29.5%) eyes were not refracted because the patients did not come for their post-operative refraction.

DCYL while the maximum was 3.50 DCYL. The mean astigmatic correction was 2.35 DCYL. 8 (44.8%) of the astigmatic correction were with the rule and 10 (55.6%) were against the rule.

DISCUSSION

There was a preponderance of males in this review in the ratio 1.75:1, the reason for this is not known, but it is in line with previous reports^{3,4}. Majority of the patients belong to the 61 – 70 year age group who are pensioners. This probably also partly explains the high percentage of senile cataract (80.3%) as opposed to presenile (8.2%) or post uveitic (8.2%). The intra operative ocular complications were minimal (13.1%) and comparable to those elsewhere^{3,4,7,10}.

Most of the operative complication were short lived and resolved with adequate management, however, a few other were devastating and had profound effect on the final visual outcome.

Striae and mild corneal oedema in 6 eyes (9.8%) cleared within a few days of surgery. 2 patients with posterior capsule opacity were sent for Yag laser. Elevations of intra-ocular pressure occurred in 10 eyes probably because of insufficient irrigation of viscolastic agent, soft lens matter, hyphema and post operative uveitis. 6 of those resolved on topical medication with Timolol which was topped after a few weeks. In 4 known glaucoma patients treatment had to be continued indefinitely. Prolonged uveitis occurred in 10 cases. It resolved with anti-inflammatory medications. These findings are similar to those of previous reports^{4,7,11}.

Endophthalmitis occurred in 3 cases (4.9%). The source of infection and nature of infecting organisms

could not be ascertained in any of the cases despite adequate culture of surface discharge, anterior chamber paracentesis and vitreous tap. 2 of the cases presented in the second week of surgery and it was impossible to control the infection. The eyes were lost with vision of no perception of light. In the last case, infection was identified after 48hrs of surgery and drastic intervention measures, produced a final visual acuity of count fingers. All cases of endophthalmitis were consecutive and were preceded by an eye camp organized in the hospital the previous month. Although the source of the infection could not be traced, measures carried out to ensure hospital and theatre sterility such as theatre and ward fumigation amongs other ensured that no case of endophthalmitis was observed there after. This complication with devastating consequences has also be reported elsewhere^{7,14}. A prevalence of 0.26% was reported from Europe with history of immunosuppressive therapy, defective wound closure, and use of IOLs with out heparinized surface reported as significant risk factors.

Visual acuity of operated cases improved to better than 6/18 in 45.9% of the operated eyes without correction. This further improved to 65.5% after refraction of the 43 cases that showed up for refraction after 6 weeks. 18 (29.5%) were not refracted and only 1 (1.6%) could not be improved by refraction. It is arguable that perhaps those who failed to come for refraction did so because their visual acuities were so improved that they did not see the need to come for post operative refraction (10 of them had better than 6/24 uncorrected vision). These values are comparable to those in previous studies^{4,7,12}. The mean residual astigmatism of 2.35 DCYL in 29.5% of the operated cases is acceptable and comparable to that in previous reports^{8,13}.

CONCLUSION

This review has shown just like others before it that cataract extraction with IOL implantation is an excellent way of curing cataract blindness and providing adequate visual rehabilitation at the same time by providing the patients with good functional post operative visual acuity. The limitation of this centres like it with lack of A scan ultrasound and keratometer is shown by the number of patients who needed post operative refractions as well as those with residual astigmatism. These could have been anticipated and reduced if biometric studies were available preoperatively.

The importance of preventive measures such as

regular theatre fumigation against the development of post operative endophthalmitis, a preventable condition with devastating consequences is also worthy of note.

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