

A Demographic Study of Cataract Cases of Chattogram Hill Districts with Their Surgical Outcomes

Md. Altaf Uddin Khan^{1*} Nazmul Haque Robi² Afroza Akter³
Joynul Abedin⁴ Nahid Sultana⁴

ABSTRACT

Background: A cataract is a cloudy area in the lens of the eye that leads to a decrease in vision. To describe the ocular demographic characteristics in relation to cataract blindness and cataract surgical coverage and to assess the visual outcome of cataract surgery is the objective of carrying out the study.

Materials and methods: It was a retrospective study conducted during the period between February 2018 and February 2020 at Chattogram Lion's Eye Institute and Hospital. 555 individuals age 20-119 years were selected using probability proportional to size sampling. Written informed consent was obtained from all eligible patients. All patients underwent basic eye examination by ophthalmologist. Visual impairment was determined for each eye according to standard WHO categorization.

Results: The participation rate was 94.95%. This include 292 males and 263 females (M:F,1:1.3). The age range was 20 to 119 years with a range of 63.46± 11.91 years (63.67±12.65 years in male and 63.17 11.05 years in females). Most of the patients (n=213, 38.36%, 95% CI: 1.49-2.49%) were aged 60 years and above. 407 patients (M:F-40.54%:32.79%) had cataract in both eyes, 148 (M:F-14.41%:12.25%) had in one eye. Among them previous cataract surgery 34 (M:F=3.60%: 2.52%) had uniocular pseudophakia. However, cataract surgical coverage rates were lower for female than male. 58.43% eyes with cataract surgery had good VA (6/6 - 6/18).

Conclusion: The study highlights high prevalence of blinding cataract as compared to Chattogram region. Education and early disease awareness and access to cataract surgical services would play an important role to increase the CSR in the area and presupposes the extended role of Chattogram Lions Eye Institute and Hospital and similar eye care providers in the area.

Key words: Age related cataract; Pseudophakia; Small incision cataract surgery.

Introduction

Blindness and vision impairment affect at least 2.2 billion people around the world. This high volume comprises 123.7 million due to unaddressed refractive error followed by 65.2 million cataracts.¹ In 2010 the survey done to evaluate blindness worldwide showed one in three blind people and one of six visually impaired people was due to cataract.² Bangladesh is a developing country situated in South East Asia where

50%-80% of total blindness results.³ The first national blindness survey of this country was conducted in 2003, which found that about 650,000 people aged over 30 were blind due to cataract.⁴ It also reported that nearly 130,000 additional cataract related blinding cases occur in every year.⁵ Low Cataract surgical output (In some countries) combined with a rapid expansion of the population, particularly of the elderly, has led to an ever increasing cataract.

Eye care services in Bangladesh are provided by the Government, Local and international Non-Governmental Organizations (NGO) and charitable organizations. The NGO sector has important funding collaborative and Logistical rules with Bangladesh service providers. Bangladesh, with a population of around 180 million people is the eight most populous country in the world and its population is expected to double by 2035. Cataract is the public health problem in the country. Cataract services have grown substantially in urban areas; many parts of the country still do not have these services. One such area is Chattogram hill district. These are remote area, mostly mountainous and sparsely populated, less developed, with poverty and poor access to education and health.

1. Senior Consultant of Chattogram Lion's Eye Institute & Hospital
 Chattogram.
2. Academic Coordinator of Chattogram Lion's Eye Institute & Hospital
 Chattogram.
3. Consultant of Chattogram Lion's Eye Institute & Hospital
 Chattogram.
4. Junior Consultant of Chattogram Lion's Eye Institute & Hospital
 Chattogram.

*Correspondence : Dr. Md. Altaf Uddin Khan
 Cell : +88 01819 39 08 65
 Email : altafinan@gmail.com

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Lions Eye Hospital Chattogram provided with its OPD and high quality operation theatre infrastructure, provide eye care services mainly in greater Chattogram. Cataract surgery is one of the most commonest ocular surgeries in this hospital. To the authors Knowledge, there was no previous published data that most operatively evaluate the base line ocular characteristics of patients with cataract at the study hospital. This study was performed to evaluate the demographic profile of patients with cataract, age-sex distribution, area distribution, intraoperative, post operative complication and to evaluate visual outcome after cataract surgery.

Materials and methods

This is a hospital based retrospective analysis of medical records of patients who underwent cataract surgery under local anesthesia from February 2018 to February 2020 at Lion's Eye Hospital, Chattogram.

Inclusion criteria

- All consecutive patients aged 20 years and above cataract in one or both eyes.
- Patients scheduled for Small Incision Cataract Surgery (SICS) with posterior chamber Intra Ocular Lens (IOL) implantation.

Exclusion criteria

- Patients with coexisting ocular disease such as Retinitis Pigmentosa (RP), Corneal opacity and glaucoma recognized before surgery.
- Patients planned for a combined procedure involving glaucoma or corneal surgery.
- Patients identified with untreated or uncontrolled illness that could affect the eye or follow up, such as hypertension or diabetes mellitus.

The Snellen Lettered chart and tumbling "E" chart was used to determine the distant VA for the literate and illiterate respectively. Slit lamp bio microscope was used for accessing the anterior segment while direct ophthalmoscope was used for posterior segment evaluation. The diagnosis of cataract was done and classified according to LOCS classification, Small Incision Cataract Surgery (SICS) with intraocular lens implantation was done. The superior incision was given at 12'O clock in cases of with the rule astigmatism and superior temporal position in cases of against the rule astigmatism. Details date of operation, type of surgery, intraocular lens, intraoperative and post-operative complications were recorded. The visual acuity and eye examinations were recorded. The visual outcome was categorized according to the World Health Organization (WHO) where good outcome 6/6-6/18 or better, borderline outcome 6/24-6/60 and poor out come as worse than 6/60. The data were entered in Microsoft

Excel 2007. Descriptive statistics frequencies, percentages, mean, standard deviation were determined. The data collected was analyzed in a Statistical Package for Social Sciences software (SPSS version 16-0).

Results

Among 555 cases enrolled in the study who met the inclusion criteria, the mean age was of 63.46± 11.91 years, (63.67 ± 12.65 years in male and 63.17±11.05 years in female). Males comprising 292 (52.61%) and females 263 (47.38%). Table I, Table II, Table III and Table IV shows the demographic characteristics of cases included in the study.

Table I Gender Distribution

Gender □	Frequency (%)
Male □	292(53%)
Female □	263(47%)

Table II Age Sex Distribution (n=555)

Age Group □	Male(n=292) □	Female (n=263)
20-29 □	3(0.54%) □	1(0.18%)
30-39 □	9(1.62%) □	1(0.18%)
40-49 □	18(3.24%) □	31(5.58%)
50-59 □	66(11.89%) □	53(9.54%)
60-69 □	106(19.09%) □	107(19.27%)
70-79 □	73(13.15%) □	54(9.72%)
80-89 □	11(1.98%) □	15(2.70%)
90-99 □	3(0.54%) □	1(0.18%)
100-109 □	2(0.36%) □	0(0%)
110-119 □	1(0.18%) □	0(0%)

Regarding the type of Cataract, 121 had mature cataract, 105 nuclear scleroses, 85 posterior sub capsular cataracts, 18 polar cataract and 114 had nuclear and cortical cataract. 106 patient had Comorbid condition like hypertension, Diabetes Mellitus, chronic obstructive pulmonary disease, asthma, cardiac disease and benign prostate hypertrophy.

Table III Mean and Standard Deviation of Age

Age □	Mean ± SD (Year)
Range □	63.46±11.91
Male group □	63.67±12.65
Female group □	63.17±11.05

Table IV Mean Age difference between sexes

Age□	Mean ± SD □	95% CI □	t Value □	p Value
Male group □	63.67±12.65 □	1.49-2.49 □	-0.49 □	0.62
Female group □	63.17±11.05			

The Difference in mean age between the sexes using 2 sample t-test was not statistically significant.

Table V Distribution of Intraoperative complications

Intraoperative complications □	n (%)
Premature entry □	09(1.62%)
PCR without vitreous loss □	12(2.16%)
PCR with vitreous loss □	07 (1.26%)
Descemets membrane detachment □	06(1.08%)
Total □	34(6.12%)

Table VI Distribution of post operative complications

Postoperative complications □	n (%)
Corneal oedema □	38(6.84%)
Hyphaema □	08(1.44%)
Postoperative Uveitis □	14(2.52%)
Punctate Keratitis □	03(0.54%)
Aphakia □	03(0.54%)
Total □	66(11.88%)

Table V depicts Premature entry in 1.62%, Posterior Capsule Rent (PCR) without vitreous loss in 2.16%, PCR with vitreous loss in 1.26% Descemet's membrane detachment in 1.08% of patient as intra-operative complication.

Regarding postoperative complications, transient corneal oedema was seen as the most common one (6.84%) (Table VI). All these cases were treated with topical medications. 5 cases with hyphaema underwent hyphaema wash the next day. 8 cases with Uveitis with fibrin was treated with sub conjunctival dexamethasone injection 0.5ml for the consecutive 3 days along with topical medications. Cases with aphakia underwent sclera fixated intraocular lens implantation after 4 weeks of cataract surgery.

Table VII, Shows post operative VA at follow up visit, 308 Cases (58.43%) had good visual outcome, 138 (26.18%) had borderline visual outcome and 81 cases (15.36%) had poor visual outcome.

Category of Outcome □	Male □ (n=275) □	Female □ (n=252) □	Chi Square □ Value □	p Value
Good (6/6-6/18) □	164(31.11%) □	144(27.32%)		
Borderline (<6/18-6/60) □	66(12.52%) □	72(13.66%) □	1.55(app.) □	0.45
Poor <6/60 □	45(8.53%) □	36(6.83%)		
NPL □	0(0%) □	0(0%)		

p Value is not significant. It means that these two groups are different. Chi Square test was done to test the significance.

Discussion

This study was focused on the outcome of visual acuity after cataract surgery. It was hospital based study. So, it was easy and quick to collect all the required data from eligible patients. High Prevalence of cataract blindness in this study was not unexpected, keeping in view back of static cataract surgical services and decades of under development, poverty and deprivation in the area.

These surgeries were done by several surgeons. The age distribution of the patients revealed that the majority were between 50 and 79 years with the mean age of 82.66 similar to other studies. This study showed number of males were (53%) and females (47%) considerably higher in male than female. There are several study described. The study done by Sumathi matta et al, which showed 55.3% surgeries performed in female patients and Ekobia- Acquah et al. study which reported males 35 (42.2%) and females 48 (57.8%).^{7,8} However, the study done by Thevi Thanigasalam showed equal gender distribution and the study done by Olawoye 0.0 et al. in Nigeria showed male to female ratio as 1.2:1.^{9,10} The study showed intraoperative complications in 34 cases (6.12%). Thevi Thanigasalam found intraoperative complications in 21%.⁹ Sumathi Matta., et al. study and Jyotee Trivedy study found intraoperative complications in 1.4% and 1.6% respectively.^{7,8} On this study corneal oedema found in 6.84% as the commonest cause of post operative complication seen after 24 hours followed by post operative Uveitis in 2.52%, hyphaema 1.44%, punctuate Keratitis in 0.54%. Similar finding was seen in the study done by EKobia- Acquah et al. that showed corneal oedema in 18.07% and Jyotee Trivedy study which showed the first post operative day complication in 12.9%, transient corneal oedema followed by shallow anterior chamber, iritis and peaked pupil.^{8,11}

This study showed VA of 6/6-6/18 in 58.43%, 6/18-6/60 in 26.18%, < 6/60 in 15.36% in first post operative day following surgery. Study done by 0.0 olawoye showed 78.8% with good vision while 17.4% had borderline vision and 3.8% had severe visual impairment after refraction at 8 weeks.¹⁰ Sumathi Matta., et al. study showed 91.7% had a good visual outcome and 1.6% had less than 6/60. [17] at 4-11 weeks follow up. In this study, the increased age of the patients was found to be one of the risk factors for visual outcome (6/18). A growing body of research also evidenced that there is an association between older age and poor vision outcome.^{7,4,12} Studies suggest that denser cataract and ocular co-morbidities might be the cause of these consequences in this age group, though same studies found this relation even after controlling for ocular comorbidities.^{13,12}

Conclusion

This study explored that cataract surgery improves visual acuity in patients who had a poor vision before the operation. It is found from the study that the quality cataract surgeries could be performed with good systems availability at all levels of care with good state equipments service and regular monitoring. In developing countries like Bangladesh, regular monitoring of cataract surgical outcome should be carried out at hospital, so that obstacle can be identified and proper measure can be taken.

Limitation

This was a short period follow up. A study with at least a 6 months follow up period would have added more insight into the outcome of cataract surgery.

Disclosure

All the author declared no competing interest.

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