Original article:

Analysis of Visual Outcome Following Cataract Surgery at a Tertiary Care Hospital

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Date of Submission: 19 April 2010, Date of Acceptance: 07 June 2010

ABSTRACT

Background Cataract surgery is the commonest single surgical procedure carried out in the developed world. In the developing world, cataract remains the commonest cause of blindness. Hence; the present study was conducted for assessing the visual outcome following cataract surgery.

Materials & Methods: A total of 50 Patients having cataract as the principal cause for their visual impairment and scheduled for the surgery were enrolled in the present study. Inclusion criteria for the present study included patients having visual acuity less than 6/60 in eye due to cataract. Complete demographic and clinical details of all the patients were obtained. An appropriate anesthetic was used for each surgery. The presenting and the best possible corrected vision of operated eye was assessed on the day of discharge and after 6 weeks of surgery. The visual gain was measured using WHO recommended method of using post operative visual status.

Results: A total of 50 subjects were enrolled. The mean age of the subjects was 51.3 years. 54 percent of the subjects were females. Right eye involvement occurred in 58 percent of the patients. 6 percent of the subjects were diabetic while 10 percent of the subjects were hypertensive. Significant results were obtained while comparing the preoperative and postoperative vision. Excellent results were seen in 64 percent of the patients.

Conclusion: Promotion of cataract surgeries at an earlier age, proper preoperative counselling for limiting expectations of visual gains in case of co-morbidity should be the standard operating procedure that all eye care staff should follow.

Key words: Cataract surgery, Visual.

INTRODUCTION

Cataract surgery is the commonest single surgical procedure carried out in the developed world. In the developing world, cataract remains the commonest cause of blindness. In 1990 an estimated 37 million people were blind worldwide—40% of them because of cataract.[1, 2] Every year, an extra 1-2 million people go blind. Every five seconds one person in our world goes blind, and a child goes blind every minute. In 75% of these cases blindness is treatable or preventable. However, 90% of blind people live in the poorest sections of the developing world, and without proper interventions the number of blind people will increase to 75 million by 2020.[3, 4] One of the most important determinants of patient satisfaction is information. Studies in other medical

fields have found that preoperative education is associated with less anxiety, fewer complications, shorter hospital stays, less pain relief medication, and increased satisfaction. Lack of information is one of the most common sources of patient dissatisfaction, and studies have consistently shown that patients want more information than they received, and believe they received less information than their surgeons believed they were providing.[5- 8] Gogate PM et al compared the efficacy, safety, and refractive errors of astigmatism after cataract surgery by phacoemulsification and manual small-incision cataract surgery techniques. A total of 400 eyes were assigned randomly to either phacoemulsification or small-incision groups after informed consent and were operated on by 4 surgeons. They were masked to the technique of surgery before, during, and after cataract surgery and followed up to 1 year after surgery. The intraoperative and postoperative complications, uncorrected and best-corrected visual acuity, and astigmatism were recorded at 1 and 6 weeks postoperatively. Visual acuity improved to > or = 6/18 with best correction in 182 of 185 patients (98.4%) and 184 of 187 (98.4%) patients (P = 0.549), respectively. Poor outcome (postoperative visual acuity < 6/60) was noted in 1 of 185 (0.5%) in the phacoemulsification group and none in the small-incision group. The mode of astigmatism was 0.5 diopters (D) for the phacoemulsification group and 1.5 D for the small-incision group, and the average astigmatism was 1.1 D and 1.2 D, respectively. There was an intra-surgeon variation in astigmatism. The phacoemulsification group had 7 posterior capsular rents compared with 12 in the small-incision group, but the phacoemulsification group had more corneal edema on the first postoperative day.[9] Hence; the present study was conducted for assessing the visual outcome following cataract surgery.

MATERIALS & METHODS

The present study was conducted in Department of Ophthalmology, Santosh Medical College & Hospital, Ghaziabad, Uttar Pradesh (India) for assessing the visual outcome following cataract surgery. A total of 50 Patients having cataract as the principal cause for their visual impairment and scheduled for the surgery were enrolled in the present study. Inclusion criteria for the present study included patients having visual acuity less than 6/60 in eye due to cataract. Complete demographic and clinical details of all the patients were obtained. All the eyes were evaluated Bio-microscope, applanation tonometer and pan retinal indirect ophthalmoscope. Snellen's chart for far vision was used to assess the vision. Six weeks following surgery, optometrists used manual refraction to ascertain the optimal correction. The ultrasound "A" scan was used to calculate the power of the lens that would be put in the eye. An appropriate anesthetic was used for each surgery. The presenting and the best possible corrected vision of operated eye was assessed on the day of discharge and after 6 weeks of surgery. The visual gain was measured using WHO recommended method of using post operative visual status. All the results were recorded in Microsoft excel sheet and were assessed using SPSS software. Chi-square test and student t test were used for evaluation of level of significance.

RESULTS

A total of 50 subjects were enrolled. Mean age of the subjects was 51.3 years. 54 percent of the subjects were females. Right eye involvement occurred in 58 percent of the patients. 6 percent of the subjects were diabetic

while 10 percent of the subjects were hypertensive. Significant results were obtained while comparing the preoperative and postoperative vision. Excellent results were seen in 64 percent of the patients.

Table 1: Profile of patients

Variable		Number of eyes	Percentage
Mean age (years)		51.3 years	
Gender	**Males**	23	46
	Females	27	54
Laterality	**Right**	29	58
	Left	21	42

Table 2: Comparison of vision

Vision	Preoperative vision	Postoperative vision	p-value
6/60 to 6/18	0	10	0.001 (Significant)
6/24 to 6/60	2	20	
Less than 6/60 to 3/60	5	6	
Less than 3/60	43	14	
Total	50	50	

Table 3: Postoperative visual gain- Outcome

Outcome	Number	Percentage
Excellent	32	64
Good	15	30
Poor	3	6
Total	50	100

DISCUSSION

Cataracts are the most common eye disorder in North America: about 50% of people between 55 and 64 years of age and 85% of people over 75 years of age will develop cataracts within a 10-year period.[2] Cataract surgery has a high level of efficacy, has minimal complications and is convenient for patients. Combined with the age-related demographic shift, these factors have led to a level of demand for this procedure that exceeds supply in many areas of the country. Cataract extraction is one of the most common intraocular procedures ophthalmology residents perform in the course of their training. Assessing and analysing the complications related to cataract surgery can be a valuable tool to benchmark performance and to help a residency programme improve resident surgical training. Phacoemulsification has become the preferred technique for cataract surgery, although reports suggest a higher rate of complications than with extracapsular cataract extraction (ECCE) or intracapsular cataract extraction (ICCE) techniques.[10- 14] Hence; the present study was conducted for assessing the visual outcome following cataract surgery.

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females. Right eye involvement occurred in 58 percent of the patients. 6 percent of the subjects were diabetic while 10 percent of the subjects were hypertensive. Significant results were obtained while comparing the preoperative and postoperative vision. Excellent results were seen in 64 percent of the patients. Khandekar R et al presented method of analysis of cataract surgeries for older than 30 years of aged patients performed by ophthalmologists in Oman. Ophthalmologists evaluated visual and ocular status of eyes with cataract. Cataract was operated using operative microscope and lens was implanted in the eye. The vision was recorded six weeks after surgery and visual gain was grouped from postoperative vision in relation to the preoperative vision. 3,485 eyes operated were included in our study. 3,003 (86.2%) of them were operated by extra-capsular cataract extraction and lens implantation. Following surgery, 960 (27.5%) eyes had vision ³6/18. 1,483 (42.6%) eyes had vision between 6/60 and 6/18. 233 (6.8%) eyes had vision <3/60. Excellent grade of vision gain in relation to preoperative visual status was found in 2,250 (64.6%) eyes, 'good' visual gain was in 422 (12.1%) eyes and 'poor' visual gain was in 335 (9.6%) eyes. Postoperative visual status was significantly associated to the co-morbidities. ($p<0.001$). Nearly 14% of persons were lost to the follow up.[13]

Limburg H, et al developed a system for routine monitoring of visual outcome after cataract surgery. Staff from eight eye centres in Asia and Africa defined the data collection form and report formats to be used for monitoring visual outcome after cataract surgery. Several operational research questions were raised, and methods developed to address them. The system was field tested for 6 months and operational studies undertaken. The system was finalised based upon the experience gained. Two different systems for data collection were developed: a manual paper tally system and a computer system (cataract surgery record forms (CSRF)). Both systems report on operative complications; the proportion with good outcome (can see 6/18) and poor outcome (cannot see 6/60); and causes of poor outcome. Data are collected at discharge and at specified time intervals at follow up. Both systems were well accepted. The major problem in field testing was data entry errors in centres using the computerised system. Routine monitoring of cataract outcome should be used by individual surgeons or centres to follow trends in their own results over time, and not to compare surgeons, in an atmosphere of trust and support. Visual acuity at discharge, which can readily be collected on all patients, can be used providing it is appreciated that the final results will be much better.[14] Okhravi et al assessed the outcome of cataract surgery in eyes of patients with uveitis. All patients had their surgery performed using standard cataract extraction techniques. Unless contraindicated, preoperative systemic steroids were administered to all patients with posterior disease, chronic anterior uveitis, with known macular edema, and those in whom outcome of cataract surgery on the fellow eye had been poor. Patients were divided into those with anterior disease ($n = 53$) and those with posterior disease ($n = 37$). Overall, 81 (90%) of 90 eyes showed improvement in vision (median +4 Snellen lines). In those with anterior disease, the development of severe uveitis in the first week postsurgery was associated with a greater incidence of macular edema ($P = 0.014$). The single largest diagnosis in those with posterior disease was that of panuveitis ($n = 24$). This group showed the poorest visual outcomes in this study. The majority of patients, however, were noted to have visual loss secondary to conditions present before surgery.[15]

CONCLUSION

Promotion of cataract surgeries at earlier age, proper preoperative counselling for limiting expectations of visual

gains in case of co-morbidity should be the standard operating procedure that all eye care staff should follow.

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