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ORIGINAL ARTICLE

Visual acuity at 6 weeks after small incision cataract surgery and role of audit in predicting visual acuity

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PURPOSE. *We present the best-corrected visual acuity (BCVA) at 6 weeks after small incision cataract surgery (SICS) and review the role of audit in predicting visual acuity (VA).*
METHODS. *This was a retrospective data analysis of 14,393 SICS performed during 2007–2008 at a hospital in central India. Ophthalmologists noted preoperative, operative, and postoperative details. The BCVA before and 1 day and 6 weeks after surgery were noted. We identified factors associated with BCVA at 1-day and 6-week follow-up.*
RESULTS. *Six weeks after surgery, 12,522 (87%) and 1473 (10.2%) patients had BCVA ≥6/18 and 6/24–6/60, respectively. Vision improved between 2 follow-ups in 6695 eyes (46.5% (95% confidence interval (CI) 45.7–47.3)), remained the same in 7117 eyes (49.4%), and deteriorated in 544 (3.8%) eyes. BCVA at 6 weeks was negatively associated with blindness (VA <3/60 in the better eye) before surgery (odds ratio (OR) = 0.73, 95% CI 0.58–0.92), surgeon's experience (OR = 0.75, 95% CI 0.71–0.81), and male patients (OR = 0.73, 95% CI 0.67–0.80). BCVA at 6 weeks was positively associated with older age (OR = 1.02, 95% CI 1.01–1.03) and intraoperative complications (OR = 1.44, 95% CI 1.14–1.83). The association of VA <6/60 1 day after surgery with improved vision between the 2 follow-ups was not statistically significant (OR = 0.005, p = 0.98).*
CONCLUSIONS. *BCVA at 6 weeks after SICS was ≥6/18 in 87% of operated eyes. By performing surgical audit, one can identify high-risk groups that need proactive subsequent follow-ups. (Eur J Ophthalmol 2010; 20: 345-52)*

KEY WORDS. *Blindness, Cataract, Quality of services, Surgical audit, VISION 2020*

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INTRODUCTION

To eliminate preventable blindness, the World Health Organization promotes high volume, high quality, and low cost cataract surgeries (1). Cataract surgery audit is recommended for assessing the quality of cataract services (2). Visual acuity (VA) following surgery is one of the key indicators for evaluating the quality of surgery. At least 85% of the operated eyes should have VA ≥6/18 after cataract surgery and less than 5% should have BCVA <6/60 (http://apps.who.int/gb/ebwha/pdf_files/A62/A62_7-en.pdf). Limburg recommended that more than 80% of eyes at 4 weeks after cataract surgery and more than 50% of eyes at the time of discharge should have VA ≥6/18 with pinhole (3).

In the last 2 decades, small incision cataract surgeries (SICS) have improved the quality of cataract service and reduced the cost. By adopting such modern techniques, one can reduce the size of the incision, reduce intraocular manipulation, and avoid sutures, thus reducing the insult to the ocular tissue. Patients recover quickly and the risk of late complications is lower. Systematic review has shown benefits of SICS and phacoemulsification procedures (4). Due to easy procedures and fast recovery, patients often become less stringent in abiding with follow-up schedules (1 day, 1 week, and 6 weeks) (5). As the surgical wound is healed and the refractive status is stabilized, spectacles for distant and near work are prescribed at 6-week follow-up. Assessing BCVA 6 weeks after cataract surgery as part of

audit is not possible in all patients, especially in developing countries, where a number of barriers result in poor compliance of patients with regular postoperative follow-up. Therefore, alternatives to VA assessment at 6 weeks would be useful to monitor cataract services.

Previous studies have compared vision 1 day and 6 weeks following conventional extracapsular cataract extraction with intraocular lens (IOL) implantation in which sutures were applied (6-10). To our knowledge, comparison of VA 1 day and 6 weeks following SICS to identify the factors influencing vision changes between these 2 follow-ups has not been attempted. Our institute serves the underprivileged poor tribal community of central India (http://www.sadgurutrust.org/activities_health_snc.htm). Mid level eye care personnel and ophthalmologists hold camps to screen for blinding eye conditions including cataract. In addition, ophthalmologists examine patients with defective vision and identify cases with cataract. Free transport to the hospital is provided to all shortlisted cataract patients. In addition, many patients visit clinics of our institute and are included in the list for cataract surgery on the next day. One day after surgery, these patients return to their homes with appropriate medications and are advised to return for periodic follow-ups. Assessing the quality of cataract surgery by VA outcome is an integral part of quality assessment procedures and has enabled us to obtain certification from the International Organization of Standardization (ISO, 2000). Between April 2007 and March 2008, 18,000 patients came to the hospital for follow-up 6 weeks after surgery. In the present study, we focused on cataracts operated using SICS and lens implantation. The objective of this study was to compare VA at 1-day and 6-week follow-ups and to explore sociodemographic and ocular factors associated with improved vision between the time points.

METHODS

The research and ethical committee of our institute allowed us to use the hospital data. This study was a retrospective review of case records conducted in August 2008. All patients operated using SICS in 2007 and 2008 who visited our institution for their 6-week follow-up were included in the study.

We used the computerized health information and management system (HIMS), which started in 2004 and is maintained by dedicated staff to store detailed information on all patients operated in our institute. The demographic details include age, sex, and state where they reside. Qualified optometrists noted preoperative and postoperative VA in eyes and ocular comorbidities (other than cataract) and recorded the findings as part of HIMS. Details of cataract surgery such as type of surgery, site of lens implantation, surgeon's code, and operative complications were noted from the operative log book. The data were verified using different sources such as case records, operative log book, and personal communication with the operating surgeons. Vision in each eye was measured using Snellen distant vision "E" chart held at 6-m distance. If the person was unable to see the E of the top line, VA was assessed by counting fingers at 3-m distance. Perception of light and projection of light rays from 4 quadrants were noted in such cases. Vision with pinhole was also noted to determine the best-corrected visual acuity (BCVA). The procedures of testing VA 1 day before surgery and 1 day and 6 weeks after surgery were similar. In addition, BCVA was noted by adding corrective lenses in front of the operated eye at 6-week follow up. BCVA after surgery was graded as good if vision was between 6/6 and 6/18. If vision was 6/24 to 6/60, the eye was considered to have borderline vision. BCVA of <6/60 was considered to be poor. Severe visual impairment as defined in India (VA <6/60 in the better eye with best correction) was adopted to group our patients into visually disabled due to cataract before surgery as well as at follow-up visits (11).

Prior to the surgery, ophthalmologists examined both eyes using slit-lamp biomicroscope and noted ocular comorbidities. This method was repeated 1 day after surgery to review cornea, surgical wound, anterior chamber, implanted lens, and the capsular bag. The vitreous and retina were examined with +90 D Volk lens and slit lamp. Antibiotic and antiinflammatory eyedrops were used for 2 weeks after surgery. Patients who had operative complications were advised to come for follow-up 1 week after discharge. At the 6-week follow-up, besides correcting the refractive error, ophthalmologists examined eyes using biomicroscopy and noted the cataract status of the fellow eye.

Data were analyzed using the Statistical Package for Social Sciences (SPSS 11.5). If BCVA at 6 weeks was better than BCVA noted 1 day after surgery, we considered that the vision in the operated eye had improved. If VA was same at the 6-week follow-up and 1 day after surgery, we grouped them as "no significant vision improvement." In contrast, if BCVA at day 1 was better than that found at 6 weeks

after surgery, we grouped such patients in "deteriorated VA." We calculated frequencies, percentage proportions, and 95% confidence intervals (CI) of persons in these 3 groups. To compare BCVA of the operated eye at 1 day after surgery and 6 weeks following surgery, we prepared a percentage scattergram. The scale of VA in this graph was similar to that used on the Snellen chart: i.e., 6/6, 6/9, 6/12, 6/18, 6/24, 6/36, 6/60. In eyes with vision <6/60, we added the scale of <6/60 but 3/60, <3/60 but with light perception (LP+), and those without LP. The operating surgeons were grouped into junior cataract surgeons (with less than 5 years of cataract surgery experience) and senior cataract surgeons (with experience of 5 or more years). We calculated odds ratios and 95% CI of the association between improved vision between 2 follow-ups and factors such as age, gender, location, eye operated, preoperative vision in eye with cataract and its fellow eye, eye complications during surgery, and good quality vision on day 1.

We conducted binary logistic regression analysis to identify the interaction of factors associated with improved VA between 2 follow-ups. Since the state in which participants resided and laterality of operated eye were not significantly associated with the improved VA between 2 follow-ups, we removed them from the model for further analysis.

Standard protocol for eye care delivery is followed in the hospital and that enabled us to address many ethical issues in our study. All patients with vision less than 6/18 with any underlying cause that was amenable to treatment were given treatment for free (including laser posterior capsulotomy). Patients were counseled to promote cataract surgery in the fellow eye.

RESULTS

During the study period, 14,393 persons were operated by using SICS with intraocular lens (IOL) implant and were followed 6 weeks after surgery. Participant profiles are shown in Table I. Around 98% of operated eyes had senile cataract. Eighty-one percent had BCVA <3/60 (blinding cataract) before surgery. Very few (3%) had vision ≥6/60 before surgery. Among participants, 6045 (42%) were bilaterally blind. Females comprised 49% of the study members.

Zonular dialysis and vitreous disturbance were recorded in 40 (0.3%) eyes. Due to a tear in the posterior capsule, vitreous was found in the anterior chamber during surgery in 186 (1.3%) eyes. We removed residual cortex from the anterior chamber in 114 eyes. Due to complications during surgery, ophthalmologists had to place the IOL in the posterior chamber instead of capsular bag in 14 eyes. In 3 eyes, ophthalmologists resutured the corneoscleral tunnel to seal the leaking surgical wound. Three of the operated eyes had endophthalmitis during the postoperative period and were managed.

One day after cataract surgery, 6618 (46% [95% CI 45.3–46.7]) patients had good vision, 6213 (43.2% [95% CI 42.5–43.9]) had borderline vision, and 1545 (10.7%) had poor vision. Six weeks following cataract surgery, 12,522 (87% [95% CI 86.5–87.5]) eyes had good vision, 1473

TABLE I - CHARACTERISTICS OF PATIENTS OPERATED BY SMALL INCISION SUTURELESS CATARACT SURGERY WITH LENS IMPLANT (SICS AUDIT 2008)

Characteristics	No.	%
Sex		
Male	7007	48.7
Female	7386	51.3
Age group, y		
<40	496	3.4
41–50	1304	9.1
51–60	3387	23.5
61–70	5986	41.6
71–80	2749	19.1
81+	471	3.3
State		
Uttar Pradesh	8584	59.7
Madhya Pradesh	4479	31.1
Bihar	1313	9.1
Other	17	0.1
Eye operated		
Right	7599	52.8
Left	6794	47.2
Preoperative vision in eye with cataract		
6/6 to 6/12	22	0.2
6/18 to 6/60	359	2.5
<6/60 but >3/60	2211	15.4
<3/60	11,675	81.1
Missing	126	0.9
Preoperative vision in fellow eye		
6/6 to 6/12	785	5.5
6/18 to 6/60	3555	24.7
<6/60 but >3/60	3226	22.4
<3/60	6555	45.5
Missing	272	1.9
Preoperative visual disability status		
Blind (vision <3/60 in better eye)	5985	41.6
Not blind (vision ≥3/60 in better eye)	8325	57.8
Missing	83	0.6

(10.2%) eyes had borderline vision, and 372 (2.6% [95% CI 2.4–2.8]) eyes had poor vision. VA data were missing for 17 eyes at day 1 follow-up and 26 eyes at 6-week follow-up.

We compared the vision grades (good, borderline, and poor) and BCVA at 2 follow-ups (Tab. II). Vision grade improved between day 1 and 6 weeks after surgery in 46.5% (95% CI 45.7–47.3) eyes and deteriorated in 3.8% (95% CI 3.5–4.1) eyes. In terms of VA, 79.4% of the patients showed more than 1 line improvement at 6 weeks compared to 1 day after surgery, while deterioration of BCVA by more than 1 line was observed in 7.6%. The percentages of persons with different BCVA scales are compared at 6 weeks and 1 day (Tab. IV).

The regression analysis results are given in Table III and include variables, adjusted odds ratios, 95% CI, and p value. The predictors of improved vision between 2 follow-ups were blindness (VA <6/60 in better eye) before surgery (OR = 0.73 [95% CI 0.58–0.92]), vision <6/60 24 hours after surgery (OR = 5.4 x 10^{-4}), junior surgeon (<5 years of experience) (OR = 0.75 [95% CI 0.71 – 0.81]), young patients

TABLE II - CHANGES IN VISUAL ACUITY GRADE IN EYES OPERATED BY SMALL INCISION CATARACT SURGERY WITH LENS IMPLANTATION (SICS AUDIT 2008)

Vision on day 1	**Vision at follow-up 6 weeks after surgery**					
	6/6 to 6/18	**6/24 to 6/60**	**<6/60**	**Missing**	**Eyes**	**%**
6/6 to 6/18	6208	307	98	5	6618	46.0
6/24 to 6/60	5290	774	139	10	6213	43.2
<6/60	1013	392	135	5	1545	10.7
Missing	11	0	0	6	17	0.1
Total (eyes)	12,522	1473	372	26	14,393	100.0
%	87	10.2	2.6	0.2	100	
			No.	**%**	**95% Confidence interval**	
Vision grade improved between 2 follow-ups			6695	46.5	45.7–47.3	
Vision grade remained the same			7117	49.4	48.6–50.3	
Vision grade deteriorated after discharge			544	3.8	3.5–4.1	
Missing			37	0.3	0.2–0.3	

TABLE III - PREDICTORS OF IMPROVED VISION BETWEEN DAY 1 AND 6 WEEKS FOLLOWING SMALL INCISION CATARACT SURGERY WITH LENS IMPLANT (SICS AUDIT 2008)

Variable	**Adjusted Odds Ratio**	**95% Confidence interval**	**p value**
Constant –1.44			5.0 x 10–6
Age, y	1.02	1.021–1.028	2 x 10–43
Sex			
Male	0.85	0.79–0.91	0.0002
Female	1		
Blindness status before surgery			
Blind	0.73	0.58–0.92	0.008
Not blind	1		
Vision 1 day after surgery			
≥6/60	1		
<6/60	5.4 x 10–4		0.98
Operating surgeon			
Junior (<5 years experience)	0.75	0.71–0.81	1.1 x 10–14
Senior (≥5 years experience)	1.0		
Intraoperative complications			
Yes	1		
No	1.44	1.14–1.83	0.003

(OR = 1.02 [95% CI 1.01–1.03]), and male sex (OR = 0.85 [95% CI 0.79–0.91]). Improved vision 1 day after surgery will naturally be negatively associated with improved vision between 2 follow-ups; therefore, we did not consider it as a predictor.

We compared VA at 1 day and 6 weeks after surgery reported in different studies (Tab. V). VA of >6/18 in 87% of operated eyes (>85%) and 2.6% (<5%) with VA <6/60 in our study fitted well within the standards set to assess quality of cataract surgeries by international organizations.

DISCUSSION

Best-corrected VA of good quality (VA ≥ 6/18) 6 weeks after SICS and lens implantation was achieved in 87% of operated patients in our study. It increased by 41% between day 1 and 6 weeks after surgery. Factors such as VA ≥6/18 1 day after surgery, person with vision <6/60 in better eye before surgery, female, younger patients, those operated by experienced surgeons, and absence of intraoperative complications were associated with

TABLE IV - PERCENTAGE SCATTERGRAM SHOWING VISION ON DAY 1 AND 6 WEEKS AFTER SMALL INCISION CATARACT SURGERY WITH LENS IMPLANTATION (SICS AUDIT 2008)

Vision at day 1 after surgery	Vision at 6 weeks following cataract surgery										
	6/6	6/9	6/12	6/18	6/24	6/36	6/60	<6/60 to 3/60	<3/60	Missing	Total
6/6	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	165
6/9	2.1	2.0	0.8	0.3	0.0	0.0	0.0	0.1	0.0	0.0	764
6/12	4.1	4.5	3.1	1.3	0.2	0.2	0.1	0.1	0.0	0.0	1958
6/18	4.5	7.4	7.8	4.3	1.0	0.3	0.2	0.2	0.2	0.0	3731
6/24	3.3	5.4	7.2	5.0	1.5	0.5	0.2	0.2	0.2	0.0	3378
6/36	1.5	2.7	3.8	3.3	1.1	0.5	0.1	0.1	0.2	0.0	1919
6/60	0.3	0.9	1.5	1.8	0.9	0.5	0.2	0.1	0.2	0.0	916
<6/60 to 3/60	0.3	0.5	1.0	1.3	0.9	0.7	0.2	0.5	0.3	0.0	808
<3/60	0.4	0.8	1.4	1.4	0.7	0.2	0.0	0.1	0.1	0.0	737
Missing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17
Total	17.0	24.6	26.8	18.7	6.4	2.8	1.0	1.3	1.3	0.2	14,393

TABLE V - COMPARISON OF VISUAL ACUITY AT 6 WEEKS AFTER SMALL INCISION CATARACT SURGERY IN OUR STUDY WITH THOSE REPORTED IN THE LITERATURE (SICS AUDIT 2008)

	Sample size	First follow-up (%)	Follow-up at 6 weeks (%)	Type of surgery
IAPB/WHO Action Plan	—	—	>85	Cataract extraction + intraocular lens
Pararajasekharam (12)			>90	Cataract extraction + intraocular lens
Our study	14,393	46	87	SICS
Limburg et al (13)	5198	23	69	Cataract extraction + intraocular lens
Reidy et al (6)	484	—	92	ICCE
Hennig et al (7)	1000	69	88	ICCE
Lau et al (8)	310	—	59.6	Cataract extraction + intraocular lens
Abdelmoaty et al (14)	350	—	78.3	ECCE + SICS
Venkatesh et al (15)	593	—	88	SICS
Venkatesh et al (16)	100	39	99	SICS
Chakrabarti and Singh (17)	212	61.8	93.9	Phacoemulsification
Riley et al (18)	3000		90.5	Phacoemulsification
Wadud et al (19)	213		60.1	Cataract extraction + intraocular lens
Beltranena et al (20)	1725		40.5	Cataract extraction

ICCE = intracapsular cataract extraction; ECCE = extracapsular cataract extraction.

the improved VA between 2 follow-ups.

With such a large sample and presence of computerized HIMS, the data on SICS seem to be reliable. Since the data manager and analyst did not know the identity of operating surgeon and patients, we could minimize observer bias. By using internationally acceptable cutoff values of BCVA to define the quality of VA before and after surgery, we avoided misclassification bias in our study. Thus, the outcomes of the study seem to be the true results.

Pararajasekharam suggested that >90% of patients operated for cataract with lens implant should have good grade of vision (BCVA 6/6–6/18) and less than 5% of operated cataract should have BCVA of <6/60 (12). But recently, WHO and International Agency for the Prevention of Blindness (IAPB) have recommended that more than 85% of operated cataract cases should have good grade of vision (6/6 to 6/18) (IAPB Action Plan). Our study results matched with these indicators and suggest that high quality of SICS with lens implant in our institute is maintained. Vision was not recorded in 17 patients at the time of discharge and in 27 patients during their 6-week follow-up even though these patients had undergone eye examination. If all these cases with missing information are considered to have poor vision, poor grade of VA would be an underestimate by 1.2%. The revised rate (2.6% + 1.2% = 3.8%) will still be within the acceptable range of <5% of persons with poor grade of postoperative vision.

The evaluation of cataract surgery on the basis of postoperative vision is not new. In the era of intracapsular cataract surgeries in Nepal and China, 69% (7) and 56.6% (8) of operated persons had improved vision to >6/60 by aphakic correction. With technological advances in cataract surgery, visual outcomes have improved considerably. Mamidipudi et al achieved ≥6/12 VA without correction in 97% of eyes operated using phacoemulsification (21). In a randomized clinical trial, researchers demonstrated that visual outcomes of SICS and phacoemulsification types of cataract surgeries did not differ significantly (22). However, SICS, being cost-effective compared to phacoemulsification, is promoted in countries with resource constraints (23). Our study results provide evidence to promote SICS to quality conscious eye-care givers.

Visual rehabilitation was faster and visual outcomes were better in the SICS group compared with an extracapsular cataract extraction group (23). Therefore, to promote high quality, low cost, and high volume cataract surgeries, surgeons should be trained in the steps of SICS and encouraged to switch from extracapsular cataract extraction to SICS.

Visual outcomes in cataract surgeries using phacoemulsification were reported to be much better compared to SICS in different studies (17, 18, 24). However, these studies were conducted in urban populations where cases would have cataract in early stages and without comorbidities. Most of our participants were from poor and tribal areas with many barriers for quality eye care. This could explain 87% with good quality of vision in eyes operated with SICS our study compared to >95% with good vision in eyes operated by phacoemulsification in these studies.

To evaluate the impact of cataract services on the prevention of blindness, it is important to determine the blindness conversion rate following interventions (12). Cataract surgery audit should be sensitive enough to generate this indicator. In our study, 96.5% of eyes targeted for cataract surgery and 67.9% of the fellow eyes had VA <6/60. Following cataract surgeries, 97.2% of these eyes were non-blind (VA ≥6/60). Thus, high-quality cataract surgeries could help organizations reach the VISION 2020 goal of eliminating avoidable blindness.

VA following cataract surgery is routinely used in the evaluation exercise at eye institutions. However, factors such as time of presentation with cataract, surgical technique, comorbidities, and skill of surgeons affect the visual outcomes (18, 25, 26). Therefore, while assessing the quality of SICS, we associated these factors with the improved VA between 2 follow-ups.

In our study, old age was associated with improved BCVA between 2 follow-ups. This is because a larger proportion of younger persons had good vision on day 1 of follow-up compared to older operated patients. It is also possible that ocular tissue recovers late from surgical trauma in older age, resulting in delayed recovery of BCVA.

Even with adjusting for age, females had significantly better chances of improved vision between 2 follow-ups compared to males. The proportion of good quality of vision at day 1 follow-up was 7.1% more in males than in females. Therefore, females had more chance for VA improvement after day 1 follow-up. This issue should be further studied in detail and gender-specific approaches to improve VA should be proposed.

We observed that improved vision between 2 follow-ups was associated with less experienced operating surgeons. Operating surgeons with less than 5 years of experience in our institution are provided the opportunity to operate

simple cataract cases and they are supervised by senior surgeons. In case of intraoperative complications such as vitreous presentation, senior surgeons manage the case. It is also possible that cataract surgery time will be greater in such surgeries with increased risk of intraocular manipulation. Hence visual improvement could be late.

The study participants with bilateral blindness had less chances of improving vision between 2 follow-ups compared to the non-blind. Perhaps blindness status before surgery could be a proxy indicator of comorbidity in advanced stages of disease especially of bilateral nature, like glaucoma, age-related macular degeneration, or diabetic retinopathy. In spite of regaining vision that was lost due to cataract, these eyes will still have vision loss due to comorbidities. Improvement of vision between 2 follow-ups is not likely in such cases.

The best timing to assess maximum visual gain following conventional cataract surgery is undisputed. Lobo et al suggested that in uneventful cataract surgery, risk of macular edema cannot be ruled out and it subsides after 6 weeks, and chances of improvement of visual acuity subsequently favor additional follow-up after 6 weeks to note the best visual gain (28). The surgical wound heals, and scarring-induced astigmatism affects eyes operated by SICS but is less likely to alter the refractive status of the eye 6 weeks after conventional cataract surgery (29, 30). In our institute, we stress BCVA at 6 weeks following surgery and use it as gold standard for audit purposes. However, many institutions serving the rural and tribal areas often cannot conduct such surgical audit at 6 weeks after surgery as a large number of patients do not return once they leave the hospital. Optometrists or ophthalmologists at vision centers or in outreach or follow-up camps in such cases should record BCVA at 6 weeks and report to the hospital to update surgical audit data.

Patients with poor and borderline vision 1 day after surgery could be labeled as high risk. By using the predictors of those patients who are likely to have improved vision between 2 follow-ups, we can further shortlist persons of high risk groups who need to be followed after they leave the hospital. If such proactive steps are taken, we can offer timely interventions to try to improve postoperative BCVA at 6 weeks.

This study had some limitations. Details of preoperative comorbidities were not available in all cases. Therefore, we could not ascertain the role of different comorbidities in visual outcomes. However, preoperative vision in eyes with cataract could be a proxy indicator of comorbidity and we have used it to associate with VA after surgery. Operative complications were recorded as present or absent and were managed following the standard procedures recommended as preferred practices and adopted in our institution. BCVA was measured before and 1 day after surgery by using pinhole, while at 6 weeks, it was measured by subjective correction using suitable trial lenses and dynamic refraction. This could have introduced misclassification bias. However, VA with and without use of pinhole is an accepted test for rapid screening of refractive error. Therefore, this bias is less likely to affect our study results. We did not use the Oxford Cataract Treatment and Evaluation Team (OCTET) grading of complications. Studies to associate OCTET grades with VA after cataract surgeries could be undertaken in the future (31).

CONCLUSIONS

One day after surgery, only 46% of the operated eyes had good grade of vision, which increased to 87% at 6 weeks. The predictors of improvement of vision between 2 follow-ups were young age, male sex, operating surgeon with less than 5 years of experience, and severe visual impairment in both eyes before surgery.

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