

Efficacy of small incision cataract surgery in hospital based eye camps in North Karnataka

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Background: Cataract is the principal cause of curable blindness in India. The most recent estimates from World Health Organization reveal that 47.8% of global blindness is due to cataract and in South Asia region, which includes India, 51% of blindness is due to cataract. **Aims:** Our study was to assess the post-operative visual outcome after small incision cataract surgery (SICS) in camp patients during the study period from October 2011 to June 2012. **Materials and Methods:** Cataract surgeries were carried out in patients (with no known systemic illnesses), after screening at community based screening camps. All senile cataracts were included and complicated cataracts were excluded from the study. Patients underwent manual SICS with posterior chamber intraocular lens implantation. Post-operatively patients received oral antibiotic for 5 days and antibiotic-steroid eye drops for 6 weeks. Patients were followed-up at regular intervals. Spectacle correction was given at the end of 6 weeks. **Results:** A total of 164 patients were included in this study. At the end of 6th week, best corrected visual acuity (BCVA) was 6/12 on Snellen's chart and even better (6/9-6/6) in 86.1% cases with post-astigmatism of 2.5 diopter (D) + 1 D. Results showed good vision after SICS at low cost in camp patients. **Conclusion:** Our study assessed the efficacy of hospital base camps in terms of visual. Our study results in terms of visual recovery showed 86.1% of patients had BCVA more than 6/12 on Snellen's chart. Average astigmatism was 2.5 D with no intraoperative complications justifying efficacy of hospital base cataract camp surgeries.

Key words: Hospital base camps efficacy, small incision cataract surgery, visual outcome

Cataract has been documented to be the most significant cause of bilateral blindness in India where vision <20/200 in the better eye on presentation is defined as blindness. In India, cataract has been reported to be responsible for 50-80% of the bilaterally blind in the country. The recent estimates from World Health Organization (WHO) reveal that 47.8% of global blindness is due to cataract and in South Asia region, which includes India, 51% of blindness is due to cataract.^[1]

An estimated 4 million people become blind because of cataract every year, which is added to a backlog of 10 million operable cataracts in India, whereas only 5 million cataract surgeries are performed annually in the country.^[2] In addition to the backlog, an additional 3.8 million become blind each year because of cataract.^[3] The principal solution for such cataract blind, is performing cataract operations on a large scale. This may be carried out by cataract camps, comprehensive eye care camps and base hospital approach with screening camps.

Base hospital approach is an important alternative to peripheral eye camps, which envisages screening of patients in screening camps, their transfer to the base hospital and subsequently surgery in the base hospital. Efforts to tackle cataract blindness in India have been going on in earnest for the last three decades. More recently, the WHO global initiatives have

called for a dramatic increase in surgical volumes world-wide.^[4] However, it is becoming more evident that outcomes of cataract surgery are not always good and this aspect of surgical services must be further examined.^[5]

Higher incidence of intraoperative complications during the cataract surgery may result in severe visual loss. Our study is to report cataract surgery using appropriate techniques and standardized protocols that did not compromise quality of outcomes. The present study was to report the outcomes of cataract screening camps combined with base hospital surgery, in terms of visual outcome.

Materials and Methods

This was an observational study where consecutive cataract patients were recruited during 6 months study period from October 2011 to April 2012 (6 primary health centers around 60 km from Bijapur were included where we conducted eye screening for cataract). Considering the total number of patients coming to camp with eye complaints; 60% proportion of cataract patients allowing 15% error and 95% confidence interval. Calculated sample size was 114. All senile cataracts were included with visual acuity counting fingers 3 m or less and with no other significant ocular or systemic illness. Complicated cataracts were excluded from the study. After complete ophthalmic evaluation (screening included vision, intraocular pressure, sac patency, cataract density and fundus examination) all patients underwent small incision cataract surgery (SICS) with posterior chamber intraocular lens (PCIOL) implantation under combined retrobulbar and peribulbar anesthesia under strict aseptic condition. All patients were operated by ophthalmic consultants. If it is difficulty in delivery of hard cataract, the tunnel was extended. Subconjunctival dexamethasone (injection dexona) and tobramycin (injection

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tobacin 80 mg/2 ml) was given. Post-operatively all patients received oral antibiotic (tablet ciprodac 500 mg for 5 days with tablet brufen 400 mg for 3 days) and topical antibiotic steroid (ofloxacin dexamethasone) eye drops for 6 weeks in tapering dose along with igesic eye drops for 3 weeks was advised. Subsequently, all of them were followed-up post-operatively on day 1, 1st week and 6th week to check for best corrected visual acuity (BCVA) and post-operative complications if any. Every visit slitlamp and fundus finding were recorded in addition to visual acuity. Astigmatism was recorded on every visit using standard automated refractometer. Spectacle correction was given at the end of 6th week.

Results

All 164 consecutive patients underwent SICS with PCIOL implantation under local anesthesia by different consultants. Age of patient ranged from 40 to 86 years. Among them 108 patients had senile immature cataracts and 50 were senile mature cataracts.

Gender wise distribution of the patients showed 34 (21%) males and 130 (79%) females. In age wise distribution most of them (125 patients [91%]) were above 61 years of age. 108 (65.7%) patients had senile immature type of cataract and 56 (34.3%) were senile mature type. Pre-operative visual acuity in which 104 (62.3%) had vision counting fingers 3 m or even less, 26 (16.6%) had hand movements and 34 (21.1%) had a perception of light only.

Post-operatively uncorrected visual acuity was 6/12 (Snellen's chart) or better by 6th week in 123 (75.4%) cases. BCVA of 6/12 and even better in 141 (86.1%) cases were achieved by 6th week and the remaining having low vision was mainly attributed to ocular comorbidity (age related macular changes, myopic fundus, optic atrophy).

The most common cause of uncorrected visual acuity 6/12 or less was astigmatism in the majority of cases. Mean surgical astigmatism was 2.5 diopter (D) + 1 D.

Discussion

This case series was undertaken with the principle aim to find out the visual outcome after cataract surgery in base camps — indirectly pointing to the efficiency of such camps. Here, patients were followed-up on day 1, 1st week and BCVA 6/12 or better in our study was achieved in 141 (86.1%) cases by the end of 6th week.

Similar studies conducted by Sudhakar *et al.*^[6] in 1989 reported a visual acuity of 6/12 or better in 80.7%. Another group Venkatesh *et al.*^[7] in 2005 in their study achieved BCVA of 6/18 or better in 94.4%. Ravindra *et al.*^[8] in 1996 reported a BCVA of 6/18 or better in 80.7%. Similarly, Hennig *et al.*^[9] in their study reported a BCVA of 6/18 or better in 96.2% and 88.3% respectively. Kapoor *et al.*^[10] in 1999 reported 79.9% eyes obtained 6/18 or better vision. The study results by Venkatesh *et al.*^[7] showed that high quality cataract surgery (94% BCVA 6/18 or better) can be attained in a high volume setting. This is dependent on the choice of surgical technique (manual SICS), standardized protocols and an overall organizational structure that supports high volume patient flow.

In our study, post-operative astigmatism was 2.5 D + 1 D with manual SICS with rigid polymethylmethacrylate intraocular lens

(IOLs) implantation and it was high compared with the average astigmatism was 0.7 D in the phaco and 0.88 D in the manual SICS in the Nepal study.^[11] The Pune study had the mode of astigmatism of 0.5 D for phaco and 1.5 D for manual SICS, though the average was 1.1 D and 1.2 D, respectively.^[12] In both studies foldable IOLs were used.

The main limitation of this study was that we could not compare the cause for BCVA less than 6/12 with other studies, we post-operatively followed-up only up to 6 weeks and sample size was very small. The study needs to be extended for long-term follow-ups, large sample size with documentation of post-operative complications.

Conclusion

Screening camp followed by surgery in the base camp for SICS had good visual outcome in the majority of patients with the average astigmatism of 2.5 D. However in this study, the sample size was small with a short-term follow-up.

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