HIGH VOLUME CAMP SURGERIES – A CLINICAL STUDY

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KEY WORDS: Cataract, eye camp surgeries

INTRODUCTION: The number of blind persons in India in 2000 was estimated to be 18.7 million, of which 9.5 million were cataract –related. If there is no change in the current trend of blindness, the number of blind persons in India would increase to 31.6 million in 2020. If effective strategies are put in place to eliminate 95% of blindness due to cataract by 2020, blindness in 15.6 million persons would be prevented who would otherwise be blind in 2020, and 82 million blind person-year would be prevented [1]. In 2000, 3.5 million cataract operations were performed but this remains insufficient to treat the backlog and the newly blind [2]. Productivity per individual surgeon/unit should be increased through a high volume, high quality cataract surgery approach to solve the problem of India's curable blind [3][4][5][6]. The World Health Organization global initiatives have called for a dramatic increase in surgical volumes worldwide [4]. However, it is becoming evident that outcomes of cataract surgeries are not always good and this aspect of surgical services must be further examined. Hence in this study an attempt has been made to analyze the results of 6000 surgeries performed by experienced surgeons utilizing the technique of manual small incision cataract surgery.

AIM: To study the outcome of high volume cataract surgeries in camps in terms of duration of surgery, visual acuity, complications and their management.

INCLUSION CRITERIA: Visually significant cataracts – Posterior subcapsular cataract, Nuclear sclerosis grade II-IV, Mature cataract, Hyper-mature cataract.

EXCLUSION CRITERIA:

1. Cataract with retinal pathology like macular lesions, Diabetic & vascular retinopathy etc.
2. Cataract with Pseudo Exfoliation syndrome
3. Cataract with advanced Glaucomatous cupping
4. Complicated cataract
5. Subluxated cataract
6. Paediatric cataract
7. Traumatic cataract
8. Corneal opacity

9. Posterior polar cataract

MATERIALS & METHODS: A study was conducted at NGO Ophthalmology, Mysore between April 2009 and March 2011. A retrospective analysis of 6000 cases meeting the inclusion and exclusion criteria were selected for this study. Initial screening was done by optometrists and later examined by surgeons at the hospital on the same day. Detailed history, examinations and investigations were carried out by the resident doctors like slit lamp Biomicroscopy, Tonometry, Lacrimal sac syringing, Fundus examination, Keratometry and A-scan biometry. Patients were posted for surgery on the next day and 2 experienced surgeons performed all the surgeries.

SURGICAL STEPS: After the Peribulbar anaesthesia, eye was painted with Povidone Iodine (Betadine) and draped. Septidine (5%) eye drops were applied in conjunctival cul de sac. Superior rectus bridle suture was put. Fornix based conjunctival flap made. Site of incision was chosen according to preoperative keratometry reading. Size of incision ranged from 6 to 7 mm depending upon the hardness of cataract. Side port was made with lancetip. Capsular staining was done with 0.5% Trypan blue. Continuous curvilinear capsulorhexis / can opener capsulotomy was done. Anterior chamber was entered with 3.2mm keratome. Hydrodissection was done and nucleus prolapsed into AC and delivered out by viscoexpression. Remaining cortical matter was removed using irrigation-aspiration canula. A 6.0 mm optic , 12.5 mm overall diameter PMMA IOL was placed in-th-bag/sulcus. AC was formed. Subconjunctival injection of Dexamethasone and Gentamycin was given.

Patients were examined on the first post operative day, 1 week and at the end of 6 week by the surgeons. Refraction and spectacle correction was given at the end of 6 weeks.

RESULTS: 1.

Age: ranged from 50 to 80 yrs.

age	no. of patients	percentage
51 - 60 yrs	1200	20.00%
61 - 70	2588	43.13%
71 - 80	2212	36.81%
Total	6000	
Test statistics	Chi-square = 286.029 DF = 2, P-Value = 0.000	

2. Type of cataract:

type of cataract	no. of patients	percentage
PSC	2534	42.23%
Nuclear Cataract(grade II - IV)	1166	19.43%
Mature cataract	1524	25.41%
Hyper mature cataract	776	12.93%
Test statistics	Chi-square = 537.376 DF = 3, P-Value = 0.000	

3. Average duration of surgery: 4 min per case.

4. Intra operative complications: were graded according to OCTET grading (Oxford cataract treatment Evaluation Team)

Grade I : unlikely to need operation or unlikely to head to a drop in visual acuity(VA) by 2 lines of Snellen chart or more.

Grade II: May need treatment or may lead to some loss of vision (by 2 lines or more) but not suddenly.

Grade III: Needs further treatment or needs emergency action; or leads to loss of VA by 2 lines or more; or leads to loss of VA by 2 lines or more if no emergency action is taken.

	OCTET Grading	No. Of patients	Percentage	
Tunnel-related complication	I	122	2.03%	
DM detachment	I	300	5%	
Posterior capsular rent without vitreous loss	II	124	2.06%	
Poaterior capsular rent with vitreous loss	II	30	0.5%	
Iridodialysis	I	6	0.1%	
Test statistics	Chi-square = 459.203 DF = 4, P-Value = 0.000			

5. Post operative complications:

	octet grading	no. of patients	percentag e	x ²	p
Mild Iritis	I	1860	31%	449.42	.000
Severe Iritis	II	603	10.05%	2278.92	.000
Transient corneal oedema	I	1860	31%	449.424	.000
Small hyphaema	I	610	10.16%	2263.12	.000
Mild secondary glaucoma	I	1200	20%	1186.81	.000
Residual cortex	II	422	7.03%	2716.95	.000
Mild first day Hypopyon	I	486	8.1%	2555.35	.000
Vitreous in AC	II	10	0.16%	3964.58	.000
Cystoid Macular Oedema	II	24	0.4%	3915.46	.000
Malosition of IOL	II	720	12%	2025.25	.000

Major complications like IOL drop, nucleus drop and post operative endophthalmitis were not seen in the study.

Visual Acuity at the end of 6 weeks:

a) UnCorrectedVisual Acuity:

VA	NO. OF PATIENTS	PERCENTAGE
6/6 – 6/18	4320	72%
6/24 – 6/60	1078	17.19%
<6/60	602	10.19%
Test statistics	Chi-square = 1878.94 DF = 2, P-Value = 0.000	

b) Best Corrected Visual Acuity:

VA	NO. OF PATIENTS	PERCENTAGE
6/6 – 6/18	5405	90.05%
6/24 – 6/60	475	7.92%
<6/60	120	2%
Test statistics	Chi-square = 4172.52 DF = 2, P-Value = 0.000	

DISCUSSION: According to our study, average duration of surgery was 4 minutes per case, the similar study conducted by Venkatesh et al shown average duration of the surgery was 3.75 minutes. ⁽⁶⁾

In our study intra operative complications were graded according to OCTET grading and was accounting for 8.56% which was less in comparison to study done by Venkatesh et al on Outcomes of high volume cataract surgeries in a developing country.⁽⁶⁾

Post-operative complications of our study was mild iritis 31%, severe iritis 10.05%, transient corneal oedema 31%, hypheama 10.16%, hypopyon 8.1%, residual cortex 7.3% and malposition of IOL seen in 12%. Post-operative complications were much higher in our study compared to the study done by Venkatesh et al on Outcomes of high volume cataract surgeries in a developing country.⁽⁶⁾

In this study the visual outcome following 6 weeks of surgery was found to be uncorrected visual acuity of 6/6 to 6/18 was achieved in 72% patients and the Best corrected visual acuity of 6/6 to 6/18 was achieved by 90.05% patients and visual acuity. The results were consistent with similar study done by conducted by Venkatesh et al.⁽⁶⁾

Conclusion - High volume camp surgeries using manual small incision cataract surgery can provide good visual outcome and increases the productivity per individual surgeon/unit. High volume camp surgeries reduce the burden of cataract blindness in community. Complications and poor visual outcome can be overcome by better pre-operative assessment.

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