

**EVALUATION OF VISUAL OUTCOME AFTER CATARACT SURGERY IN CAMP PATIENTS - A STUDY FROM CENTRAL INDIA**Madhu Chanchlani<sup>1</sup>, N. Sarkar<sup>2</sup>, J. Manghani<sup>3</sup>, B. Soni<sup>4</sup>, R. Chanchlani<sup>5</sup>**HOW TO CITE THIS ARTICLE:**

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**ABSTRACT: BACKGROUND:** Cataract is the leading cause of avoidable blindness in India. Around 4 million people become blind each year because of cataract. **AIM:** To assess the visual outcome and complications associated with cataract surgery in camp patients operated at a Medical College tertiary hospital. **MATERIALS AND METHODS:** It was a retrospective study where 412 camp patients underwent posterior chamber intraocular lens implantation surgery over a period of one year. Data was compiled based on demographic characteristics, and post-operative complications. It was graded as per Oxford Cataract Treatment and Evaluation Team (OCTET) definitions on first post-operative day. After one month post-operative complications, best corrected visual acuity and refractive errors were also analyzed. **RESULTS:** 412 eyes underwent cataract surgery with posterior chamber intraocular lens implantation. The maximum patients were in the age group of 60-69 years, 180 (43.6%) patients. Among these patients 240 were males (58.2 %) and 172 were females (41.7 %). Small incision cataract surgery (SICS) with intraocular lens implant was the commonest surgical method (80%) used. 792 eyes of 412 patients had cataract, of which 596 had the cortical type (75.3 %) and 196 had the nuclear type (24.7 %). Of the cortical type, 428 were immature and 168 were mature cataracts. Based on OCTET grading, the most common first post-operative day complication was mild iridocyclitis (26.2%) followed by transient corneal edema in 86 patients. The major post-operative complications after 4 weeks of cataract surgery were pigments on PCIOL in 18 (4.36%) cases and capsular flap in 12 cases. After 4 weeks post-operative best corrected visual acuity of eye 6/18 in 89.8% cases. The commonest refractive error was Myopia with against the rule astigmatism seen in 172 out of 300 patients. **CONCLUSION:** Acceptable results can be obtained from eye camp surgery patients with experienced ophthalmologists in the base hospitals and these camps help in reducing huge burden of cataract patients. Our aim remains to reach more blind and needy patient and to provide an improved standard of visual rehabilitation.

**KEYWORDS:** cataract surgery, eye camp, visual outcome.

**INTRODUCTION:** In our country, cataract has been reported to be responsible for 50-80% of the bilaterally blind patients. Around 10 million operable cataract patients are there in India and only 5 million cataract surgeries are carried out.<sup>1</sup> To deal with this great burden of cataract patients in our country the principal solution is to perform 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. Insufficient financial resources, inaccessibility and lack of awareness about existing eye care facilities are some of the barriers underprivileged people face in utilizing available eye care services in these countries. Conventional extracapsular cataract surgery (ECCE), Manual small incision cataract surgery (MSICS), and phacoemulsification are the three most widely clinical operations,

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especially in India and rest of the world.<sup>2</sup> To assess the quality of cataract surgery, indicators like visual outcome is crucial both for the patients and for the eye care provider. Good outcomes are essential and poor outcomes experienced by patients following surgery will affect the demand for cataract surgery by the community.<sup>3</sup> The study was carried out with an objective to assess the complications and visual outcomes associated with cataract surgery in camp patients operated at a tertiary base hospital.

### **MATERIAL AND METHODS:**

**Type:** Cross-sectional study.

**Place:** Department of Ophthalmology, Chirayu medical college and hospital, Bhopal.

**Duration:** October 2012 to October 2013.

**Study population:** 412 Senile or acquired Cataract patients admitted in the department of Ophthalmology (Patients from 12 primary health centers around 100 kms from Bhopal were included where screening camps were conducted).

**Inclusion criteria:** All senile cataracts were included with visual acuity counting fingers 3 m or less and with no other significant ocular or systemic illness.

**Exclusion criteria:** Complicated Cataract.

**Ethical clearance:** After approval from the ethical committee.

**Procedure:** The best-corrected visual acuity was measured using the Snellen's and E – charts. If the visual acuity could not be measured, then counting fingers, hand movements and light perception was assessed. The type and grading of lens opacities was done by LOCS III. A detailed posterior segment and retinal examination was done by direct/indirect ophthalmoscopy. IOP was measured with Goldmann's applanation tonometer. Blood pressure and urine sugar were checked to rule out systemic hypertension and overt diabetes respectively. Intra Ocular Lens power was calculated by keratometry and A scan biometry for all patients. Information regarding the technique of surgery, the first day and late post-operative complications after 4 weeks of surgery, post-operative visual acuity were recorded, and the results analyzed. The first post-operative day complications were graded according to the OCTET (Oxford Cataract Treatment and Evaluation Team) definitions: Grade I- trivial complications that may have needed medical therapy but were not likely to result in marked drop in visual acuity; Grade II – intermediate complications that needed medical therapy, and would have resulted in marked drop in visual acuity if left untreated; Grade III - Serious complications that would have needed immediate medical or surgical intervention to prevent gross visual loss.

**RESULTS:** Among the 412 patients, 240 were males (58.2%) and 172 were females (41.7%). The maximum patients (43.7%) were in the age group of 60-69 years. 792 eyes of 412 patients had cataract, of which 596 had the cortical type (75.3%) and 196 had the nuclear type (24.7%). Of the cortical type, 428 were immature and 168 mature cataracts. Among the nuclear type, 44 were NS grade I, 104 NS grade II, 40 NS grade III, and 8 eyes with NS grade IV (Table no.1). 412 eyes underwent cataract extraction with PCIOL implantation. Small incision cataract surgery (SICS) was the commonest method used in 330 cases, (80%), followed by phacoemulsification in 82 cases (20%). No eye was left aphakic. The first post-operative day complications (Table no. 2) showed that a major

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percentage (26.2 %, 108 eyes) suffered from mild iridocyclitis followed by transient corneal edema (20.9 %, 86 eyes), and striate keratopathy (12 %, 50 eyes). The complications based on OCTET definitions showed that 136 eyes (33 %) had Grade I, 14 eyes (3.4 %) had Grade II and 4 eyes had Grade III complications. 118 eyes had more than one complication. The major post-operative complications after 4 weeks of cataract surgery were pigments on PCIOL in 18 (4.36%) cases and capsular flap in 12 cases (Table no. 3)

370 cases (89.8 %) had a four-week post-operative BCVA of e" 6/18, 32 cases had 6/36 – 6/60 and 10 had < 6/60. Among the 300 patients with refractive errors (Table no. 4), the commonest error was myopia with against the rule astigmatism seen in 172 cases (41.7%).

**DISCUSSION:** In our study the majority of the patients operated in the study were in the age group of 60 - 69 years, similar to the study of Parul Desai et al wherein 80 % of patients were above 60 years of age.<sup>5</sup> Similar results were observed in a study done by Reidy et al.<sup>6</sup> According to Westcott et al, the impact of age on visual acuity outcome is illustrated by the odds ratio which indicates that the odds of achieving > 6/12 vision for the youngest age group is 4.6 times higher than that for the oldest (80+ years) age group.<sup>7</sup> Male patients were likely to have a risk of achieving best corrected visual acuity < 6/18 according to the study done by Venkatesh et. al which included 318 female patients (54 %) and 275 male patients (46%).<sup>8</sup>

In the present study, the maximum number of surgeries done was SICS (80%), well consistent with the work of Bourne et al. <sup>9</sup> which states that the ratio of ICCE: ECCE + IOL has reduced significantly. It also supports an increasing trend towards ECCE with PCIOL in the developing countries. With advancement good visual results are possible after SICS/ECCE with IOL and phaco with IOL in the developing world. It is important that affordable IOLs of good quality are made widely available, with cost sharing or cross subsidy, so that IOLs are available to all strata irrespective of their ability to pay as concluded by Malik et. al.<sup>10</sup>

The post-operative complications may cause discomfort and extended hospitalization which may lead to an overall poor surgical outcome. The first Post-Operative Day complications of our study can be compared with that of Venkatesh et. al. who also used the OCTET grading and analyzed that 55 patients had Grade I, 19 patients (3.2 %) had Grade II, and 1 patient (0.2 %) had Grade III complications.<sup>10</sup> The variability among surgeons regarding complications has been reported elsewhere and is probably unavoidable. In our study mild iridocyclitis (26.2 %) was the commonest first POD complication, followed by transient corneal edema (20.9 %), and striate keratopathy (12 %), unlike in the study by Desai P et al wherein the most common complication was corneal edema (9.5%), followed by raised IOP (7.9 %) and uveitis (5.6%).<sup>11</sup> Fortunately no case of endophthalmitis was encountered in our study, wherein the incidence of endophthalmitis was very low (0.03 %) as mentioned by Kapoor et. al.<sup>12</sup>

Visual outcomes for cataract surgery are reported as the achievement of a defined level of Snellen acuity 6/12 or better in the operated eye at two points in time during the post-operative recovery process: at time of discharge from hospital and at the final refraction performed within 3 months of surgery. Levels of visual acuity after cataract surgery were categorized using the WHO guidelines of good outcome being 6/6 to 6/24, borderline outcome as 6/24 to 6/60 and poor outcome as <6/60 In the present study, the majority (89.8%) had a good outcome, (7.8 %)

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borderline, and 10 cases had poor outcome, which implies that the visual outcome was very good and correlates well with the outcomes of various other studies (Anand et. al.,<sup>4</sup> Venkatesh et. al.,<sup>8</sup> Bourne et. al.,<sup>9</sup> Malik et. al.,<sup>10</sup> Desai et. al.<sup>11</sup>). Similarly Hennig et. al. showed in his study that in 88% of eyes examined at a one-month follow-up visit, the vision achieved was 6/18 or better with full aphakic correction, this corresponds with our study.<sup>13</sup> Even though the cataract surgical targets are being met, poor outcomes of cataract surgeries is a major problem in developing countries.<sup>14, 15</sup> With the resolution of the corneal edema and inflammation with time there was significant improvement in the visual acuity of the eyes 6 weeks after surgery compared to the visual acuity at discharge recorded at the first assessment.

**CONCLUSION:** The study shows that camp surgery plays a commendable role in transferring the majority of elderly rural Indian population from the category of the blind and dependent to a group that is visually rehabilitated, independent, mobile and socially productive. A good choice of surgical technique, trained surgeons and paramedical personnel and good organizational setup can better the visual outcome even in high volume camp patients operated in base hospitals. The aim remains to reach more blind people and to provide an improved standard of visual rehabilitation through National programme for Control of Blindness.

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Type of Cataract (n=596)	Subtype	No. (%)
Cortical	Immature	428
	Mature	168
Nuclear sclerosis (n=196)	Grade I	44
	Grade II	104
	Grade III	40
	Grade IV	8

**Table no. 1: Distribution of patients according to various types of cataracts**

Symptoms	OCTET grading	Percentage
	Grade I	%
Mild iridocyclitis less than 50 cells in 2x1mm slit beam	108	26.2
Transient Corneal edema	86	20.9
Striate keratopathy	50	12
Hyphaema less than 2mm	10	2.4
Subconjunctival hemorrhage	6	1.5
	<b>Grade II</b>	<b>%</b>
Mild iridocyclitis more than 50 cells in 2x1mm slit beam	8	1.9
Iris in wound	4	1
Shallow AC	2	0.5
	<b>Grade III</b>	<b>%</b>
Descemet's detachment	4	1

**Table no.2: The first post-operative day complications**

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BCVA	No. of eyes (n=412)
6/6	07
6/9	05
6/12	04
6/18	370
6/24	02
6/36	02
6/60	12
Less than 6/60	10

**Table no. 3: Best Corrected Visual acuity after post-operative one month**

Type of refractive error	No of eyes	Percentage (%)
Simple myopia	28	7.3
Myopia+with the rule astigmatism	48	16
Myopia+against the rule astigmatism	172	59.3
Hypermetropia+with the rule astigmatism	10	3.4
Hypermetropia+against the rule astigmatism	42	14
Total	300	100

**Table no. 4: Type of post-operative refractive error**

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