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Research Article

Quality of Services in Cataract Control Programme in Wardha District

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Abstract: Cataract is a major cause of blindness and severe visual impairment in India. For controlling cataract blindness and effective implementation of program there is need of data on to see the effectiveness of the surgical procedures adopted and the cause for failure of improvement in vision after surgery. Hence in this study coverage of cataract surgery and the outcome of surgery were studied in Wardha district. Out of 5263 persons screened, 648 persons had been operated for cataract in one or both eyes (379 in one eye and 269 in both eyes) were included in the study. And other 456 persons having presenting visual acuity less than 6/60 in either eye with no history of ocular surgery were also included. Total 1104 persons were taken for detailed ocular examination, history and interview. In this study it was found that the cataract surgical coverage was 59% for persons. Quality of life scores in all fields of activities were significantly better in persons who had been operated for cataract in both eyes as compared to persons suffering from bilateral cataract blindness ($p<0.0001$). Visual function scores of persons who had been operated for cataract in both eyes were significantly better as compared to persons suffering from bilateral cataract blindness.
Keywords: Blindness, Cataract, Control, Visual outcome

INTRODUCTION

Cataract is a public health problem in developing countries like India. Cataract is major cause of blindness and severe visual impairment. The role of cataract as a major cause of blindness has increased. The impact of visual loss on the personal, economic and social life of an individual is profound, and when the prevalence of blindness in communities is high the consequences become a significant issue. While much has been accomplished in the cataract blindness control program in the past but even more effort will be required in the future. To know the impact of cataract control program on the population and the actions needed to improve the quality of services; various factors can be studied like cataract surgical coverage, cataract surgery outcome, causes of poor visual outcome and barriers in delivery of quality services.

Traditionally the cataract intervention program is evaluated by the number of cataract operations performed per year. However the figure does not indicate the extent to which the problem of cataract blindness has been reduced. Not all the cataract operations change a blind person into a sighted person. Some patients still cannot see after surgery. Along with physiological outcome of surgery (visual outcome), it is also important to study the patient outcome (vision for patients), functional outcome (change in quality of living) and psychological outcome (result is perceived as beneficial or not) of the patient. Also the study of functional vision in cataract blind patient can help in deciding indications for surgery more effectively. There is widespread acceptance of the importance of quality of life measurements to evaluate health care interventions.

The present study was undertaken to assess the quality of services in cataract control program in Wardha District of Maharashtra. We were not only interested in how many persons operations were performed, but also in how many people benefit and to what extent benefit was given.

Aims and Objectives

To assess the quality of services in cataract control program, this study was done to with the following objectives.

- To study the coverage of cataract surgery

- To study visual outcome of surgery
- To study the change in quality of life or level of patient's satisfaction after cataract surgery

MATERIALS AND METHODS

This study was conducted by the department of Ophthalmology, Mahatma Gandhi Institute of Medical Sciences, Sewagram, and District Wardha in Maharashtra during the year 2003. The study was undertaken after taking the permission from institutions ethical committee. All the subjects were explained about the importance of this study and the non-invasive nature of this study. All the subjects were agreeing to participate in the study.

The national survey on blindness in India indicated that of all age related cataract blindness, 95% occur in the age group of 50 years and above. Therefore this study was focused on assessment of population above 50 years of age. The study was conducted in 30 randomly selected village clusters of Wardha District of Maharashtra. In the village clusters included in the study, total population aged more than 50 years of age was 5263 comprising 12.8% of population.

This study included door-to-door examination of every above 50 years of age individual. In the population screened, history of cataract surgery in either eye was specifically asked. Out of 5263 persons, 648 persons had been operated for cataract in one or both eyes (379 in one eye and 269 in both eyes). That means out of total population screened, a total 917 eyes had been operated. These 648 persons were taken for detailed ocular examination, history and interview at the nearest suitable centre. Comprehensive Eye care was provided to the persons referred to the center which included refraction to see any improvement in vision, detailed anterior segment examination for corneal disease / Uvea /Squint examination / Glaucoma work up and fundus examination through dilated pupils to note any fundus abnormalities. In the present study, other 456 persons having presenting visual acuity less than 6/60 in either eye with no history of ocular surgery were also included.

In the quality of life questionnaire (QOL), the area assessed were self care (i.e. bathing, dressing and toileting), mobility (walking to the homes of neighbors, to shops, doing household works), social (attending special function, meeting with friends) and economic (problems in doing occupational work/earning some income).

In visual function questionnaire (VF), the areas assessed were general, single question that assessed over all visual function, visual perception, and limitation with every day activities.

For both the VF and QOL questionnaire, the subscales were defined on the basis of best judgment. The 4-point rating scale was scored from 1(no problems) through4(maximum problems), with 2 & 3 for the intermediate ranking. For each subscale, the score was calculated as the cumulative total of individual item responses express a percentage of the maximum score possible. Scores were calibrated between 100 (no problem in performing any of the functions) and zero (maximum disability on every item). Mean VF and QOL scores with standard deviation (SD) were calculated for bilateral cataract blind patients and both eye operated patients.

Data was entered on self-coded forms. A pretested standardized proforma was used to record the observation.

RESULTS

In the village clusters included in the study, total population aged more than 50 years of age was 5263. In the population screened, history of cataract surgery in either eye was specifically asked. Out of 5263 persons, 648 persons had been operated for cataract in one or both.

In the present study, other 456 persons having presenting visual acuity less than 6/60 in either eye with no history of ocular surgery were also included. The observations made in this study are as follows.

Table 1: Distribution of persons operated for cataract in study population

History of cataract surgery	No. of cases	Percentage
In one eye	379	7.2
In both eyes	269	5.1
Total	648	12.3

Out of 5263 persons aged more than 50 years screened, 379 (7.2%) had undergone cataract surgery in one eye and 269 (5.1%) had undergone cataract surgery in both eyes i.e. a total of 917 eyes had been operated for cataract out of which 226 eyes had presenting visual acuity less than 6/60.

Table No. 2: Visual status of operated patients in study population (as per Indian criteria)

Visual status	Operated No. (n=648)(%)
Normal vision (≥ 6/18 in both eyes)	88 (13.6)
Low vision (<6/18- ≥ 6/60 in better eye)	363 (56.0)
Economic blindness (< 6/60 in better eye)	61 (9.4)
Social blindness (<3/60 in better eye)	56 (8.6)
Unilateral blindness (<6/60 in worst eye)	80 (12.3)

Out of 648 persons who had been operated for cataract in one or both eye, 61 (9.4%) were economic

blind, 56 (8.6%) were social blind and 80 (12.3%) were one eye blind.

Table 3: Visual status of operated patients in study population (as per WHO criteria)

Visual status	Operated no. (n=648)(%)
Normal vision	446(68.8)
Visual impairment	125 (19.3)
Severe visual impairment	33 (5.09)
Both eye blind	42 (6.5)
Absolute blind	2 (0.3)

As per WHO criteria, out of 648 persons who had been operated for cataract in one or both eye, 33 had severe visual impairment, 42 had blindness in both eye and 2 were absolute blind.

Table 4: Cataract surgical coverage (For persons)

No. of persons with unoperated cataract	No. of persons operated for cataract	Total No. of persons (operated &unoperated)	Surgical coverage (%)
389 (VA< 3/60)	648	1037	62.48
446 (VA < 6/60)	648	1094	59.00

Table 5: Cataract surgical coverage (For Eyes)

No. of eyes with unoperated cataract	No. of eyes operated for cataract	Total No. of eyes (operated &unoperated)	Surgical coverage (%)
499 (VA< 3/60)	917	1416	64.75
590 (VA < 6/60)	917	1507	60.84

In the study population, 648 persons (917 eyes) were noted to have undergone cataract surgery in one or both eyes. In the study population screened above 50 years of age, 389 persons had not undergone surgery (499 eyes) were noted to have blindness (VA < 3/60) due to cataract where as 446 persons (590 eyes) were noted to have blindness (VA <6/60) due to cataract.

As per Indian criteria (VA <3/60) cataract surgical coverage was found to be 62.48 % for persons and 65 % for eyes whereas as per WHO criteria (VA < 6/60) cataract surgical coverage was 59 % for persons and 60% for eyes.

Table 6: Age and sex distribution of persons operated for cataract in study population

Sex of persons operated	No. of cases	Percentage
Males	299	46.14
Females	349	53.85
Total	648	

Table 7: Age and sex distribution of eyes operated for cataract in study population

Sex of persons whose eyes operated	No. of eyes operated	Percentage
Males	434	47.32
Females	483	52.67
Total	917	

Table 8: Distribution of operated eyes by type of surgery

Type of surgery		
ICCE/ECCE	**IOL**	**Total eyes**
103	01	104
152	15	167
320	326	646
575 (Total)	342 (Total)	917 (Total)

Out of 917 operated eyes, 342 had undergone IOL implantation (37.3%) and 575 eyes were aphakic (62.7%).

Table 9: Visual status after cataract surgery

Visual acuity	Presenting visual acuity No. of eyes (%)	Best corrected visual acuity No. of eyes (%)
> 6/18	267 (29.1)	579 (63.1)
< 6/18 but > 6/60	424 (46.2)	173 (18.9)
< 6/60 but > 3/60	85 (9.3)	47 (5.1)
< 3/60	141 (15.4)	118 (12.9)
Total	917	917

Table 10: Quality of life (QOL) score in persons operated for cataract and in cataract blind

Activities	History of bilateral operated cataract Mean ±SD	Non-operated cataract (VA <6/60) Mean ± SD
Self care	94.21 ± 20.83	36.28 ± 45.16
Mobility	86.37 ± 31.61	19.27 ± 36.89
Social	85.01 ± 33.24	12.73 ± 30.28
Economic	64.93 ± 45.41	2.08 ± 12.60

QOL scores were significantly higher in all fields of activities in persons who had been operated for cataract in both eyes as compared to those suffering from cataract blindness with visual acuity <6/60 ($p < 0.0001$).

Table 11: Visual Function score in persons operated for cataract and in cataract blind

Category	Visual Function score Mean ± SD
Bilateral cataract blind (VA < 6/60)	1.91± 12.50
Bilateral cataract blind (VA < 3/60)	11.34 ± 20.53
Both eye operated	73.31 ± 25.84

Visual function score of patients who had been operated for cataract in both eyes were significantly better as compared to persons with bilateral cataract blindness (p<0.00001).

DISCUSSION

The study was conducted in 30 randomly selected village clusters. In the present study 648 persons (917 eyes) were noted to have undergone cataract surgery in one or both eyes. 389 persons (499 eyes) were noted to have blindness (visual acuity <3/60) due to cataract and 446 persons (590 eyes) were having visual acuity <6/60 due to cataract. For visual acuity < 3/60 cataract surgical coverage found to be 62.48% for persons and 65% for eyes whereas for VA<6/60 cataract surgical coverage was 59% for persons and 605 for eyes.

Limburg *et al*.[1] reported cataract surgical coverage for eyes (<3/60) to be 22.5% in Purnea, Bihar. Limburg *et al*. [2] reported the cataract blind persons in Mohadi block, 31% of the females and 38% of the males had been operated upon and two thirds of all cataract blind patients had not been covered till then and were in need of surgical services.
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In the present study based on presenting visual acuity out of 917 operated eyes 691 (75.3%) had visual acuity more than 6/60, out of which 267 (29.11%) had VA >6/17, whereas 226 (24.7%) had VA<6/60 out of which 141 (15.4%) had VA<3/60.

Based on best corrected acuity after refraction out of 917 eyes operated eyes, 752(82.0%) had VA >6/60 out of which 579 (63.1%) had VA >6/18, whereas 165 (18.0%) had VA<6/60 out of which 118 (12.9%) had VA <3/60.

Brenth-Peterson*et al*.[3] had reported final visual acuity of 0.5 or better in 82% of patients. Salem *et al*.[4] had reported final visual outcome of 6/12 or better in 54% eye and visual acuity of 6/18 or less in 46% eyes. Murthy*et al*. [5] reported best corrected visual acuity of 6/18 or better in 92% cases following ICCE.

Out of 917 operated eyes patients were satisfied with visual outcome in 780 (85.1%) eyes. As perceived by patients post operative vision was a better in 595 (64.9%) eyes and little better in 185 (20.2%) eyes compared to preoperative visual status.

Murthy *et al*.[5] reported subjective improvement of vision in cataract operated individuals(in more than 70% individual). Nijkamp *et al*.[6] also reported 80% of operated individuals were satisfied with visual outcome after surgery.

In this study, quality of life (QOL) scores were lower in persons suffering from bilateral cataract blindness with visual acuity <3/60 as compared to persons suffering from bilateral cataract blindness with visual acuity <6/60 (p<0.0001).QOL scores in all fields of activities were significantly better in persons who had been operated for cataract in both eyes as compared to persons suffering from bilateral cataract blindness (p<0.0001).

Visual function scores of persons who had been operated for cataract in both eyes were significantly better as compared to persons suffering from bilateral cataract blindness.

Pokhare*et al*.[7], Brenth-Petersen *et al*.[8] and Zhao *et al*.[9] also indicated a positive correlation between visual acuity and visual functioning. In their studies they also found that visual function and quality of life scores correlated with vision status at statistically significant levels.

CONCLUSION

Based on the visual acuity <3/60 cataract surgical coverage was found to be 62.48% for persons and 65% for eyes. Based on visual acuity <6/60 cataract surgical overage was 59% for persons and 60% for eyes.In significant number of operated eyes near normal visual acuity could be achieved by provision of glasses. After cataract surgery 82.9 % patients had overall satisfaction about surgical procedure and the outcome of the surgery. QOL scores in all fields of activities were significantly better in persons who had been operated for cataract in both eyes as compared to persons suffering from bilateral cataract blindness. Visual function scores of persons who had been operated for cataract in both eyes were significantly better as compared to persons suffering from bilateral cataract blindness.

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