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ORIGINAL RESEARCH ARTICLE

SURGICAL EYE CAMP IN RURAL NEPAL AND ITS ROLE IN VISION 2020

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ABSTRACT

Blindness continues to remain a major public health problem in Nepal and cataract is the leading cause. Cataract surgical coverage is relatively low in the rural areas where prevalence of blindness is high. To evaluate the role of surgical outreached eye camps in rural Nepal and its impact in Vision 2020. This is a descriptive cross sectional camp based study in a remote village of Nepal, where 4 days screening of the eye disease only the cataract was done. 250 patients (54.80% males and 45.20% females) underwent eye health screening tests. Cataract was the commonest ocular disease (29.6%) among the screened population and 24% (60 patients) of them required cataract surgery (57% male and 43% female). The mean age of the operated patient was 71.84 ± 10.6years. Among the operated cases, bilateral blindness was present in 21.66% and unilateral blindness in 70% but after visual restoring cataract surgery, normal visual acuity (6/6-6/18) was achieved in 31(51.66%), and vision of 6/24-6/60 in 23 (38.33%) cases. Cataract remains to be the major cause of blindness in Nepal and arrangement of repeated surgical eye camps in the remote areas of Nepal could aid in reducing the preventable cause of blindness thereby help in achieving the goal of Vision 2020.

Key words: *Blindness, Cataract, Surgery, Vision 2020.*

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INTRODUCTION

Nepal is a culturally, ethnically and geographically diverse country perched on the southern slopes of the Himalayan mountains. Because of its landlocked nature and rugged geography, the country is underdeveloped. The burden of problems typically for underserved populations, continues to be an issue in the Nepalese population.

According to WHO 2012 data, 285 million people are visually impaired worldwide and cataract contributes 33% of it and about 90% of the world's visually impaired live in developing countries.[1] Despite what modern technology has done to advance the treatment of cataracts, the greatest challenge in our field continues to be the large and increasing backlog of cataract blindness in developing countries.[2] Thereby, millions of underprivileged people in developing nations with reversible blindness from mature cataracts go untreated and Nepal is one of them.

Nepal National Blindness Survey in 1981 showed that 0.84% of the Nepalese population is bilaterally blind with cataract being the major cause of blindness (72%).[3] An estimated 8 million of the 30 million people in Nepal need eye care services every year, only 1.5 million accessed services in 2010.[4] Vision 2020 "The Right to Sight" is about making services accessible to all populations in a country by making efforts to reach the 'unreached' population.[4] Service coverage therefore remains poor and is a major challenge confronting Nepal's eye care. Cataract is responsible for 65% of blindness in Nepal.[4] So to reduce the bulk of cataract blindness, a four days

long, free surgical eye camp was conducted in Rhee VDC; a very remote village of Dhading district of Nepal. This village, though lies close to the capital of Nepal; was a geographically cheated place in the northern border of Nepal where surgical eye camp had never occurred.

MATERIALS AND METHODS

Figure 1: Picture showing the site of camp which was placed in the laps of mountains.

Patients walked for up to two days to receive sight restoring cataract surgery - surgery that would otherwise not be available to them due to the village's remote location. Patients were led to the camp by family members and patients who were bilaterally blind were even carried on the backs of loved ones over high mountains.

The eye care team comprised of two ophthalmologists, two ophthalmology residents, two optometry students, ophthalmic technicians, nurses and paramedics.

As per Nepal Blindness survey, five vision categories were defined-

(1) Normal or near normal vision: 6/6-6/18 in both eyes;

(2) Visual impairment: <6/18 to 6/60 in worse eye and 6/60 in better eye;

(3) Unilateral blindness: <6/60 in worse eye and 6/60 in better eye;

(4) Moderate bilateral blindness: <6/60 in worse eye and <6/60 to 3/60 in better eye;

(5) Severe bilateral blindness: <3/60 in both eyes.

Cataract patients were identified and surgery was performed under aseptic precaution under peribulbar block in the health post building. The method of cataract extraction was manual sutureless small incision cataract surgery (SICS), whereby the whole nucleus is removed through a self-sealing sclero-corneal tunnel. A single-piece PMMA IOL manufactured in Nepal was inserted into the capsular bag. No sutures were placed, and the conjunctiva was opposed with cautery. This technique requires no sophisticated equipment, is machine-independent, sutureless, provides quick rehabilitation and gives an excellent outcome, sometimes comparable to that achieved with phacoemulsification. After surgery, patients were kept for 1 day for observation and and were discharged on next day with medications after evaluation of the eyes.

This study follows the tenets of the Declaration of Helsinki and approval from Institutional review board was taken.

RESULTS

A total of 250 people received eye health screening tests. Among them 137 (54.80%) were males and 113 (45.20%) were females making a male to female ratio of 1.21:1. (Figure 2)

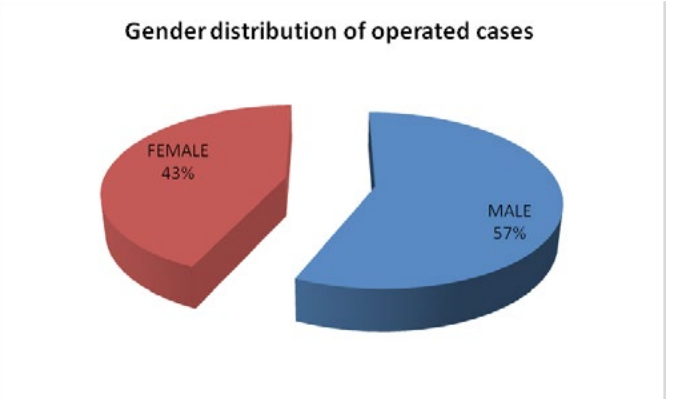

Figure 2: Pie chart showing the gender distribution of operated cases.

Various patterns of ocular problem which were identified in these patients are listed in the TABLE 1. Cataract was the commonest ocular disease (29.6%) identified among the screened population followed

by conjunctivitis (10%) and refractive error (9.4%). Around 5.6% of the patients had already undergone cataract surgery in one eye.

Table 1. Patterns of ocular problems among camp patients.

DISEASE	No. of Eyes	Percentage %
Age related cataract	148	29.6%
Conjunctivitis	50	10%
Refractive errors	47	9.4%
Dry eyes	44	8.8%
Pseudophakia	28	5.6%
Corneal opacity	10	2%
Chronic dacrocystitis	7	1.4%
Strabismus	6	1.2%
Miscellaneous eye diseases	108	21.6%
No abnormalities detected	52	10.4%
Total eyes	500	100%

On evaluation of the presenting visual acuity, normal vision was present in 311(62.2%) eyes, visual impairment in 29 (5.8%) eyes and blindness in 69 (13.8%) eyes of which 5.2% were bilaterally blind and 1% had no perception of light. (TABLE 2)

Table 2. Presenting visual acuity of the camp patients.

Visual Acuity	Right Eye (RE)	Left Eye (LE)	Total
6/6-6/18	148	163	311
6/24-6/60	47	39	86
5/60-3/60	16	13	29
<3/60-PL	36	33	69
NPL	3	2	5
Total	250	250	500

Out of the 250 patients, 29.6% had cataract; of which 24% (60 eyes of 60 patients) required cataract surgery. Hence, bearing all the harsh circumstances and challenges, the surgical team performed the cataract surgery in 34 males (57%) and 26 females (43%). The commonest type of cataract was nuclear sclerosis (65%) followed by cortical cataract (30.5%) and posterior subcapsular cataract (4.5%).

Most of the operated patients (58.33%) were in their 7th decade. The mean age was 71.84 ± 10.6 years with the age range of 15 -84 years (Figure 3). The youngest patient of 15 years had developed cataract due to trauma.

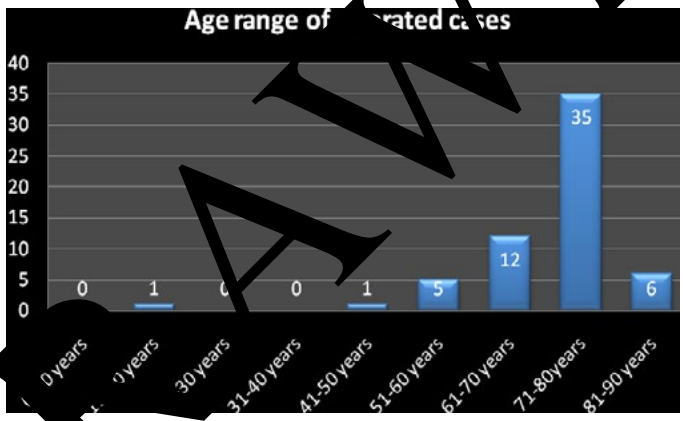

Figure 3. Bar diagram showing age range of operated cases.

The cataract surgery was mainly performed in the eyes with poor vision (figure 4). Fourty operated eyes (66.66%) had severe visual impairement (<3/60- PL). There was no difference in the distribution of the surgical cases by laterality. One half of the cases were operated in right eye (RE) and the other half in left eye (LE).

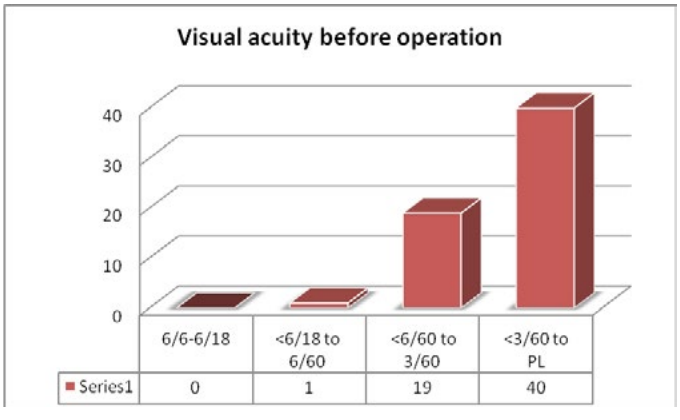

Figure 4: Bar diagram showing pre-operative visual acuity in operated eyes.

On evaluation of the visual status of the eyes

undergoing cataract surgery, bilateral blindness was present in 21.66% and unilateral blindness in 70% (TABLE 3). Hence vision restoring cataract surgery gave a new hope to their life.

Table. 3. Visual status of the eyes before surgery.

Visual status	No. of patients	Percentage
Bilateral blind	13	21.66%
Low vision	35	58.33%
Unilateral blind	42	70.00%

(Note:The cases of unilateral and bilateral blind have been overlapped.)

Figure 5: Camp patients after the cataract surgery

There was significant reduction in the number of unilateral and bilateral blindness after cataract surgery.The normal visual acuity (6/6-6/18) was achieved in 31(51.66%) cases after surgery (figure 6). The cause for visual impairement in 5 (8.33%) cases was operative corneal edema which resolves over time and the cause for persistance of blindness in 1 case was pre-existing glaucomatous optic atrophy.

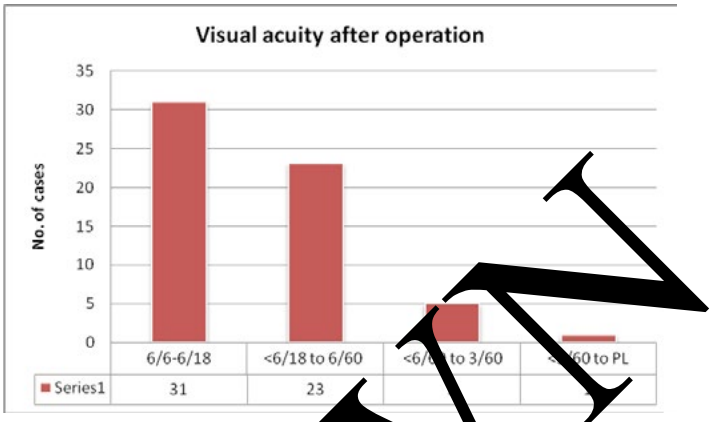

Figure 6: Bar diagram showing post operative visual acuity.

The commonest complication noted during the surgery was posterior capsular rent in 4 cases where the intraocular lens was implanted in anterior chamber (3 cases) and sulcus (1 case).

DISCUSSION

Blindness continues to remain a major public health problem in our country reinforcing call for sustained effort at its control.[4] It has been 15 years since Vision 2020 was launched but still we are not able to reach the unreached blind population. A Mid Term Review (MTR)[4] committee established in 2010 reviewed the implementation of Vision 2020 in Nepal and showed that the prevalence of blindness has declined from 0.84% in 1981 to 0.39% in 2010.[4] Cataract which was responsible for 72% in 1981 in Nepal has declined to 65% of blindness.[4] But failure to reach to the needy population, who are confronted with a host of barriers to access services, remain the main hurdle to achieve Vision 2020. So cataract surgical coverage is relatively low in the areas where prevalence of blindness is high and remote villages of Dhading are just an example of them.

The life span of Nepalese people is estimated to be 67.19 years[5] and the mean age of operated patients in our camp was 71.84 ± 10.6 years. This signifies that these people may die before getting treatment for preventable cause of blindness. Gender inequity is one of the major issues of concern. In our camp, male patients were 54.80% and female were 45.20% and out of the operated cases, 57% were male and 43% were female. Persistent gender inequity has marginalized women from accessing eye care

services for long time. Although women carry two thirds of all blindness in Nepal, service utilization by men and women is about the same indicating a disproportionately low utilization of services by women in relation to the burden of disease in them.[4]

Manual SICS is far less expensive to perform than phacoemulsification[2] and is proved to be effective and faster surgical technique. Finally, high-quality PMMA lenses that are manufactured in Nepal are roughly one-tenth the cost of foldable IOLs that are imported from abroad.[2] In remote developing world settings, it is often difficult for poor patients to obtain refractions or corrective spectacles after cataract surgery. The same is true for obtaining replacement lenses if their spectacles break or become scratched. Therefore, good uncorrected vision is particularly important in this population.[2,6,7,8]

The eye camps seem to be only the way to reduce the bulk of cataract blindness in remote, underserved populations, whereas other serious diseases, such as glaucoma, remain untreated.

Periodic organization of well-managed eye camps in rural areas are needed to reach the unreached targets but the perfect solution will always be permanent access to a stationary eye clinic with an ophthalmologist as well as appropriate medical equipment on the spot.

CONCLUSION

Cataract continues to be the major cause of blindness in Nepal, and most of those suffering from this disease may remain blind until they die. Reducing the growing backlog of cataract blindness is a formidable challenge.[2] Surgical speed and efficiency are paramount in the developing world because surgical cataract capacity is limited by the shortage of experienced ophthalmic surgeons. To eradicate blindness in Nepal and achieve the goals of Vision 2020, highest dividends in future eye health are likely to come from targeting the excluded communities such as women, children, the poor and ethnically backward and disenfranchised Nepalese living at the bottom of the pyramid across geographical regions and ecological terrains, in towns and in villages.[4]

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