

## Original article

### Co morbidities among cataract- operated patients in Rural Nepal

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#### Abstract

**Introduction:** Himalaya Eye Hospital (HEH), established in 1993, is providing eye care services in Gandaki, Dhaulagiri and Karnali zones. It has been providing surgical and nonsurgical eye camps in rural areas of Gandaki, Dhaulagiri and Karnali zones. The aim of this study was to determine the prevalence of ocular and systemic co morbidities among the persons treated in rural Asian setting. **Method:** This is the prospective non-interventional study. Patients who came to take services in surgical eye camp in rural area of Nepal were included. Data were collected by interviewing the patients. They were interviewed by local volunteers with the questionnaires prepared in English language. The volunteers were explained about the medical terminology and they interviewed the patients in native language. **Result:** Out of 675 patients 401(59%) had systemic co morbidities. Back pain and arthritis being the most common with 321(48%) and 260(38%) respectively. **Conclusion:** This study shows the systemic co morbidities among the patients who came to seek ocular treatment in eye camp in rural area of Nepal. We should do this kind of studies in different area of Nepal. These kinds of study give us total burden of systemic morbidity and help to treat accordingly.

**Key words-** Co morbidities, cataract, rural, Asian

#### Introduction

Co morbidity is the total burden of illnesses unrelated to a patient's principal diagnosis [Rochon P et al]. Till date systemic co morbidity, has not been reported in surgical eye camps in Nepal. There has been few data reported on ocular co morbidities among patients undergoing cataract surgery in rural Asia [Yingpeng Liu et al]. The Auckland Cataract study found systemic co morbidities in 80% of subjects [Riley AF et al]. This study is important to find the burden of systemic comorbidities in rural area.

#### Method

This study was carried out during the surgical eye camp of Himalaya Eye hospital in Burtibang in 20-23 Jan 2015. It included patients who came to take services. Consent was taken from Hospital to perform this study. A team of one ophthalmologist, two ophthalmic assistants, two eye worker, one administrative officer and two drivers to drive two vehicles filled with surgical equipments (appendix1). The questionnaire was developed in English literature before embankment to the camp. The questionnaire was translated to native language (Nepali) to several volunteers in camp. The volunteers took interview in native language to those patients who came to our camp. Verbal consent was taken with the patient before enrolling in the study. Demographic information, ocular co morbidity, systemic

Received: 13/03/17

Accepted: 28/06/17

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co morbidity, socioeconomic status was collected through an interview administered by volunteers. The diagnosis of systemic and ocular co morbidities were clinical, based on the judgment of patients own practitioner and interviewed them. Inclusion criteria required a willingness to answer the questionnaire. Exclusion criteria included unwillingness to answer the study questions. Distance visual acuity was measured using E chart at 6 meters. Basic eye examination of eyelid, globe, papillary reflex and lens was performed by an ophthalmologist and two ophthalmic assistants using torch and hand held slit lamp (Kowa SL-15) and direct ophthalmoscope. The patients who needed minor treatment were provided. The patients who required cataract surgery were provided in same site next day.

All cataract patients were dilated with tropicamide with phenylphrenine combination and with plain tropicamide, if the patient was hypertensive. Blood pressure and urine sugar were examined. Those with high blood pressure and blood sugar were referred to physician. Keratometry and biometry were completed in all cataract patients with portable keratometer (Nidek KM-500) and A-scan. With all aseptic precaution manual small incision cataract surgery (MSICS) was performed through sclera tunnel. Can opener capsulotomy was made in all cases with implantation of Fred hallows PMMA (Poly-methylmethacrylate) lens according to the biometric reading implanted. Suturing of the tunnel not required as it has valve mechanism. However, it was placed only if there was premature anterior chamber entry and chance of iris prolapse or hyphema was there.

### Statistical method

All data was transferred to SPSS 16.1 and p-value <0.05 was considered statistically significant.

### Limitations

The results of this study must be interpreted in the contexts of limitations. Our most of the volunteers who interviewed the patients were non-medical. This study does not give the complete burden of co morbidities of the population as it included all the cases that came in eye camp.

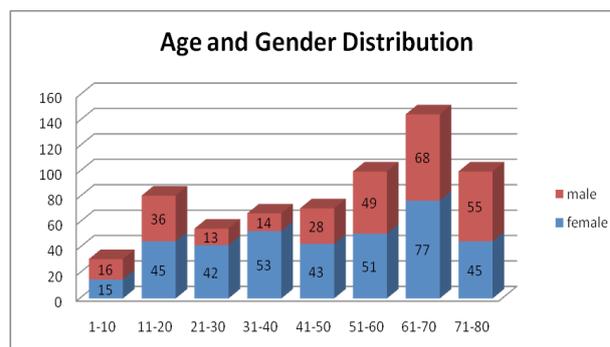
### Results

A total of 1205 patients were examined in Burtibang surgical camp in 3 days. 675(56.01%) patients were enrolled in the study. Patients ranged in age from 1 to 80 years (Fig 1) among them 57.2% are female (Table1). Out of 675 patients, 110 eyes of 105 patients had cataract with 5 patients both eyes. 110 eyes of 105 patients were allocated for MSICS according to the inclusion criteria. Surgery was performed in two days by a single surgeon. Posterior chamber intraocular lens (IOL) was implanted in 100% of surgeries.

**Table 1 : Percentage of Gender Distribution**

Sex	Frequency	Percent
female	386	57.2
male	289	42.8
Total	675	100.0

**Figure 1: Age and Gender distribution among patients.**



**Table 2. Percentage of patients with systemic comorbidities.**

Systemic comorbidities	Female	Male	Number of patients	Percentage
Hypertension	66	54	120	17.8
Diabetes	45	54	99	14.7
Tuberculosis	0	4	4	0.6
Back pain	191	130	321	47.6
Heart disease	31	21	52	7.7
Deafness	23	28	51	7.6
Cancer	2	0	2	0.3
Arthritis	146	114	260	38.5
Leprosy	3	1	4	0.6

Back pain was the most common cause of systemic morbidity followed by arthritis (table 2). On the other hand tuberculosis, cancer and leprosy were the least common.

**Table 3. Percentage of patients with ocular co morbidity other than cataract**

Ocular disease	Female	Male	Number of patients	Percentage
Glaucoma	6	1	7	1.04
Diabetes retinopathy	2	0	2	0.30
Hypertensive retinopathy	1	0	1	0.15
Age-related macular degeneration	2	0	2	0.30
Corneal opacity	4	2	6	0.89
Chronic dacryocystitis	1	2	3	0.44
Refractive error	5	1	6	0.89
Trauma by blunt object	7	8	15	2.22
Trauma by sharp object	5	2	7	1.04

Among ocular co morbidity, one had uveitis and optic atrophy. There were two cases of corneal ulcer both being female and two cases had amblyopia, with one male and other being

a female (table 3).

### Discussion

This study is unique as it gives the knowledge of systemic co morbidity in rural area of Nepal in surgical eye camp. Burtibang is a village development committee in Baglung District in Dhaulagiri zone of central Nepal. At the time of the 1991 Nepal census it had a population of 6,014 [Nepal Census 2001]. It is located at an elevation of 1,306 meters above sea level.

This prospective study of co morbidity was conducted for the first time in surgical eye camp in rural area of Nepal. There are similar reports from other parts of the world too. Brown et al reported that visual impairment is more strongly associated with the degree to which an individual values his or her specific state of ocular health than with the presence of co morbidities [Brown MM et al]. Yingpeng Liu et al found ocular co morbidities are highly prevalent among persons undergoing cataract surgery in rural Asian setting, and their presence is significantly associated with poorer visual outcomes. In this study almost 99% MSICS had with Posterior chamber IOL implanted except in cases of posterior capsule tear where anterior chamber IOL was kept. The study in Bangladesh showed that in 88% eyes underwent intracapsular cataract extraction (ICCE) and 10% extracapsular surgery with intraocular lens [Bourne RR ].

The study by Willerscheidt et al found that more than two thirds of the patients had medical co-morbidities and about one third of the eyes had ocular co morbidities [Willerscheidt AB et al]. Systemic co morbidities were associated with levels of visual impairment [Globe DR et al]. However this study failed to demonstrate association between co morbidities and cataract outcomes.

### Conclusion

This type of study was conducted in rural area of Nepal so that we are able to find out

comorbidities, and this type of study is first in our country. Further study of association of cataract and comorbidities is justified.

### Financial Disclosure

The authors have no financial interest in methods or devices described in the article.

### Acknowledgments

The authors would like to give heartfelt thanks to Mr Narayan Baral, Mr Bhoj Raj Gautam, Mr Prem Nakarmi, Mrs Parbati Gurung for their support.

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