



ORIGINAL RESEARCH ARTICLE

CURRENT PATTERN OF SECONDARY GLAUCOMA

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ABSTRACT

Objective: To determine the pattern of secondary glaucoma in Nepal Eye Hospital. **Material and Methods:** A retrospective hospital based analysis of medical records of patients attending Nepal Eye Hospital Glaucoma clinic over a period of 1 years (Jan 2013 - Jan 2014) was done in order to know the pattern of secondary glaucoma to launch a preventive measure to decrease the burden of glaucoma blindness. **Results:** A total of 59 patients with secondary glaucoma were seen during a period of one year. Out of 59 patients of secondary glaucoma 35 (59.28%) were male and 24 (40.66%) were female with male and female ratio to be 1.46:1. Neovascular glaucoma comprised of 52.54%, Lens induced glaucoma 20.34%, Uveitic glaucoma 8.4%, Pseudoexfoliation syndrome 6.75%, Angle recession glaucoma 3.39%, Steroid induced glaucoma 3.39%, Pigmentary glaucoma 1.69%, Pseudophakic glaucoma 1.69% and Glaucomatoidocyclitic crisis 1.69%. A large number of patients had profound loss of vision and 81.35% patients had presenting visual acuity of less than 3/60. **Conclusion:** Secondary glaucoma is a significant problem due to its impact on visual acuity. Identification of etiology of secondary glaucoma along with preventive measures must be undertaken to decrease this burden of blindness in Nepal.

Key words: Patterns, Secondary glaucoma.

INTRODUCTION

The number of people with glaucoma is expected to increase due to the aging of the population. Quigley and Broman (2006)² have estimated that there will be 60.5 million people with glaucoma in 2010. Asians are expected to represent 47% of those with glaucoma and 87% of those with angle closure glaucoma (Quigley & Broman, 2006). The World Health Organization (WHO) estimates that 3.4% of people aged 50 years and older are blind in the Southeast Asian sub-region that includes Nepal. In this sub-region, WHO estimates that approximately 9% of blindness in all age groups is due to glaucoma (Resnikoff et al, 2004).¹ Nepal is a South Asian country with approximately 27 million people from a multitude of ethnic groups. In 1981, it was found that cataract accounted for 66.8% of all blindness in Nepal, with glaucoma responsible for 3.2% (Brilliant et al, 1981)³

Most primary glaucomas are managed by early diagnosis and treatment and secondary glaucomas differ from primary by the fact that, if the primary pathology is treated properly and the possibility of secondary glaucoma is kept in mind, glaucomatous damage can be easily prevented. Ophthalmologists need to be careful in this regard while treating primary pathologies which have high chance of developing glaucoma secondarily. A study done in Nepal eye hospital revealed the prevalence of glaucoma to be 20.8 %. There is no study done specially about secondary glaucoma in Nepal to see the pattern and visual morbidity among patient with secondary glaucoma.

This study was undertaken to find the common causes, demographics and clinical and visual morbidity due to various secondary glaucomas.

MATERIAL AND METHODS

In this retrospective chart review, 59 secondary glaucoma patients were evaluated in our tertiary glaucoma center in the year 2013-2014 by glaucoma specialists after informed consent. The evaluation included a detailed history and detailed examination performed including vision, anterior segment examination, intraocular pressure (IOP) by Goldman applanation tonometry, and gonioscopy. Stereoscopic fundus evaluation was performed wherever possible. Visual fields were available in only a few patients as the rest had very poor visual acuity, so they could not be evaluated.

Secondary glaucoma was diagnosed when the following criteria were met: a positive history and ocular findings of pathologies such as trauma, previous surgery, neovascularization, inflammation, or any other abnormal ocular or systemic findings that could have caused prior or current IOP elevation. Patients with unilateral glaucoma were included as secondary glaucoma only if the other eye had no evidence or family history of a primary glaucoma. The other eye had IOP, gonioscopy and fundus evaluation and if required diurnal variation and visual field to exclude primary glaucoma.

Secondary glaucoma was diagnosed in the presence of chronically raised IOP with or without glaucomatous optic neuropathy. The main outcome measures were demographic data, the etiology of secondary glaucoma, visual acuity, IOP, manipulation or indentation gonioscopy, glaucomatous optic neuropathy and any other positive findings.

Data were analyzed using SPSS 10 statistical software (PC version, USA).

RESULT

Table 1 shows the age and sex distribution among secondary glaucoma patients. Out of 59 patients of secondary glaucoma, 35 patients were male and 24 patients were female. Male patients were maximum in the age group of 60-70 years 10 (16.94%) and minimum in the age group of 20-30 years 1(1.69%). Female patients were maximum in age group of 60-70 years 6 (10.16%) and minimum in the age group of 10-20 years 1 (1.69%). Table 2 describes

the pattern of secondary glaucoma. Out of total 59 patients included in this study the most common cause of secondary glaucoma is neovascular glaucoma 31 patients (52.54%). The pattern of secondary is as follows: lens induced glaucoma 20.34%, Uveitic glaucoma 8.47%, Pseudoexfoliation glaucoma 6.78%, Angle recession glaucoma 3.39%, Glaucomatoidocyclitic crisis 1.69%.

Table 1: Demographic pattern of secondary glaucoma patients.

AGE in years	Male number	Male %	Female number	Female %
10- 20	5	8.47	1	1.69
20- 30	1	1.69	-	-
30- 40	2	3.39	2	3.39
40- 50	3	5.08	2	3.39
50- 60	4	6.78	5	8.47
60- 70	10	16.94	6	10.16
70- 80	6	10.16	4	6.78
80-90	3	5.08	4	6.78
90-100	1	1.69	-	-

Table 2: Pattern of secondary glaucoma

Pattern of secondary glaucoma	Number of patients	Percentage
Neovascular glaucoma	31	52.54%
Lens induced glaucoma	12	20.34%
Uveitic glaucoma	5	8.47 %
Pseudoexfoliation glaucoma	4	6.78%
Angle recession glaucoma	2	3.39%
Pigmentary glaucoma	1	1.69%
Pseudophakic glaucoma	1	1.69%
Steroid induced glaucoma	2	3.39%
Glaucomatoidocyclitic crisis	1	1.69%

DISCUSSION:

In this institution-based retrospective chart review, secondary glaucomas were seen in 22.07% of all newly diagnosed glaucomas. We have ascertained a demographic and clinical profile of all secondary glaucomas over a year.

Secondary glaucoma results from numerous ocular or systemic disorders and shows a poor IOP control with ocular hypotensive agents or filtering surgery in its late stages. Thus, early detection is important to maximize the chance of a therapeutic response. The causative lesion overshadows any symptoms or signs of the secondary glaucoma, so that the diagnosis is often missed and almost invariably delayed. This, we feel, is largely due to the lack of knowledge regarding the relative frequency of the various causes of secondary glaucoma. Since it is secondary to other ocular or systemic pathology, primary prevention is possible by keeping in mind risk factors associated with the development of glaucoma.

Despite its public health significance, there is limited data available on the prevalence of secondary glaucoma and the possible risk factors for secondary glaucoma. The population-based Aravind comprehensive eye survey⁴ from south India³ reported a 0.7% incidence of secondary glaucomas where the total prevalence of glaucoma was 2.6%, i.e. a third of all glaucoma cases. The total number of cases in this study was very small for any further analysis. In another population-based study in the Japanese population,⁵ secondary glaucoma and primary angle closure glaucoma had an almost equal incidence of 0.6% and 0.5% respectively among a total incidence of glaucoma of 5%. This amounts to 10% of all cases of glaucoma. The prevalence of secondary glaucoma in different parts of the world revealed almost same prevalence rates ranging from 0.5% - 0.7%--.⁵⁻⁷ However, there is no prevalence rate study in Nepal to compare with other data.

The prevalence of secondary glaucoma showed increment with increase in age group in this study with maximum cases (27.1%) in age above 60 years. There are not many study to compare prevalence rates in different age group except one revealing more patients above 40 years and decrease in prevalence after 60 years.⁸ The increment of prevalence rate after 40 years in our study with maximum cases in age group above 60 years could be because more patients attending hospital after 40 developed cataracts and after 60 developed Proliferative diabetic retinopathy and cataract causing vision loss in our study. Out of 59 patients of secondary glaucoma in our study, 35 (59.32%)

were male and 24 (40.67%) were female. The male to female ratio was 2.4:1 which was same as in other studies.⁸⁻¹⁰ Most frequent causes of secondary glaucoma varies from study to study. Some showing adherent leucoma as a frequent occurrence (22.08%) followed by aphakia and pseudophakia⁹; some reporting pseudoexfoliation (54%) being the most frequent followed by neovascular(12.4%)¹⁰. In one hospital based Nepalese study, Uveitic glaucoma was found as the commonest cause 22.3% followed by traumatic glaucoma.¹¹ Other hospital based Nepalese study showed lens induced glaucoma as a common occurrence followed by neovascular glaucoma.¹² Neovascular glaucoma was the most common cause of secondary glaucoma in our study. Our different findings as compared to other Nepalese studies could be because of the changing lifestyle trend in Nepalese population. There were 81.35% blind due to secondary glaucoma in our study which was comparable to study revealing 65% blind due to this glaucoma.⁸

This data aware us Secondary glaucoma needs early recognition and prompt management like primary glaucoma to prevent blindness burden worldwide. Spreading awareness about the causes for secondary glaucoma in community level and to screen patients having systemic and ocular conditions to develop glaucoma later, timely, to prevent blindness burden should be our goal.

Since this and other two Nepalese glaucoma study were hospital based, further national level study is required to study the exact prevalence and demographics of secondary glaucoma in Nepal.

CONCLUSION:

Neovascular glaucoma is the commonest cause of the secondary glaucoma in our study revealing prevalence increase with increased age and in male gender. Secondary glaucoma needs early recognition and prompt management like primary glaucoma to prevent blindness burden worldwide.

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