



## Creating Glaucoma Awareness- A Novel Method

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### Research Article

Volume 7 Issue 1

Received Date: May 09, 2022

Published Date: May 19, 2022

DOI: 10.23880/oajo-16000242

### Abstract

Glaucoma is a multifactorial optic neuropathy causing irreversible blindness, with rising prevalence the world over. If detected early, it can be treated but majority of people are not aware of this disease especially as it is asymptomatic. Methods of improving awareness have been instituted, like the world glaucoma week, in the world. We actioned a simple method to involve health care workers and patients reporting for all ocular ailments to make them aware of this debilitating disease.

**Keywords:** Glaucoma Awareness; Questionnaire; Health Care Workers; Blindness; Debilitating Disease

### Introduction

Glaucoma is a multifactorial optic neuropathy with approximately 12 million affected by the disease and 1.2 million blinded by glaucoma in India, as per information in the National Health portal, India. It is the second most common cause of blindness world-wide and is the commonest cause of irreversible blindness in the world.

This disease is generally asymptomatic and only in a few cases does it cause symptoms of pain, redness, diminution of vision, headache, change in prescribed glasses. Generally underdiagnosed and undertreated especially in the developing countries, about 35% of people are found to have advanced glaucomatous neuropathy and are unable to benefit from standard treatments [1].

The risk factors for glaucoma are advanced age, family history of glaucoma, race, ethnicity, diabetes mellitus [2]. Caucasians, Blacks and Asians differ in age of developing the disease- African Americans develop it at a younger age and they progress more rapidly and are seven times more likely to become blind due to this disease than the non-Hispanic Whites. Whereas, Asians are at a higher risk of developing

narrow angle glaucoma [2].

Awareness of the risk factors, investigative modalities and varied treatments are generally not known to people. While cataract, called 'Safed Motia' in India, is commonly understood by all, the term Glaucoma is mostly "unheard" of. Knowledge about glaucoma is not satisfactory even amongst physicians as found in a study conducted to assess knowledge of glaucoma amongst physicians in Riyadh, which found that 65.8% had poor knowledge of this blinding disease [3]. Higher level of awareness about glaucoma has been found in urban areas, in people with higher educational status and eye examination once in a life [4].

In India, the Chennai Glaucoma Study found awareness of glaucoma to be very low amongst the urban population of Chennai and younger subjects and the less educated were less aware of this disease [5]. It is therefore imperative for all health care workers including receptionists, attendants and optometrists working in an Eye center to be aware of this disease, its comorbidities, investigations, treatment modalities and methods of drug instillation and so on, so that correct information can be imparted to the patients attending the hospital at every step.

In pursuance of this goal a simple but proactive, incentivised method was undertaken in our hospital during the glaucoma week in 2022 (06 March -12 march 2022).

### Aims and Objectives

1. To make attendants, the first point of contact of patients, aware of the nuances of glaucoma.
2. To make attendants able to explain the disease in the simplest terms and in the local language, to the patients, utilising a questionnaire.
3. To improve the knowledge of optometrists about glaucoma and their skills in data collection, making an excel sheet.

### Methodology

A questionnaire in Hindi (national language) handed over by medical representatives of a pharmaceutical company(Allergan) for the purpose of spreading awareness about glaucoma was used for the purpose as it covered major aspects of the disease and its comorbidities. Each question was explained to the attendants and they were to get patients and their relatives to answer the questions after giving their consent. They were monitored daily to check if the method was being correctly done and not just for the purpose of winning by collecting the highest number of questionnaires.

Respondents comprised of patients and their relatives who were accompanying them. The respondents and patients comprised of patients with ocular diseases including those attending the hospital for refractive errors, corneal, retinal,

uveal diseases and glaucoma and so on. Those not desirous of writing in the questionnaire were explained the importance of getting examined for glaucoma especially if there was a family history of the same.

Three monetary prizes were proposed: first prize for the attendant with the highest number of completed questionnaires, two with lower amounts for second and third number of completed questionnaires and an additional prize was proposed for a video of best oral explanation of glaucoma to patients.

At the end of each day, the questionnaires were handed over to the operations team of the hospital, who counted the number of completed ones and kept a tally for each attendant. These were then totalled at the end of the glaucoma week and prizes were distributed to the winners at the end of the glaucoma week.

The questionnaires were then further sorted out by two optometrists: Deepak and Dilip and they weeded out the incomplete or erroneous ones. Out of a total of 829 completed ones an excel sheet was made to determine the answers to the twelve questions as per Appendix- Hindi version and also translated into English. The answers were either "yes" or "no".

### Results

Total number of completed questionnaires: 829

Total number of correctly completed questionnaires: 606 show in (Tables 1 & 2).

| S. no | Name of Attendant | Number of Correct Questionnaires | No of Incorrect/Incomplete Questionnaires |
|-------|-------------------|----------------------------------|---|
| 1     | Hariom            | 280                              | 358                                       |
| 2     | Amit              | 175                              | 182                                       |
| 3     | Awadh             | 130                              | 135                                       |
| 4     | Rahul Mandal      | 108                              |   |
| 5     | Varsha            | 25                               |   |
| 6     | Priyanka          | 5                                |   |
| 7     | Miscellaneous     | 20                               |   |

**Table 1:** List of attendants with accurate and incorrect questionnaires.

| S. no | ans ques. 1 | ans to q 2 | ans to q 3 | ans to q 4 | ans to q 5 | ans to q 6 | ans to q 7 | ans to q 8 | ans to q 9 | ans to q 10 | ans to q 11 | ans to q 12 |
|-------|-------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|
| YES   | 257         | 156        | 105        | 156        | 88         | 34         | 49         | 203        | 2          | 59          | 82          | 230         |
| NO    | 349         | 450        | 501        | 450        | 518        | 572        | 557        | 403        | 604        | 547         | 524         | 376         |

**Table 2:** Answers to the questions asked in questionnaires.

## Discussion

In our study, majority of respondents were males and aged between 20-75 years; uneducated persons answered the questions through their educated relatives. Maximum number of people had difficulty in vision, reasons which could range from uncorrected refractive errors, cataracts and other diseases as in glaucoma. As is known, peripheral vision is lost early and central vision remains longest and the patient does not even realise that he has lost his visual field therefore the cause of visual loss determined by reading Snellen 's chart would not address glaucoma fully as fields were not done.

Headache especially in the evenings in persons over 40 years of age can occur in angle closure glaucoma and may occur in various other diseases as well. This is one symptom a health care worker cannot afford to ignore and must advise immediate ocular examination especially gonioscopy as this one investigation may save the patient from irreversible visual loss. If head ache is accompanied by coloured haloes around light as stated by 49 respondents (answer to question seven), angle closure glaucoma must actively be looked for [6].

Headache is a nonspecific symptom occurring in a variety of systemic diseases as well. A significant number of respondents also stated that they suffered from redness of eyes which also occurs in a variety of ocular diseases as well as in glaucoma and due its treatment with anti-glaucoma medications. What should be remembered is that mere redness does not signify glaucoma and that these persons should undergo a comprehensive eye examination.

Only 88 persons gave a positive history to steroid use – one very important risk factor for developing glaucoma and loss of sight. Many people are unaware of the medications they use and also their composition so this figure may not be correct. Those who have admitted to steroid use should also undergo a comprehensive eye examination as steroids in any form are known to cause glaucoma especially in steroid responders. Steroids are the mainstay for a large number of systemic and ocular diseases and often patients do not know that this important drug can cause glaucoma and cataract [7].

Only 34 people out of 606 gave a positive history of ocular trauma, another important cause of significant ocular morbidity. Ocular trauma is often forgotten by people and only on routine comprehensive examination are high intraocular pressure and angle recession found. These patients are should be candidates for a complete glaucoma examination [8].

Unstable vision or blurred vision (questions 4 and 8) are nonspecific symptoms and may occur in a number of diseases including cataract and glaucoma [9]. Diabetes mellitus and hypertension are associated with glaucoma as has been seen in a large population-based studies [10,11].

Family history of glaucoma is an extremely high-risk factor for getting glaucoma. Only 59 people have reported a positive family history of glaucoma. One reason why we have such a low number of positive responders is because people are unaware of another family member having glaucoma. The risk of getting glaucoma is much higher if a sibling has glaucoma than a parent and a study found the standardized incidence ratio over 20 in patients with two or more siblings with glaucoma [12]. The same study found family history to be strong predictor for glaucoma and the authors have suggested that family history can be used as risk assessment tool [12]. All people having a strong family history are glaucoma suspects and should undergo annual comprehensive ocular examination [13].

The last question is a very important: 230 people had undergone an ophthalmic check-up in the previous year, not found to have glaucoma as it has been found that despite an ophthalmic examination, glaucoma has been missed by the examiner [14]. It goes without saying that a thorough comprehensive examination including intraocular pressure measurement by applanation tonometry, at least two to three times at different times of the day, gonioscopy in each eye being examined, optic nerve head examination under mydriasis and then glaucoma investigations including pachymetry, visual field examination by automated means and optical coherence tomography will go a long way in diagnosing this disease early and giving appropriate treatment.

## Conclusions

Creating awareness by the novel method used in our center had manifold positive results. Attendants gained knowledge about a disease they had herito only heard about and were in a better position now, to guide patients. They received an incentive to work for a goal which enhanced their self-esteem and self-confidence especially on receiving a prize from the management. Patient awareness about the multifactorial nature of this disease was enhanced. The third important result was enhancement of work skills of optometrists and their being able to help in data collection and writing a paper. Glaucoma week observation in this manner will help spread motto, "The world is bright, save your sight" and benefit a large number of health care workers and patients.

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