

Awareness and knowledge of glaucoma among undergraduate medical students: Can we expect greater glaucoma referrals in the future

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Abstract

Background: Glaucoma, the second leading cause of blindness is called the sneak thief of sight. This study was planned with the objective of assessing the level of awareness and knowledge of glaucoma among medical students. **Materials and Methods:** Institutional Ethics Committee Clearance was obtained and a descriptive semi-structured-questionnaire-based study was conducted. The questionnaire comprised of 14 questions to gather information about the awareness and knowledge of glaucoma. Informed written consent was taken from 200 undergraduate medical students and the questionnaire was administered. Data was analysed using Microsoft excel and descriptive statistics. **Results:** The students had good knowledge about the definition (63%), risk factors (80%) and medical (70%) and surgical (64%) treatment of glaucoma. However, knowledge regarding blindness due to glaucoma and laser therapy in glaucoma was poor. Teaching faculty (89%) and internet (68%) were the major sources of information. **Conclusion:** Our study showed a good overall awareness and knowledge about glaucoma among undergraduate medical students. This may suggest greater referrals of patients at risk of glaucoma from these future medical practitioners which can increase the rate of glaucoma detection. Periodic assessment of awareness, knowledge and attitudes of medical students towards important ocular diseases would provide a feedback about the adequacies of current curriculum and teaching learning methods in use.

Key Words: awareness, glaucoma, questionnaire, undergraduate medical students.

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INTRODUCTION

Glaucoma, a progressive optic neuropathy is the second leading cause of blindness in the world¹. In India, the number of people suffering from glaucoma is estimated to be around 11.9 million². On the basis of the available data, the prevalence of Primary open angle glaucoma

(POAG) estimated to be 1.7% in rural population and 3.5% in the urban population^{3,4}. It is predicted that number of people affected by glaucoma worldwide is expected to increase to 79.6 million by 2020⁵. According to the Andhra Pradesh Eye Disease Study the awareness of glaucoma in general population was poor (2.3%) when compared to other diseases like cataract (69.8%), night blindness (60%) and diabetic retinopathy (27%)⁶. This reduces the health seeking behavior for glaucoma resulting in an increase in prevalence of glaucoma blindness. Various studies have shown that about 90% of patients having glaucoma remain undiagnosed⁴ and are detected to have advanced visual field loss at the time of diagnosis⁷. In order to reduce the burden of glaucoma blindness in the population, there is a need for an efficient link between the population at risk and the Ophthalmologist. Glaucoma, being a preventable cause of blindness can be detected early if persons with risk

factors are adequately screened. Apart from raised IOP and age, glaucoma is associated with several other risk factors⁸. Systemic conditions like hypertension, diabetes mellitus, thyroid disorders and cardiovascular diseases have also been postulated as risk factors for glaucoma. Hence health care professionals from other medical specialities treating patients with systemic diseases can form an important bridge between patients with risk factors and the Ophthalmologist by promoting awareness and ensuring prompt referrals.^{9,10,11} Since ophthalmic consultations form only a small percentage of medical visits and Ophthalmologists may not be readily available in all the parts of the country, general practitioners have an important role to play in the prevention of glaucoma blindness. Hence medical education should be strengthened to train the future doctors to identify and refer patients with prevalent eye diseases like glaucoma. Given the expected increase in the prevalence of glaucoma and inadequate eye care resources in developing countries like India, it is important to assess the knowledge of glaucoma among medical students and offer them appropriate information wherever necessary. Few studies have shown that the basic knowledge of Ophthalmology among undergraduate medical students is largely insufficient, prompting a need to alter the way Ophthalmology is taught in medical schools^{12,13}. Hence this study was planned with the objective of assessing the knowledge and awareness of glaucoma among sixth term undergraduate students. This could further help us to make appropriate changes in the curriculum to ensure they have a good knowledge of glaucoma.

MATERIALS AND METHODS

This cross sectional observational study included undergraduate medical students of our institution belonging to the sixth term. Students above 18years of age who were willing to provide consent and participate in the study were included. The study was been conducted in accordance with the ethical principles as laid down in the Helsinki Declaration of 1975, as revised in 2000. The approval from the Institutional Ethics Committee was obtained. A structured questionnaire comprising of 14 questions was designed by the first author (ASM) to gather information about the awareness and knowledge of glaucoma. The questionnaire was in English language and included questions on the definition, risk factors, clinical features, treatment options and consequences of untreated glaucoma. It was designed to be brief and understandable and participants were asked to answer all questions to the best of their knowledge and most questions required “yes” or “no” answer or “true” or “false” response. The participants were asked to tick the boxes opposite the chosen

response. Two postgraduate medical students along with the first author were responsible for data collection. A pilot study was first conducted on 10 randomly chosen subjects who were not a part of the main study. This was done to identify any difficulties in understanding the questions so that they could be rectified and also to organize the way the data collection would be done. The questionnaire was administered to all the participants on the same day and after collecting back the questionnaire the correct answers to all the questions were provided to the students. The data thus collected was analysed by using Microsoft Excel and descriptive statistics

RESULTS

This descriptive, questionnaire-based study included 200 undergraduate medical students belonging to the sixth semester. The mean age of the participants was 20.5+/-1.3 years. The study had 96 males (48%) and 104 females (52%) with a gender ratio: 1:1.08 Definition of glaucoma:63% students knew that glaucoma was a progressive optic neuropathy while 21% thought glaucoma is always associated with raised IOP. Blindness due to glaucoma: Only 46 % of students knew that blindness due to glaucoma was permanent and 43% thought that the blindness was reversible with treatment. Similarly, 44% of the students thought that the visual field damage was reparable and only 41% knew that the visual field damage was permanent. Risk factors for glaucoma: The knowledge about the risk factors for glaucoma among our subjects is as depicted in Table 1.

Table 1: Awareness about the risk factors for glaucoma

Risk factor	Yes (%)	No (%)	Dnk (%)
Family history	75	14	11
Age	90	8	2
Increased IOP	95	5	0
Steroids	85	14	1
Trauma to eye	65	8	27
Myopia/hypermetropia	70	19	11

Dnk= do not know

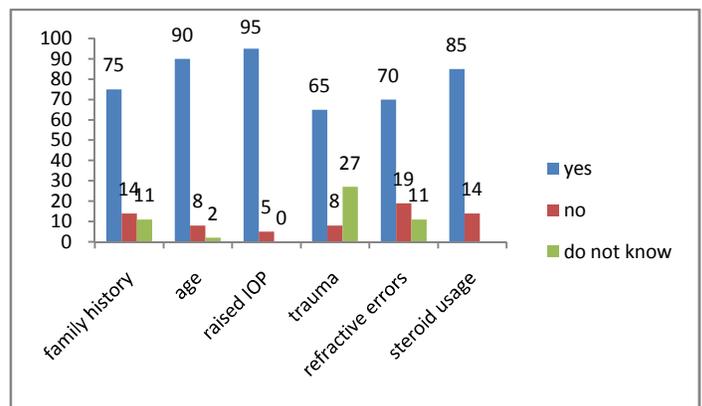


Figure 1: Knowledge of risk factors of glaucoma

There was a good knowledge about glaucoma risk factors among our subjects. More than 80% of the students were aware that glaucoma can affect anyone, at any age without the patient being aware of the disease. Vision in glaucoma: 81% of students knew that vision was unaffected in the early stages of the disease and 66% knew that central vision was affected only in the later stages of the disease. Treatment of glaucoma: The knowledge about the treatment for glaucoma among our subjects is as depicted in Table 2.

Table 2: Knowledge about glaucoma treatment

Treatment	Yes (%)	No (%)	Don't know (%)
Depends on type	85	-	15
Medical	70	2	28
Laser	38	6	56
Surgical	64	2	34

Although the overall knowledge about treatment of glaucoma was good, the knowledge about laser therapy in glaucoma which is an important aspect in glaucoma management was quite poor. Source of information: The major source of glaucoma information was teaching faculty in 89% and information available on internet in 68% of students. Information through a friend/family member (18%), newspaper (15%) and television (11%) formed only minor sources.

DISCUSSION

An important measure to reduce the global burden of glaucoma in the future is by increasing the rate of early detection of glaucoma and instituting timely and appropriate therapy. The present day medical students who will be future medical practitioners are going to form an important link in this process. Therefore ensuring good knowledge and awareness about glaucoma among them can improve the referral of patients with risk factors to Ophthalmologists which can facilitate early detection of glaucoma. Medical education should also emphasise the need to promote adherence to continuous treatment, which is vital to reduce glaucoma progression. Definition of glaucoma: In our study, 63% of the students knew that glaucoma is a progressive optic neuropathy, suggesting a good knowledge about the definition of glaucoma. Further, only 21% of them thought that glaucoma is always associated with a raised IOP. This suggests that our students had good awareness that glaucoma can occur in the absence of raised IOP. This is in contrast to a study conducted in Ghana where 65.9% defined glaucoma as raised IOP, and only 23.1% defined glaucoma as damage to the optic nerve head.¹⁵ Blindness and visual field defects in glaucoma: We found that only 46 % of students knew that blindness due to glaucoma was permanent and 43% thought that the blindness was reversible with treatment. Similarly, 44% of the students thought that the

visual field damage was reparable and only 41% knew that the visual field damage was permanent. In the study by Samuel *et al* 67.2% believed that damage from glaucoma is permanent, while 11.8% said that it is reversible.¹⁵ These findings suggest that we need to emphasise about the permanent and irreversible nature of the visual field damage and blindness due to glaucoma. Risk factors of glaucoma: We found that our students had good awareness about the common risk factors for glaucoma (Table 1). These findings are similar to the study by Nimitha and associates where more than 70% of the respondents were aware of the risk factors of glaucoma.¹⁶ Treatment of glaucoma: As depicted in Table 2, our students had good knowledge that treatment of glaucoma depended on the type of glaucoma and also were aware about the medical and surgical options for glaucoma management. However, they had poor knowledge about laser therapy in glaucoma (56% of the respondents did not know about laser treatment). Source of glaucoma information: The major source of glaucoma information was faculty through lectures and clinical discussions in 89% and information available on internet in 68% of students. In the study by Samuel *et al* Program training was the source of awareness and knowledge of glaucoma among 56.8% of the respondents, followed by the media 34.8%. Our generation is witnessing a steep increase in the usage of internet and social media. This can be effectively used to spread awareness among the masses about various diseases to improve case detection rates. Our study showed a good overall awareness and knowledge about glaucoma among undergraduate medical students. Although this is a positive sign, we have to keep in mind that the questionnaire used was a close ended structured where the participant has the tendency to tick only because the questions are suggestive of the answers irrespective of whether they were aware of the correct answer. This may be one of the limitations of our study.

CONCLUSIONS

The level of awareness and knowledge of glaucoma among undergraduate medical students in our institution was high. This may suggest that there is light at the end of the tunnel. We can expect greater referrals of patients at risk of glaucoma from these future medical practitioners which can increase the rate of glaucoma detection. This may lead to reduction in the prevalence of glaucoma blindness in the community. It is suggested to conduct such studies among undergraduate students periodically to assess their awareness, knowledge and attitudes towards important ocular diseases. This would provide a feedback about the adequacies of current teaching learning methods in use. It may also indicate the need for

reform of existing curriculum to enhance the knowledge of the students.

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