Awareness and knowledge of emergent ophthalmic diseases among non medical students

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This study was done to assess the awareness and knowledge of 3 emergent ophthalmic diseases - retinal detachment, central retinal arterial occlusion, acute angle closure glaucoma among non medical students. It is important to assess their spectrum and presentation to prevent irreversible blindness. A questionnaire based study was done among 201 non medical students to assess their knowledge about these emergent ophthalmic diseases. It includes one (yes/no) question for assessing the awareness. To test the knowledge, 3 questions were asked regarding symptoms treatment and complications separately for every emergent ophthalmic disease. Analysis was done using google forms in this study. Descriptive statistics were represented using bar graphs and tables for better understanding. A total of 201 non medical students were enrolled in this study. The mean age was 23.24 approximately. Only 42 of 201 were aware of acute angle closure glaucoma (20.9%) and 44 (29.1%) were aware of retinal detachment. There was not much difference in level of awareness between these two conditions but it was significantly lower in case of CRAO. Only 27(13.4%) of 201 were aware about CRAO. Almost 85.6% were not aware about the blindness caused by CRAO, 81.6% were not aware about the blindness caused by RD and 79.1% were not aware about the blindness caused by AACG. In this study we found that level of awareness and knowledge of emergent ophthalmic diseases were very low among non medical students. Hence, efforts should be made to promote health education regarding these ocular emergencies. This will not only help the young people to screen themselves promptly but also spread awareness about these conditions to their friends and relatives.

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INTRODUCTION

This study was done to assess the awareness and knowledge of 3 emergent ophthalmic diseases - retinal detachment, central retinal arterial occlusion, acute angle closure glaucoma among non medical students. Among these diseases RETINAL DETACHMENT AND CRAO are the most common emergencies seen in the emergency department (Pokhrel and Loftus, 2007). An estimation from WHO stated that about 4.5 million people are blind due to glaucoma. In India, one of the leading cause for blindness is glaucoma with nearly 1.2 million people are blind from the disease (Makwana et al., 2019). One of the
important cause of morbidity in South Asia is Ocular emergencies. So assessing their spectrum and presentation is an essential factor for developing local preventive and therapeutic programmes (Saw et al., 2003). Similar studies done on ocular emergencies like diabetic retinopathy, glaucoma, retinal detachment, CRAO, age related macular degeneration showed low levels of awareness among people (Katibeh et al., 2014; Mishra et al., 2016). The incidence of these emergent ophthalmic diseases may be rare, but they are clinically significant. Failure of the patient to identify the symptoms at an earlier stage or appreciate their severity of the disease can not only lead to delayed medical treatment but also cause permanent or irreversible blindness (Mishra et al., 2016; Kikushima et al., 2014; Hayreh, 2014).

Most of the patients delay the treatment even after the onset of symptoms which increases the risk of irreversible blindness (David et al., 1985; Rudkin et al., 2010; Quinn et al., 2004). Also, low visual acuity and blindness are associated with depriving the quality of life for the patients (Berhane et al., 2007). So prompt recognition and appropriate treatment of emergent ophthalmic diseases is essential to prevent complications like irreversible blindness. Since the visual prognosis of these emergent ophthalmic diseases depend on timely intervention, it is important to educate the public about these conditions which would help them to identify the symptoms and seek medical attention quickly. Given the importance of emergent ophthalmic diseases, this survey was taken to apprehend the knowledge about these conditions among non medical students. Considering the low levels of awareness of common eye diseases and emergent ophthalmic diseases amongst patient. We hypothesized that it would be low among non medical students in this study.

MATERIALS AND METHODS

A cross-sectional study was done to assess the awareness and knowledge of emergent ophthalmic diseases among non medical students. This study was conducted from July 15 to August 1, 2020. According to previous study done by (Mishra et al., 2016) in 2015 at Mount Sinai hospital, the awareness and knowledge of emergent ophthalmic diseases was found to be 27.7% for retinal detachment, 14.6% for acute angle closure glaucoma and 4.6% for CRAO. This was taken as the reference value for sample size calculation in this study. Sample size was calculated using the formula \( N = z^2pq / (L)^2 \). The sample size came out to be 195 and it was rounded off to 200. Any non medical student who was willing to take part in this study was selected. Medical and para medical students were excluded from this study.

This study was carried out between July 15 to August 1, 2020. A semi structured pretested questionnaire was used to study the tool for data collection for evaluating the participants. Data was collected with the help of google forms. The questionnaire consisted of demographic details like age, sex, education. It includes one (yes/no) question for assessing the awareness. To test the knowledge, 3 questions were asked regarding symptoms treatment and complications separately for each emergent ophthalmic disease. The answers to most of the questions were yes or no type. The questions were simple and tested the basic understanding of students regarding each of the emergent ophthalmic disease. Data collection was done with the help of google forms. Descriptive statistics were presented using bar diagrams and graphs for better understanding and establishment of the data. This study was approved by Department of Ophthalmology and Research Committee of Saveetha Medical College and Hospital.

RESULTS AND DISCUSSION

A total of 201 non medical students were enrolled in this study. Of these 201 non medical students 99 were female and 101 was male. As mentioned in the Table 1, majority of the respondents were between 15-25 years of age. The mean age was 23.24 approximately, SD is 1.131 and the range is 15-45. Of 201 participants, Almost 148 students were pursuing their under graduation.

Table 1: Age group and Education of the Non medical students participating in this study.

| Characteristics     | No of participants (N=201) |
|---------------------|-----------------------------|
| **Age**             |                             |
| 15-25               | 168                         |
| 25-35               | 31                          |
| 35-45               | 2                           |
| **Education**       |                             |
| Primary             | 0                           |
| Secondary           | 5                           |
| Under graduation    | 148                         |
| Graduate and above  | 46                          |

Awareness of emergent ophthalmic diseases was found to be extremely low. Only 42 of 201 were aware of acute angle closure glaucoma (20.9%) and
44 (29.1%) were aware of retinal detachment. As stated in Figure 1, there was not much difference of level of awareness between these conditions but it was significantly lower in case of CRAO. Only 27 (13.4%) of 201 were aware about CRAO. The small proportion of students who were aware about these emergent conditions has acquired the knowledge through their relatives suffering from these diseases.

Levels of awareness and knowledge of emergent ophthalmic diseases were low in this study. These emergent conditions are rare but they are clinically very important. If they are not recognized and reported soon it might lead to irreversible blindness. As stated earlier, previous studies proves that delay in treatment can lead to permanent blindness. So it was important to apprehend the awareness of these conditions among students (non medical). This study findings shows the need for increased awareness and knowledge of emergent ophthalmic diseases. We have discussed each entity below.

**Acute angle closure glaucoma**

In India one of the leading causes of blindness is glaucoma with nearly 1.2 million people blind from the disease. The blindness due to glaucoma is irreversible. Acute angle closure is due to the apposition of iris to the trabecular meshwork, which in turn results in increase in intraocular pressure (IOP). If acute angle-closure glaucoma is not treated immediately, damage to the optic nerve and significant and permanent vision loss can occur within hours. A previous study Shows that level awareness of glaucoma was very low among students (Puri and Elangovan, 2016). Also, a similar study states that there is a higher incidence of APACG in Singapore, with elderly women being the highest risk group (Wong et al., 2000). It is difficult to prevent attacks of acute angle closure glaucoma, but a study shows that a small delay after the onset of symptoms (less than 2 days) could prevent more than half of the filtering surgeries and poor visual outcomes (Bojiae et al., 2004). In this study only 42 out of 201 were aware about acute angle closure glaucoma. Almost 89.1% of the students did not know that blindness due to glaucoma is irreversible. The remaining students who were aware about glaucoma is due to their friends and relatives who had glaucoma. Hence Early recognition of the patients with acute angle-closure glaucoma and a shorter time of delay in presentation could save a lot of patients from vision loss each decade (Bojiae et al., 2004).

**Retinal detachment**

Retinal detachment is the separation of the neurosensory layer of the retina from the choroid and retinal pigment epithelium underneath. It is seen that one of the major risk factors for retinal detachment is myopia which accounts for about 55% of the causes for non traumatic RD. The longer retinal detachment goes untreated, the greater your risk of permanent vision loss in the affected eye.
detachment was very low in this study (Quintyn et al., 2006). In this study only 44 out of 201 were aware about Retinal detachment. Almost 81.6% were not aware that it can sudden blindness. A similar study done by (Quintyn et al., 2006) and many other studies show very extremely low levels of awareness and basic understanding of retinal detachment among people. Increasing awareness, especially about floaters, might increase the proportion of patients with macula still on at referral (Kang and Luff, 2008). Hence, Recognition of symptoms and awareness of the risk factors for retinal detachment will help in seeking quick medical attention and saving vision (Waheed and Chaudhry, 2012).

Central retinal artery occlusion

CRAO Central retinal artery occlusion (CRAO) is an ophthalmic emergency. It is considered to be the acute stroke of the eye and has very poor spontaneous recovery rates (Chen and Lee, 2008). It is a sudden, frequently irreversible, monocular vision loss, analogous to acute cerebral ischaemia (Rudkin et al., 2009). In this study awareness and knowledge of CRAO was significantly low compared to the other two ophthalmic emergencies studied. Of 201, only 27 were heard of this disease. Most of them were not aware of the fact that it can cause sudden painless loss of vision. Also, Only 11.4% of them knew that the treatment should be started within 24 hours and only 10 % were aware about the complications. It is a true ophthalmic emergency in which every minute of delay increases the risk of irreversible retinal damage. More than 90% of eyes with central retinal artery occlusion (CRAO) have a sudden, painless decrease in visual acuity to a level of counting fingers to light perception (Shalchi and Daneshvar, 2009). Control of risk factors which can modified via health education and health promotion is the primary prevention for CRAO. Hence, public awareness should be raised of the symptoms and an efficient direct referral pathway to an hospital ophthalmologist established to aid treatment delivery.

CONCLUSIONS

In this study we found that level of awareness and knowledge of emergent ophthalmic diseases were very low among non medical students. As stated before, Early detection of symptoms and timely treatment of these ocular emergencies will prevent patients from irreversible blindness. Hence, efforts should be made to promote health education regarding these ocular emergencies. This will not only help the young people to screen themselves promptly but also spread awareness about these conditions to their friends and relatives.

Ethical consideration

This study was approved by Institution Review Board of Saveetha University. Grant sanction form was obtained from HOD’s of all Departments. Further informed oral consent was obtained from all the non medical students who participated in this study.

ACKNOWLEDGEMENT

I hereby convey my sincere thanks to Dr Sanjeev Kumar Puri (HOD of Ophthalmology Department, Saveetha College and Hospital) for guidance provided in doing this study. I also thank the participants for taking their time and participating in this study.

Funding Support

The authors declare that they have no funding support for this study.

Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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