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Impact of Addiction (Alcohol and Smoking) on Primary Open Angle Glaucoma.

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ABSTRACT

Background: Habits such as smoking and alcoholism have undue consequences on the systemic vasculature. One among the deleterious effects of smoking includes development of Glaucoma. Glaucoma effected by smoking adversely causes vision disturbances and thereby causing secondary complications such partial blindness. This paper aims to evaluate the impact of addiction specifically alcoholism and smoking on Glaucoma occurrence. **Methods:** This study was conducted in tertiary health care hospital involving 17792 patients. In all the cases detailed clinical history and family history was taken. A comprehensive eye evaluation was carried out which included UCVA and BCVA, slit lamp examination, direct ophthalmoscopy, gonioscopy, Applanation tonometry and visual field analysis was done. **Results:** A total of 17792 patients were examined of which 46 cases (0.26%) were diagnosed as POAG. Out of 46 cases 5 cases (10.87%) cases gave history of alcohol use and 6 cases (13.04%) gave history smoking. 22.22% of the patients belonging to 46 -55 years of age group were addicted to alcohol and caused glaucoma. **Conclusion:** Smoking is not directly associated with Primary open angle glaucoma. There is no significant association between alcohol consumption and POAG

Keywords: Addiction, Alcoholism, Smoking, Glaucoma.

INTRODUCTION

Glaucoma is second most common cause of blindness worldwide. It is the leading cause of irreversible blindness.[1]

1 in 28 Americans older than 40 years are effected by blindness or low vision . visual impairment, and especially blindness, varies according to Race/Ethinicity. Based on demographics from the 2000 US Census, an estimated 937 000 (0.78%) Americans older than 40 years were blind.[2]

Habits such as smoking and alcoholism have undue consequences on the systemic vasculature. One among the deleterious effects of smoking includes development of Glaucoma. Glaucoma effected by smoking adversely causes vision disturbances and thereby causing secondary complications such partial blindness. The effect of glaucoma causes significant economic burden in the society. Many studies suggested that POAG is vascular in origin due to compromised blood flow to the optic nerve head and it is known that cigarette smoking contributes to vascular diseases by occluding arterial lumina with atherosclerotic plaques and intimal thickening.[3,4] The reported prevalence of POAG varies between 1.62% and 3.51%.[5] The lack of symptoms in POAG play a large role in delaying its detection and diagnosis. Typically POAG is slowly progressive remaining asymptomatic until late.

According to International Glaucoma Association old smokers have a higher risk of developing increased eye pressure (IOP) as compared to non-smokers but there is no evidence that smoking itself is a risk factor for glaucomatous damage.

This paper aims to assess the effect of smoking and alcoholism in causing Glaucoma.

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MATERIALS AND METHODS

The present study was conducted in tertiary health care hospital from January 2015 to January 2016. A total of 17792 patients were examined out of which 46 (0.26%) cases were diagnosed as POAG. A complete comprehensive eye examination including visual acuity, slit lamp examination, Applanation tonometry, gonioscopy and visual field analysis were done. Ocular history, family history and personal history was taken that gave the information about addiction, specifically questioned about the type of addiction and duration of addiction.

RESULTS

Out of 17792 patients examined 46 (0.26%) were diagnosed as POAG cases. Out of these cases 31

(67.39%) are males and 15 (32.61%) are female patients. Most of the patients with POAG belong to 55 to 65 years age group.

On analysis of the collected data it was observed that 22.22% of the patients belonging to 46 -55 years of age group were addicted to alcohol and caused glaucoma. 14.28 percent of the patients addicted to alcohol belong to 66 -75 years age group [Table 1] which correlate with the findings of various studies where the risk factor of alcoholism is seen predominantely in the fourth to fifth decades of life.

Table 1: ?.

Age group	Number of glaucoma Patients	Alcohol Addicts	
		No of patients	percentage
36-45	02	00	00.00%
46-55	09	02	22.22%
56-65	20	01	5.00%
66-75	14	02	14.28%
75+	1	00	00.00

[Table 2] show that 11.11%, 15% and 14.28% patients were diagnosed as POAG belonging to age groups 46-55, 56-65 and 66-75 years of age group respectively has history of smoking which shows that smoking develop complication from fourth decade onwards.

Table 2: ?.

Age	No of glaucoma patients	Smoking addiction	
		No of patients	percentage
36-45	02	00	00.00%
46-55	09	01	11.11%
56-65	20	03	15%
66-75	14	02	14.28%
75+	1	00	00.00%

DISCUSSION

In the present study out of 17792 patients examined about 46 cases (0.26%) were diagnosed as POAG cases. On further analysis of the data it was found that there is no significant association between alcohol consumption and POAG was found. But some studies suggested that daily alcohol consumption is associated with higher eye pressure.[6] As per International glaucoma association, Ethyl alcohol has been known for decades to be a hyperosmotic molecule. However ethanol consumption may have propensity to raise IOP after chronic use. The implication is that it may reduce IOP in short term (perhaps for just a couple of hours) but possibly have a negative impact in the long term.

Congdon N et al., conducted a study involving to estimate the cause-specific prevalence and distribution of blindness and low vision in the United States by age, race/ethnicity, and gender.[2] According to them, the leading cause of blindness among white persons was age-related macular degeneration (54.4% of the cases), while among black persons, cataract and glaucoma accounted for more than 60% of blindness

Jacob et al., stated that Glaucoma is the major cause of blindness in India conducted a study involving Indian population. Their study included 972 individuals aged 30-60 years, using a cluster sampling technique from 12 census blocks of Vellore town. They stated that According to them, Prevalence (95% CI) of POAG, PACG, and ocular hypertension were 4.1 (0.08-8.1), 43.2 (30.14-56.3), and 30.8 (19.8-41.9) per 1,000, respectively.[5]

It is known that smoking is associated with an immediate rise of IOP by vasoconstriction which determines the rise of pressure in episcleral veins, consequently the reduction in aqueous outflow and rise of IOP occurs. But in this study it was observed that smoking has no significant impact on occurrence of POAG. Cheng et al also found a strong association between smoking and glaucoma suggesting that the damage from smoke is probably due to the presence of toxic substances that induces release of free radicals causing decrease in antioxidants.[8]

Like this study there are some studies which failed to find an association between smoking and glaucoma.[9,10] Smoking has a strong association with eye health especially ARMD but population based studies found no association in the area of glaucoma.[11]

This study correlated with Beaver Dam Eye Study where neither heavy drinking nor smoking was related to prevalence of POAG.[12] Thornton J et al., conducted a review invoving 17 studies to assess smoking and age-related macular degeneration. According to them, Age-related macular degeneration (AMD) is the leading cause of severe and irreversible vision loss in the Western world. The literature review confirmed a strong association between current smoking and AMD. They stated that there appears to be a lack of awareness about the risks of developing eye disease from smoking among both healthcare professionals and the general public.

CONCLUSION

In this study neither heavy drinking nor cigarette smoking behaviour was related to the prevalence of POAG. No difference in the frequency of glaucoma by drinking status and by cigarette smoking status.

Awareness must be created regarding the deleterious effects of smoking and alcohol consumption on glaucoma/blindness. Camps must be conducted at regular intervals and special glaucoma centers must be established in order to reduce the incidence.

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