

Correlation of onset of presbyopia with smoking habit: A hospital based study

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Abstract

Introduction: Throughout the area around the world very less research are performed on presbyopia with smoking habit. The present study was considered with an aim to decide the prevalence of presbyopia between smokers and non smoker's patients in Bhuj district.

Materials & Methods: Out of the total 400 patient included, they were divided into two groups, Group 1 consist of 200 sample patients having habit of smoking regularly and rest 200 were included in the control group. Ophthalmic examination that includes colour vision, Snellen Visual acuity and examination of fundus was done in all the patients. Standard projected eye charts with black letters were used to obtain Snellen visual activity. Subjective refraction was performed with and without spectacles, first on right side and then on left side of eye of all patients.

Results: Significant correlation was found between addiction of smoking and that of presbyopia with $P \leq 0.02$. When the dissimilarity was measured between onset of age and earlier succession of presbyopia between smokers and non smokers Statistical significance was found between two groups.

Discussion & Conclusion: In a society having psychosomatic disorder it's common to have presbyopia at an early age. Occurrence of hypertension, head ache and gastritis are an early indication presbyopia. Along with the above described factors, others factors that can cause early onset of presbyopia are nutritional deficiencies, systemic diseases and other environmental factors.

Keywords: Hospital, Presbyopia, Smoking, Visual Defect.

Introduction

Presbyopia is a condition associated with aging of the eye; that results in gradual decrease in the ability of the individual to focus clearly onto the close objects. It starts just about at the age of forty years, when individual face the problem of reading small prints or on the screen of the computers and laptops.⁽¹⁾ In the year 2005, 1.04 billion people globally were suffering with presbyopia. In East Africa, the on the whole occurrence of presbyopia was around 89.2%.⁽²⁾ In south India, figure of 5587 entity with age of thirty years of age or elder and 55.3% prevalence was found in some areas. It is expected that worldwide by year 2020, nearly 2.1 billion people are expected to be affected by presbyopia.

In USA alone, due to increase in aging of individual 111 million adults are presbyopic and it will grow to increase to 123 million by 2020.⁽³⁾ Due to gradual loss of flexibility & increase in thickness of the lens inside the eye is considered as the root cause of the Presbyopia.⁽⁴⁾

With an increase of age of the person there is gradual deposition of protein in the lens that formulates lens stiffer and not as much of stretchy. With the reduction in flexibility, tricky time for the eye to focus on close things.⁽⁵⁾

Smoking is as bad for your eyes as it is for the rest of your body. Research has linked smoking with optic nerve damage, cataract and age-linked macular degeneration all of them leads to blindness.⁽⁶⁾ Smoking has long been known to cause lung disease

including cancer and heart problems; however very few know the link to vision loss. Research shows that smoking increases the risk of dry eye syndrome, cataracts, Age linked macular degeneration, glaucoma, cataracts, glaucoma and diabetic retinopathy and Dry Eye Syndrome. Pregnant women who have a habit of smoking have tendency to transmit harmful toxins to the placental area that can harm the unborn child.⁽⁷⁾

Person when addicted to smoking, it nearly damages each and every organ of the body. Several observational researches have resolute that smoking is a burly risk factor for the growth of neovascular age-linked macular degeneration, cataract, and other eye diseases. A small number of research are carry out on prevalence of presbyopia among Smoking population in different areas of world. Therefore we designed this study with the aim of determining the prevalence of differences in age at onset and progression of presbyopia between smoking and non smoking patients in Bhuj district.

Materials & Methods

The present research was conducted in the Bhuj, Kutch district, Gujarat for the period of one year. With the circumstance of the study, 400 qualified patients were proposed for the study. The minimum age criteria for inclusion the study was 30 years. The selected patients were interviewed for daily history and they did undergo the near vision testing. Out of the total 400 patient included, they were divided into two groups, Group 1 consist of 200 sample patients having habit of

smoking regularly and rest 200 were incorporated in the control group. All participants were of age between 40 to 70 years. Control group patient were devoid of habit of smoking. A performa was arranged for all the patients who included in the study. The performa comprised of 10 questions were in questions pertaining to their habitual history as well as personal history were asked. Next their ocular examination was done.

For the identification of the ocular disease or refractive error of the person testing of corrected near visual activity and habitual distance visual activity and enable assess the patient's ability to function. All the individuals underwent examination of fundus, color vision, visual activity and Snellen visual activity. Snellen visual acuity dimensions were occupied by a standard projected eye chart by means of black letters on a white background. Subjective refraction was carrying out on the right and then the left eye of all entitled subjects, together without and with spectacles. Refraction was executed using retinoscope and an routine objective and the result was utilised as a starting point for the succeeding subjective refraction. Data were collected using a designed questionnaire. Data collected were analyzed using SPSS computer software 15.0. Data were expressed in form of proportions and frequency tables for categorical variables. Means and standard deviation were used to summarize continuous variables. The test statistics used included Chi squared test.

Results

Total of 400 patients were included in the study. They were divided into two groups each consisting of 200 patients. In group 1 patient with history of smoking or having smoking habit were included and were taken as sample group. In group 2 patient not having the habit or smoking history were incorporated. The persons with the practice of smoking were between the age of 25 and 80 years. The mean ages of both the group were found to be 51.95 ± 8.50 years and 40.89 ± 9.13 years respectively for group I and II. The onset of presbyopia when evaluate between smoking and non smoking group was found to be 25 to 80 years in smokers and 45 to 80 years in non smokers. The individuals in the non smokers groups comprised of 40 individuals unemployed, 94 individuals were employed, 85 factory workers and 20 house keepers, whereas the individuals found in the smokers groups comprised of 55 employed, 60 were without any jobs and 85 were factory workers. When comparison was done between the onsets of presbyopia it was found to be different in both the groups. Among smokers in age group of 36 – 38 years 40 patients were using spectacles for nearby tasks where as no individuals were reported using spectacle amongst non smokers in the similar age group. In age group of 39 – 40 years by smokers, 120 patients were in require of spectacles to carry out close errands, where as in non smokers group the number was

0. In the age group of 41 – 45 years, 35 amongst the smokers and 155 of non smokers were exaggerated by presbyopia. Among smokers 9 individuals and 44 individuals among non smokers under the age of 45 years utilised spectacles for nearby tasks. When the dissimilarity was measured between onset of age and previous sequence of presbyopia between smokers and non smokers it was found to be statistically significant with $p = 0.001$. The result of the present study showed that smoker's individuals were more prone to catch presbyopia at an earlier age as compared to non smoker's individuals.

Table 1: Demographic date of the participants (smokers, n=200 and non-smokers, n=200)

| Groups | Mean | SD | P |
|-------------|-------|------|-------|
| Smokers | 51.95 | 8.50 | 0.001 |
| Non Smokers | 40.89 | 9.13 | |

Table 2: Prevalence of presbyopia amongst different ages in smoking and normal groups (no=400)

| Age | Non Smokers Group | Smokers Group | P |
|---------|-------------------|---------------|-------|
| 30 – 35 | 1 | 6 | 0.001 |
| 36 – 38 | 0 | 40 | |
| 39 – 40 | 0 | 120 | |
| 41 – 45 | 155 | 35 | |
| >45 | 44 | 9 | |
| Total | 200 | 200 | |

Discussion

Age is painstaking as a risk factor for development of presbyopia, however it is likely for the condition to occur prematurely in civilization in which out sized quantity of the population live in old age.⁽⁸⁾ The amount of the presbyopia is connected to proportion of elder persons in the populations s it's related to the age of an individual. However early diagnosis and care for the patient suffering from presbyopia can lead to public health ramifications.⁽⁹⁾

Cigarette smoking is directly linked to adverse health affect of an individual with heart problems, lung problems, high blood pressure, lung cancer, oral cancer and also eyes diseases. There is low awareness among the population about the risk of eye diseases with smoking in many countries around the world. Recently in a study in UK it was establish that only 5% persons recognized smoking as a reason of blindness and different eye diseases. It was also establish that fear of blindness was also the factor measured to quit smoking.⁽¹⁰⁾

The present study indicated that initial onset of presbyopia was previous in the smokers as compared to non smokers. It emerges that the maximum occurrence of presbyopia is amid 40 years of age and elder. Approximate that roughly all the patients over the age

of 40 years are elder than 40 years of age. The majority of the persons around 68% amid smokers distress from Presbyopia were beneath the age of 40 years, whereas the on the whole prevalence of presbyopia in the regular group were found to be 75.66%; between the age of 41 years to 45 years. Nirmalan et al., found a occurrence of 55 percent in participants aged 30 years and elder. Duarte et al., in Brazil approximate the prevalence of presbyopia in 3,000 adults of 30 years and elder at 54.7 percent. Patel and West establish that further than half of adults over the age of 30 have presbyopia. The above results are in occurrence with our present study which has shown a 75 percent prevalence of presbyopia amongst participants in normal group.

Conclusion

Early presbyopia is now days very common in a society with associated psychosomatic disorder. People have developed habit of nicotine and tobacco abuse to a large extent. Occurrence of hypertension, head ache and gastritis are an early indication presbyopia. Along with the above described factors, others factors that can cause early onset of presbyopia are nutritional deficiencies, systemic diseases and other environmental factors.

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