

Early Presbyopia A Psychosomatic Disorder

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Purpose: To evaluate the frequency of factors associated with early presbyopia among patients presenting in the outpatient department.

Material and Methods: The study was carried out in outpatient department of Spencer Eye Hospital Unit 2 Karachi Medical & Dental College from January 2012 to August 2013. Patients were selected from the OPD through non probability consecutive sampling technique and included 246 patients. Sample size was calculated by WHO formula given by L Lamesho and SK Lawanga. Patients below 40 years were included in the study who presented with complaint of decreased near vision. Majority of them were those who complained of inability to see the font of cell phone. Patients having ocular pathologies that could affect the clarity of medias like corneal opacities, cataract, uveitis, vitritis and retinal detachment were excluded from the study. A detailed history of the patients was taken regarding any disorder, tobacco use, any refractive error, glaucoma and occupation, Base line investigations as blood complete picture, urine detailed reporting, random and fasting blood suger were also done as and when required. Patients were examined thoroughly in the OPD and were refracted and appropriate glasses prescribed. Data analysis was done on SPSS version 14.

Results: There were 40% male patients and 60% female patients with mean age of patients 35.6 ± 4.01 years. Tobacco chewers who presented with early presbyopia were 88 (35.7%). Fifty Two (21.1%) patients had gastritis and 18 (7.31%) had hypertension. Sixteen (6.50%) patients were diabetic. Ten (4.06%) had both diabetes and hypertension. Computer operators with early presbyopia were 5 (6.09%). Presentation of patients with refractive errors was 14 (5.69%). Less prevalent factors associated with early presbyopia were smoking 7 (2.85%) patients, glaucoma 5 (2.03%), anaemia 5 (2.03%), thyroid disease 4 (1.6%), history of use of hair dyes 4 (1.6%), osteoarthritis 2 (0.81%) and allergic disorders 2 (0.81%). Patients who presented with no specific cause were 4 (1.62%).

Conclusion: Early presbyopia is not uncommon in a society with associated psychosomatic disorders due to stressful social, environmental and financial conditions. People are anxious and they have habit of nicotine and tobacco abuse. Associated gastritis, hypertension and headache are further indicators of early presbyopia being a psychosomatic disorder.

Key words: Presbyopia, Psychosomatic disorder, Refractive errors.

The amplitude of accommodation decreases steadily with the age. This occurs mainly due to sclerosis of the lens fibres and changes in the

lens capsule which reduces the spontaneous steepening of lens surface when ciliary muscle contract. Also the ciliary muscle itself may become

less efficient with advancing age i.e. after 40 years. The eye is capable of 14 D (dioptres) accommodation in infancy which declines to 4 D by the age of 45 years and 1 D by the age of 60 years¹. To focus at a reading object at 25 cm eye must accommodate by 4 D keeping one third of the available accommodation in reserve. A person will begin to experience difficulty for near vision at 25 cm when his accommodation decays to 6 D which usually occurs between the age of 40 and 45 years. This discomfort for near vision is experienced due to reduced amplitude of accommodation and the person is said to be presbyopic and is prescribed convex lenses to aid the near vision which is called presbyopic correction and this age related inadequacy of accommodation is called presbyopia¹. Presbyopia literally means old eye. It is most common ocular affliction in the world and no individual appears exempt, although high myopes who remove their spectacles may have their far point close enough to the eye to function satisfactorily². In premature presbyopia, accommodative ability becomes insufficient for the patient's usual near vision tasks at an earlier age than expected, due to environmental, nutritional, disease related, or drug-induced causes.^{3,4} Although age is the major risk factor for development of presbyopia, but the condition may occur prematurely as the result of factors such as trauma, systemic disease, cardiovascular disease, or a drug side effect⁵. There is earlier onset of presbyopia in females due to short stature, or menopause⁶. Persons involved in occupations with near vision demands may also develop premature presbyopia⁷. Hypermetropia where there is additional accommodative demand (if uncorrected) also leads to early presbyopia⁸. Ocular disease or trauma, removal or damage to lens, zonules, or ciliary muscle, laser photocoagulation of retina systemic disease like diabetes mellitus where changes in lens leads to change in refractive state of the eye, multiple sclerosis associated with impaired innervations, cardio vascular accidents leading to impaired accommodative innervations, vascular insufficiency, myasthenia may all lead to early onset of presbyopia⁷. Decreased accommodation is a side effect of both non prescription of appropriate spectacles and drugs such as chlorpromazine, hydrochlorothiazide, anti anxiety agents, anti depressants, antipsychotics, antispasmodics, anti histamines and diuretics. Alcohol intake is also reported to be associated with early presbyopia⁷. Geographic factors as proximity to the equator (higher average ambient temperatures, greater exposure to ultraviolet radiation) have also been reported to be a cause of early presbyopia⁹.

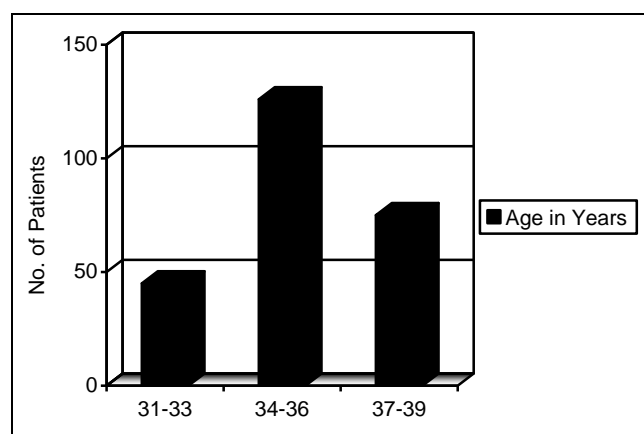
MATERIAL AND METHODS

Patients were selected from outpatient department through non probability consecutive sampling technique and included 246 patients.

It was a hospital based descriptive cross sectional study. Sample size was calculated by WHO formula given by L Lemesho and SK Lawanga¹⁰ keeping confidence interval 95%, Absolute precision 0.03%, Population size 1000 and prevalence P 35.1% (Tobacco users with early presbyopia).¹¹

Patients with complains of decreased near vision (N/12-N10 on near vision chart) were included in the study. Majority of them were those who complained of inability to see the font of cell phone and cell phone cards. Majority of the patients were emmetrope. Patients having ocular pathologies that could affect the clarity of medias like corneal opacities cataract, uveitis, vitritis and retinal detachment were excluded from the study.

A detailed history of the patients was taken regarding their occupation tobacco use, any refractive error and glaucoma. In addition to ocular history, history regarding hypertension, diabetes mellitus gastritis and heart burn was also taken. Blood CP, Urine D/R, Random and fasting blood sugar were also done as and when required. Patients were examined thoroughly in the OPD Slit lamp examination applanation tonometry and direct and indirect funduscopy and tonometry was done as and when required. Patients were refracted and appropriate glasses prescribed. Data was recorded and analyzed on SPSS programme version 14.



No: of patients between 31 – 33 years = 45 (18.29%)
 No: of patients between 34 – 36 years = 126 (51.21%)
 No: of patients between 37 – 39 years = 75 (30.48%)

Fig. 1: Age Distribution

RESULTS

Our study included 246 patients over a period of 1.8 years. Female patients were 60% (148) and male patients were 40% (98). Mean age of the patients was 35.6 ± 4.01 years. Tobacco users who presented with early presbyopia were 88 (35.7%). 18 (7.31%). 16 (6.50%) patients were diabetic among the early presbyops. 10 (4.06%) had both diabetes and hypertension. Computer operators with early presbyopia were 15 (6.09%). Presentation of patients with refractive errors as 14 (5.69%). Here 12 patients had hypermetropia and 2 patients had hypermetropic astigmatism. Less prevalent factors associated with early presbyopia were smoking 7 (2.85%) patients, glaucoma 5 (2.03%), anaemia 5 (2.03%), thyroid disease 4 (1.6%), history of use of hair dyes 4 (1.6%), osteoarthritis 2 (0.81%) and allergic disorders 2 (0.81%). Patients who presented with no specific cause were 4 (1.62%) (Table 1).

Table 1: Frequencies of various factors associated with early presbyopia.

Associated Factors of Early Presbyopia	Frequency n (%)
Tobacco user	88 (35.7)
Gastritis	52 (21.1)
Hypertension	18 (7.31)
Diabetes Mellitus	16 (6.50)
Computer operators	15 (6.09)
Refractive errors	14 (5.69)
Hypertension + Diabetes mellitus	10 (4.06)
Smoking	7 (2.84)
Glaucoma	5 (2.03)
Anaemia	5 (2.03)
Thyroid disease	4 (1.06)
No specific Cause	4 (1.06)
Hair dye	4 (1.06)
Osteoarthritis	2 (0.81)
Allergic disorders	2 (0.81)

DISCUSSION

Although age is the major risk factor for development

of presbyopia, but the condition may occur prematurely i.e. before 40 years of age the prevalence of presbyopia is higher in societies in which large proportions of the population survive into old age. Because presbyopia is age related, its prevalence is directly related to the proportion of older persons in the population. Although it is difficult to estimate the incidence of aged 42 to 44 years¹. Early diagnosis and intervention in systemic diseases identified in the process of caring for the presbyopic patient has public health ramifications. Unmanaged presbyopia can result in significant visual disability, depending on factors such as the individual patient's amplitude of accommodation, refractive error, and nature of the near vision tasks. Given the variety of spectacle and contact lens management options available, most patients do not experience significant disability due to presbyopia. Our study reported a female preponderance as there were 60% female patients and 40% male patients but O Bernice and et al reported that males had higher degrees of early presbyopic errors than females which is contrary to our study.¹⁴ Our study had a female preponderance perhaps due to the fact that females bear more stresses in our society as compared to males including multiparity which was commonly reported in our study, child raising, anaemia and other household stresses. Weale RA has also reported a female preponderance in his study¹⁶.

Our study reported that major factor associated with early presbyopia was tobacco use 88 (35.7%) patients more common among male patients, followed by gastritis 52 (21.1%) patients more common among female patients. A Population – Based Assessment of presbyopia was conducted in the State of Andhra Pradesh, South India known as 'The Andhra Pradesh Eye Disease Study'. According to this study 35.1% of subjects aged 35 years had presbyopia and they were tobacco users. These findings are quite close to our study¹². Tobacco use and gastritis are usually associated with stressful living conditions so early presbyopia could be a psychosomatic disorder. It should be kept in mind that Spencer Eye Hospital is located in an old town Lyari and illiteracy, ignorance and poverty prevails here. People usually live a stressful life style; they are addicted and habituated to different forms of tobacco. However no association between early presbyopia and gastritis has been reported in literature previously. Among the early presbyopes 18 (7.31%) patients had associated hypertension and 16 (6.50%) patients had diabetes. Those who presented with diabetes and hypertension both were 10 (4.06%). The medical history is important

in the diagnosis of premature presbyopia, particularly diabetes mellitus (lens, refractive effects); multi plesclerosis (impaired innervation); cardiovascular accidents (impaired accommodative innervation) vascular insufficiency; myasthenia gravis anemia; influenza; measles^{5,7}. In our study commonly found medical problems were diabetes mellitus, hypertension and anaemia. Early presbyopes who presented with associated headache and refractive errors were 14 (5.69%) and with glaucoma were 5 (2.03%). Jain and et al and pointer have reported that in hypermetropia where there is additional accommodative demand (if uncorrected) also leads to early presbyopia. Here latent hypermetropia should be considered as important feature. In addition ocular disease as glaucoma or trauma, removal or damage to lens, zonules, or ciliary muscle, laser photocoagulation of retina may also lead to early presbyopia.^{7,8,13,16} In our study 4 (1.62%) patients has early presbyopia associated with the use of hair dye. Jain and et al reported in their study that 35.75% patients entered presbyopia at or before the age of 38 years. Environmental conditions including high average temperature, much ultraviolet radiation, chronic deficiency of essential amino acids, and exposure to toxic factors, particularly hair dye, may play a significant role in precipitating the early onset of presbyopia⁷. Our study reported 15 (6.09%) computer operators had early prebyopia. Computer operators are usually engaged in prolong near work. A hospital based prospective study conducted in Nigeria revealed that 15.5% of the patients had presbyopia before age 40 years and majority of them were engaged in prolong near work. Thus increased visual tasks are a major contributory factor towards onset of presbyopia before 35 years of age¹⁴⁻¹⁶; although age is a major risk factor for the development of presbyopia. Several studies have reported that presbyopia occurs earlier among people who are exposed to high ambient temperature and ultraviolet radiation⁹. This phenomenon could have been implicated in our study as quite a number of patients presented from coastal areas of Makran and Balochistan where temperatures are at extremes during summers and exposure to ultraviolet radiations is more near coastal areas. Our study reported 5 (2.03%) patients with anaemia. Anaemia and poor nutritional status are also associated with early onset of presbyopia. Gary L has also reported an association between poor nutrition and early onset of prebyopia¹⁵. Less prevalent factors associated with early presbyopia were smoking 7 (2.84%) patients. Glaucoma 5 (2.03%), anaemia 5

(2.03%), thyroid disease 4 (1.6%), hair dyes 4 (1.6%), osteoarthritis 2 (0.81%) and allergic disorders 2 (0.81%). Patients who presented with no specific cause were 4(1.62%).

CONCLUSION

Early presbyopia is not uncommon in a society with associated psychosomatic disorder. People have habit of nicotine and tobacco abuse. Associated gastritis, hypertension and headache are further indicators of early presbyopia being a psychosomatic disorder. Although other factors like systemic diseases, nutritional deficiencies and environmental factors also cause early onset of presbyopia to some extent.

N.B this study was conducted in a hospital located in an area with low socioeconomic strata perhaps the findings may differ depending on the locality.

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