

Uncorrected Refractive Errors in Presbyopes attending medical college eye OPD

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Citation

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Abstract

The study was conducted to find out the prevalence of pre-existing uncorrected refractive error in presbyopes who attended the Eye O.P.D. in medical college of Bangalore (India). 100 presbyopes were selected according to inclusion criteria. Complete ophthalmic examination including visual acuity and objective & subjective refraction was performed. History of difficulty of vision was noted. Observations were tabulated and analyzed. 47 out of 100 presbyopes had pre-existing uncorrected refractive error. Most common complaint was difficulty of distance vision. 33 out of 47 had never used spectacles. Equal number of hyperopes and myopes were present.

OBJECTIVE

To find out the prevalence of uncorrected refractive errors in presbyopes attending Eye OPD in medical college in Bangalore

INTRODUCTION

Presbyopia is described as the condition wherein the eye exhibits a progressively diminished ability to focus on near objects with age. Thus there emerges the need of near vision corrective spectacles. The first symptoms present between the age of 40-50 years with difficulty in reading fine prints, in dim illumination, eyestrain after long reading hours and transient blur vision (1).

2 different definitions are cited in various studies. Functional presbyopia is defined as needing a significant optical correction added to the presenting distance refractive correction to achieve a near visual acuity criterion (more than or equal to 1 line of acuity improvement in one case, J1 print in another, and N8 print in the other) (2-4). Objective presbyopia is defined as needing a significant optical correction (more than or equal to 1.00 D) added to the best distance optical correction to improve near vision to a near visual acuity criterion of N8 (5).

The prevalence of presbyopia varies from region to region. In southern India, Nirmalan et al (5) found a prevalence of 55 per cent in people aged 30 years and older.

Refractive errors affect a large proportion of the population

worldwide, irrespective of age, sex and ethnicity. A significant number of these are never recognized and treated. These people in their presbyopic age present with uncorrected refractive errors.

According to the Bulletin of the World Health Organization, in 2004, the number of people (above the age of 40 years) visually impaired from uncorrected refractive errors in India were almost 35 million (6). It was also shown that the coverage of refractive services in various regions of India ranges just between 40-55%.

Uncorrected distance refractive error is the most common cause of vision impairment and the second most common cause of blindness in the world (6-9).

This study aims to find out the prevalence of pre-existing uncorrected refractive error in presbyopes attending Eye OPD in medical college in Bangalore.

MATERIALS & METHODS

This observational study was conducted on normal subjects who attended to Eye OPD in K.I.M.S. Hospital in January 2009. Selection was based on the following criteria:

- Age more than 35 years with complaints of difficulty in vision (distance, near or both)
- No other ocular complaints
- No history of ocular infections / trauma / surgery

- No ocular or systemic disease (past or present)
- BCVA (evaluated during study) should be 6/6 and N/6 for distance & near vision, respectively
- Willingness to participate

Accordingly 100 subjects were selected. Preliminary data was collected which included name, age, sex, and hospital MRD No. They were specifically enquired for any complaints of difficulty in vision (distance, near or both) and any usage of spectacles (past or present). All of them underwent complete ophthalmic examination and refraction (objective & subjective). The vision was recorded in dim-light room. The distance and near vision were recorded using the well illuminated Snellen’s Distance and Near Vision Charts, respectively. As mentioned above, only patients who could be corrected up to 6/6 for distance vision and N6 for near vision were included in study. Objective refraction was performed with Autorefractometer (after calibration). All procedures were done by the same post-graduate student. Observations were tabulated and analyzed.

OBSERVATIONS

Figure 1

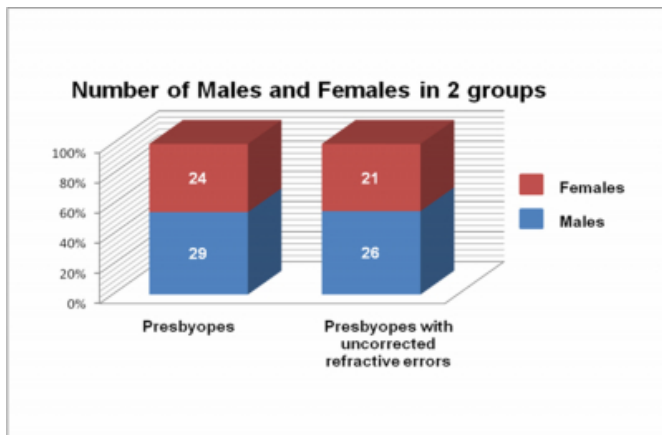


Figure 2

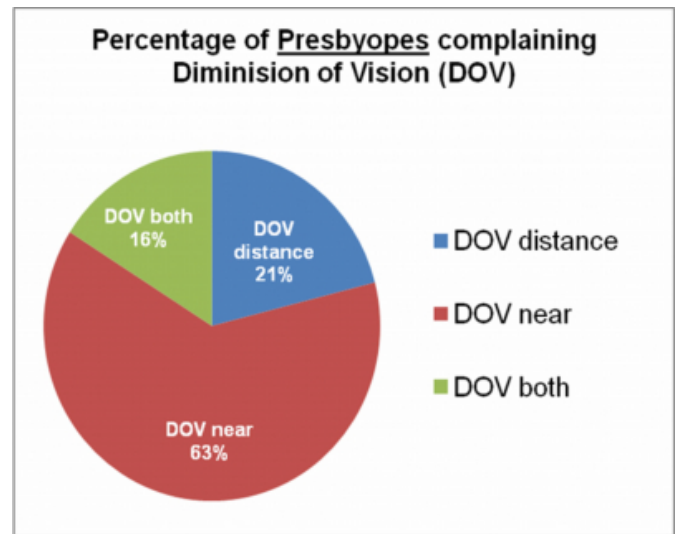
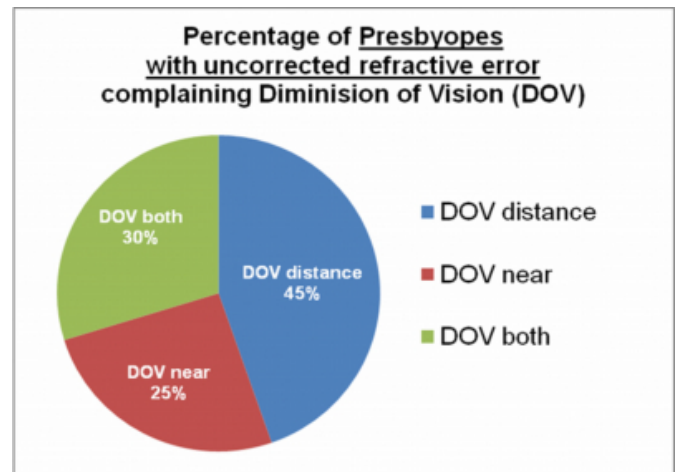


Figure 3



RESULTS

The total number of subjects (presbyopes) who fulfilled the inclusion criteria was 100 (55 males and 45 females). Out of 100, 63 had complaints of difficulty of near vision, 21 had difficulty in distance vision and 16 had difficulty in both distance and near vision.

A total of 47 presbyopes were found to have pre-existing uncorrected refractive error (26 males and 21 males). Out of this, 12 had difficulty in near vision, 21 had difficulty in distance vision and 14 had difficulty in both distance and near vision.

33 out of 47 (70.2%) uncorrected presbyopes had never used spectacles in the past. Rest 14 out of 47 were using spectacles but were found to be undercorrected.

The number of uncorrected hyperopic & myopic presbyopes

was almost equal.

DISCUSSION

Refractive errors pose a major ophthalmic problem worldwide. In a study in south India, it was concluded that about 17% of treatable blindness is due to uncorrected refractive errors (10). The Eye Disease Prevalence Research Group found that approximately one third of persons 40 years or older in the United States and Western Europe, and one fifth of Australians are having refractive errors (11).

The studies of presbyopia in low- and middle-income countries suggest the following: more than half of adults over the age of 30 have presbyopia; women have both a higher prevalence and more severe presbyopia; and the majority of those with presbyopia do not have corrective spectacles (12).

Uncorrected refractive errors lead to a significant visual impairment. Various factors are responsible for refractive errors remaining uncorrected. Some of them include: lack of awareness and recognition of the problem at personal and family level, as well as at community and public health level; non-availability of and/or inability to afford refractive services for testing; insufficient provision of affordable corrective lenses; and cultural disincentives to compliance. Although education, availability and the outreach of refractive services is increasing day by day, but still a large proportion of presbyopic population is not corrected for pre-existing refractive errors.

In our study we found out a significantly large number (47 out of 100) of such presbyopes who are having uncorrected pre-existing refractive error. 45% of them had complaints of difficulty in distance vision as their primary complaint. Both males and females are equally affected. Surprisingly, more than 70% of these people have never used spectacles in their life.

This unmet need in presbyopes mainly arises because they were not corrected for refractive error in their young age. All efforts should be made to identify and treat these presbyopes. Also eye care facilities should be enhanced further to recognize the refractive errors in children and

young adults.

Limitation of this study is small sample size. Another limitation is a bias which may arise as all the subjects were attendees of eye OPD.

CONCLUSION

A significant population of presbyopes is found to have pre-existing uncorrected refractive errors and complete refraction (both objective & subjective) should be performed on every presbyope.

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References

1. Robert Abel, *The Eye Care Revolution: Prevent and Reverse Common Vision Problems*. Kensington Books, 2004.
2. Burke AG, Patel I, Munoz B, et al. Population-based study of presbyopia in rural Tanzania. *Ophthalmol*. 2006;113(5):723-727
3. Duarte WR, Barros AJD, Dias-da-Costa JS, Cattán JM. Prevalence of near vision deficiency and related factors: a population-based study in Brazil [in Portuguese]. *Cad Saude Publica*. 2003;19(2):551-559
4. Ramke J, du Toit R, Palagyi A, Brian G, Naduvilath T. Correction of refractive error and presbyopia in Timor-Leste. *Br J Ophthalmol*. 2007;91(7):860-866
5. Nirmalan PK, Krishnaiah S, Shamanna BR, Rao GN, Thomas R. A population-based assessment of presbyopia in the state of Andhra Pradesh, south India: The Andhra Pradesh Eye Disease Study. *Invest Ophthalmol Vis Sci* 2006;47: 2324-8
6. Resnikoff S, Pascolini D, Mariotti SP, Pokharel GP. Global magnitude of visual impairment caused by uncorrected refractive errors in 2004. *Bull World Health Organ* 2008;86(1):63-70
7. Taylor HR. Eye care for the future: the Weisenfeld lecture. *Invest Ophthalmol Vis Sci*. 2003; 44(4):1413-1418.
8. Dandona R, Dandona L. Refractive error blindness. *Bull World Health Organ*. 2001; 79(3):237-243.
9. Dandona L, Dandona R. What is the global burden of visual impairment? *BMC Med*. 2006; 4:6.
10. Dandona L, Dandona R, Srinivas M, Giridhar P, Vilas K et al. Blindness in the Indian State of Andhra Pradesh. *Invest Ophthalmol Vis Sci* 2001;42(5):908-916
11. The Eye Disease Prevalence Research Group. The prevalence of Refractive Errors among adults in the United States, Western Europe, and Australia. *Arch Ophthalmol* 2004;122:495-505
12. Patel I, West SK. Presbyopia: Prevalence, impact, and interventions. *Com Eye Health J* 2007;20(63):40-41

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