PREVALENCE AND MANIFESTATIONS OF COMPUTER VISION SYNDROME AMONG SOFTWARE EMPLOYEES IN ANDHRA PRADESH

CHIEF AUTHOR : DR PARNI KUMAR

PRESENTING AUTHOR : DR K NAGA PRAVISHA

CO – AUTHOR : DR HARIKA

INTRODUCTION

- “Computer Vision Syndrome” (CVS), is defined by the American Optometric Association as a complex of eye and vision problems related to the activities which stress the near vision and which are experienced in relation to or during the use of computers [1] .

- Computer screen is commonly known as video display terminal – computers , tablets , e – readers , smart phones and other electronic devices are included in it .

- Prolonged exposure to video display terminals [VDTs] has been the cause of visual and ergonomic disorder called computer vision syndrome

- It is usually due to focusing of eyes on computer , uninterrupted periods of time and the eye muscles being unable to recover from strain due to lack of adequate sleep .

- Symptoms of CVS include headache, blurred vision, eye fatigue, strain to eye, neck pain, dry eyes, diplopia, polyopia, difficulty in refocusing the eyes[2].

- It is reported that around 60 million people suffer from CVS globally, and that a million new cases occur each year.[3]

- Due to advancement in technology, computer based learning is now a days considered as better option and hence the children and students of any age have very gradually switched to using computers, laptops, mobiles and tablets for both education and entertainment. This paradigm change has penetrated in youth as well as most of the education, entertainment and business-related activity are based on the use of computers.[4]

- There has been significant increase in the use of electronic gadgets like computers, laptops, mobile phones, tablets etc. which demands long continued hours of staring at screens thus affecting the vision and development of computer vision syndrome.

- With a large number of students using computers daily and the number growing each day, preventive steps are the need of hour.[5]

AIMS AND OBJECTIVES

- To determine the prevalence of computer vision syndrome in software employees with minimum screen time of 8 hours per day among software employees in Andhra Pradesh .

- To evaluate the association of various risk factors in computer use with occurrence of symptoms .

METHODOLOGY

- A cross sectional study was conducted on 500 software employees of Andhra Pradesh

- 500 software employees were given a validated questionnaire to get their information regarding computer usage

- INCLUSION CRITERIA
- Age group 25 to 40 years
- Minimum exposure of 2 years to computer everyday for about 8 hours per day.
- Should not suffer from any ocular diseases other than refractive error were included

- EXCLUSION CRITERIA

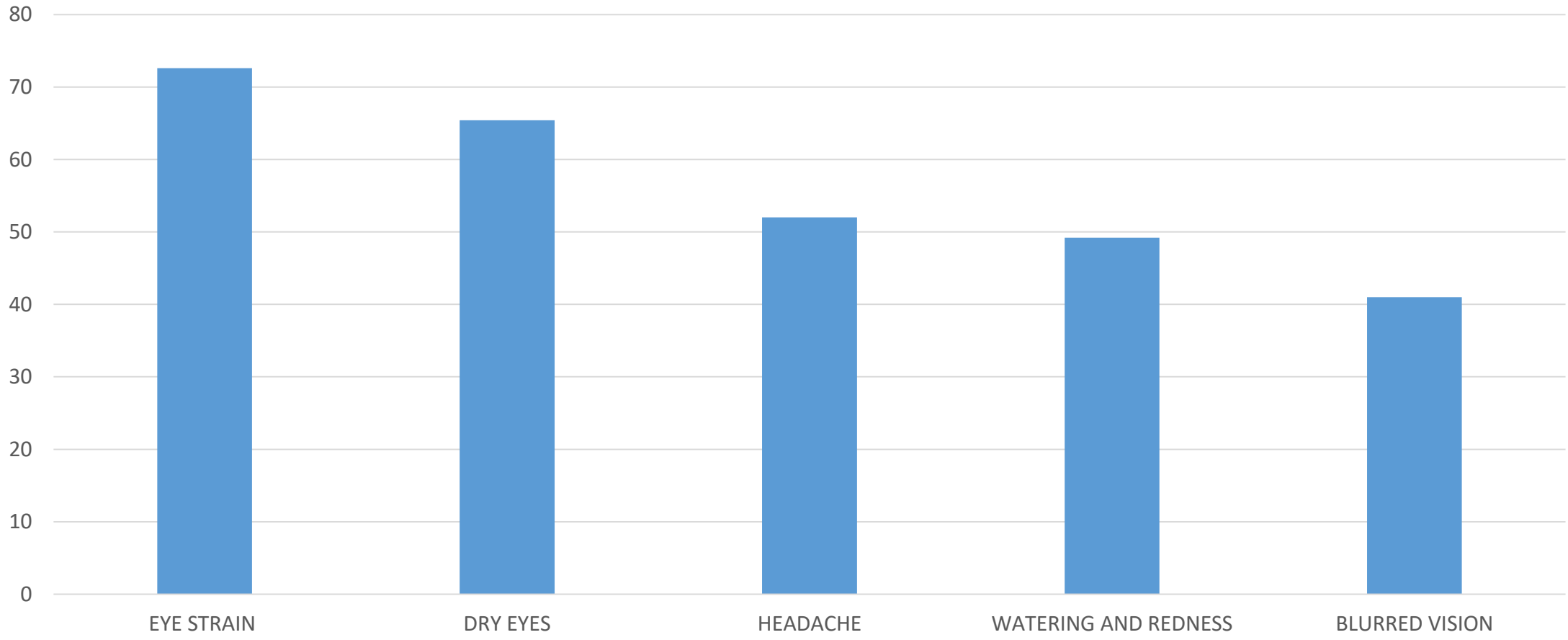
- Ocular disorders chronic ocular allergy
- Keratoconus
- Allergic cojuctivitis
- Pterygium
- Glaucoma
- Cataract

- Data was collected by validated questionnaire focusing on parameters of computer vision syndrome .

RESULTS

- All 500 individuals fulfilling inclusion criteria responded to questionnaire .

SYMPTOMS	TOTAL INDIVIDUALS- 500	PERCENT
EYE STRAIN	363	72.6
DRY EYES	327	65.4
HEADACHE	260	52
WATERING AND REDNESS	246	49.2
BLURRED VISION	205	41


80
70
60
50
40
30
20
10
0
EYE STRAIN
DRY EYES
HEADACHE
WATERING AND REDNESS
BLURRED VISION

DISCUSSION

- In our study we observed prevalence of eye strain to be 72.6 % , dry eyes 65.4% , headache 52% , watering and redness 49.2% , blurred vision 41%.

- The most common symptoms in our study was eyestrain (72.6%) ,dryness (65.4%) , headache (52%).

- Blurred vision (42.4%), headache (23.0%) and redness (23.0%) were the most experienced symptoms by Natnael et al.[6]

- Blurred vision, eyestrain, and eye irritation were the commonest reported symptoms of CVS with proportion of 62.60%, 47.63%, and 47.40%, respectively by Awrajaw and his colleagues. [7] .

- The most common complaint reported by P. Ranasinghe et al was headache (45.7%), followed by dry eyes (31.1%), whereas the least common complaint was changes in visualizing colours (9.3%).[8]

- Eye fatigue and discomfort due to constant focusing and refocusing of eye when the screen time is for long hours

- High viewing angle expose greater part of cornea and conjunctiva to air and increase dryness and irritation.

- Various studies have revealed that risk factor to the development of CVS was wearing corrective spectacles for refractive errors because the letters on the monitor are in the form of tiny dots called pixels which causes the eyes to accommodate more so as to focus a much clearer image.[9]-[10]

- Duration of computer usage also significantly predicted the risk of CVS.Evidence from many other studies supports these findings.[11]-[12]

- Inappropriate sitting position leads to discomfort and stress to the eye and causes eye muscles more spastic and experience symtoms of computer vision syndrome

- Spectacles prescribed by professional with anti reflection protective surface decrease the symptoms of computer vision syndrome .

- Rahman and Sanip reported in their study revealed that working on computer for more than 7 hr per day was a significant predictor for CVS.[13]

CONCLUSION

- Majority of employees develop one or more symptoms of computer vision syndrome .
- Improving the awareness on safety measures in preventing computer vision syndrome plays a vital role .
- Optimising the exposure time to computer , keeping computer screen at a distance reduces eye strain , taking small regular breaks , maintaining good sitting posture , optimum room lighting are found to be beneficial in preventing computer vision syndrome .

References

1. American Optometric Association. Guide to the clinical aspects of computer vision syndrome. St. Louis: American Optometric Association; 1995.

2. Esteban P, Alvaro MP, Amalia L. Visual and ocular effects from the use of flat panel displays. Int J Ophthalmol. 2016;9(6):881-5.

3. Sen A, Richardson S. A study of computer-related upper limb discomfort and computer vision syndrome. J Hum Ergol. 2007;36(2):45–50

4. Rosenfield M. Computer vision syndrome: A review of ocular causes and potential treatments. Ophthalmic Physiol Opt. 2011;31:502–15

5. Dhaliwal, N., 2002. CVS affects physically and mentally. Reader‟ s Digest. 2002;75:38-57

6. Assefa NL, Zenebe D, Weldemichael, Alemu HW, Anbesse DH. Prevalence and associated factors of computer vision syndrome among bank workers in Gondar City, northwest Ethiopia, 2015. Clin Optom. 2017;9:67-76

7.Awrajaw Dessie, Fentahun Adane, Ansha Nega, Sintayehu Daba Wami, and Daniel Haile Chercos. Computer Vision Syndrome and Associated Factors among Computer Usersin Debre Tabor Town, Northwest Ethiopia. J Environ Public Health. 2018

8. P. Ranasinghe, W. S. Wathurapatha, Y. S. Perera, D. A. Lamabadusuriya, S. Kulatunga, N. Jayawardana, P. Katulanda. Computer vision syndrome among computer office workers in a developing country: an evaluation of prevalence and risk factors. BMC Res Notes. 2016;9:150.

9. Rahman ZA, Sanip S. Computer user: demographic and computer related factors that predispose user to get computer vision syndrome. Int J Bus, Humanit Technol. 2011;1(2):84- 91 .

10. Logaraj M, Madhupriya V, Hegde S. Computer vision syndrome and associated factors among medical and engineering students in chennai. Ann Med Health Sci Res. 2014;4(2):179-85

11. Reddy SC, Low C, Lim Y, Low L, Mardina F, Nursaleha M. Computer vision syndrome: a study of knowledge and practices in university students. Nepal J Ophthalmol. 2013;5(2):161-8

12. Portello JK, Rosen Eld M, Bababekova Y, Estrada JM, Leon A. Computer- related visual symptoms in o ce workers. Ophthalmic Physiol Opt. 2012;32(5):375-82

13. Rahman ZA, Sanip S. Computer user: demographic and computer related factors that predispose user to get computer vision syndrome. Int J Bus, Humanit Technol. 2011;1(2):84- 91