



COMPARATIVE STUDY OF VISUAL ACUITY IN MALE AND FEMALE STUDENT OF FIRST YEAR MBBS BATCH 2015-2016 IN PATNA MEDICAL COLLEGE

Dr. Anjali Verma

Associate Professor, Physiology, Lord Buddha Koshi Medical College & Hospital
Bajinathpur, Saharsa, Bihar

Dr. Arushri

Fellow, Sadguru Netra Chikitsalaya, Sri Sadguru Seva Sangh Trust, Chitrakoot, Uttar Pradesh

ABSTRACT

Myopia and hypermetropia is becoming a common problem. Due to regular use of television, computer, and mobile in early age children are suffering from these refractive errors. It has become a big problem in our country. The aim of our study is to know the visual acuity and compare myopia and hypermetropia in male and female students. The study included 126 students in which 83 were male and 43 were female. The result show higher percentage of myopia in female students and percentage of hypermetropia is also high in female students.

KEYWORDS : Snellen Chart, Male, Female, Myopia, Hypermetropia.

INTRODUCTION

A normal eye should have acuity of distant vision 6/6 and near vision N6. This can happen only when incident parallel rays of light focus on retina when accommodation is at rest [9]. When these rays focus in front of retina the condition is known as myopia and the person fails to see distant objects clearly but his near vision is alright. When the rays of light fall behind the retina the condition is known as hypermetropia and the person, therefore, even to see an object which is far away, has to accommodate. For near object he has to accommodate excessively and in spite of that the nearby object may not be clearly seen [8]. Myopia occurs when the eyeball is too long, relative to the focusing power of the cornea and lens of the eye. This causes light rays to focus at a point in front of the retina, rather than directly on retina. It can also be caused by the cornea and lens being too curved for the length of the eyeball. In some cases, myopia is due to a combination of these factors. Myopia typically begins in childhood and has a higher risk if parents are nearsighted. In most cases, nearsightedness stabilizes in early childhood but sometimes it continues to progress with age.

Myopia increases the risk of other eye diseases, including glaucoma, cataract and retinal detachment [2]. The risks associated with myopia are significant even in low myopes [3]. Primary symptom include blurred vision for distance and associated other symptoms such as headache, pain in the eye, watering of eye, eye strain, squinting, heaviness of the eye are also seen. Currently prevalence of refractive error ranges from 8 million to 2.3 billion [1] the prevalence of myopia in India is 45%. Myopia can be corrected by concave glasses which causes divergence of the incident rays.

Hypermetropia occurs because (a) either length of the eyeball is too short (b) refractive power of the lens decreases. A person can see the distant objects clearly, only by using some accommodation. Thus, it is called far-sightedness or long sightedness. Hypertrophy of ciliary muscles occurs because individuals use the accommodation all the time for seeing the far objects. Sustained accommodation (i.e. prolonged muscular effort) is tiring and may cause severe headache and blurring of vision. The prolonged convergence of the visual axes associated with accommodation, finally leads to squint (strabismus). The near point of vision moves farther away as the axial length of the eyeball is too short. It can be corrected by convex glasses which causes convergence of the incident rays. If hypermetropic individual suffers from presbyopia, he requires correction at an early age than does the normal subject. [6]

MATERIAL AND METHODS

Before starting the title, project permission was taken from the head of the department physiology, Patna Medical College, Patna to conduct the work. Prior to the study subjects were explained in brief how and why the study will be carried out and their written consent were also taken. Visual acuity of the subjects was taken from Snellen's chart kept at a distance of 6 meters in proper illumination, Total 150 students of 1st MBBS 2015-2016 batch were taken in this study out of which 24 students were excluded due to their illness.

Snellen's chart consists of white board on which nine rows of black letters are printed. The letters are smaller in size from above

downwards. The basis of the size of the letter is the fact that two points which subtended an angle of one minute at the nodal point of the eye can see discretely. The biggest letter of the first row forms an angle of one minute at the nodal point when placed on the distance of 60 meters and the 60 is written below this row of letters. The letters in the lower rows form an angle of one minute at a distance of 36, 24, 18, 12, 9, 6 and 5 meters respectively in descending order and the respective numbers are written below the concerned row [5]. The chart is so designed that each letter a normal individual can read at a required distance subtended a visual angle of 5 minutes. The width of each stroke of the letter being 1 minute and the line in the letter are also separated by 1 minute of arc. Thus the minimum separable in a normal individual corresponds to a visual angle of approximately 1 minute [6]. Visual acuity is recorded according to the formula $V = \frac{d}{D}$, where V is the visual acuity, d is the distance at which the letter are read, and D is the distance at which the letters should be read [7]. Subject sit at a distance of 6 meters [20 ft], read the chart with one eye at a time at proper illumination [6]. The subject sit 6 meters away from such a chart, if he can see, a letter of top row [which a emmetropic eye can see from 60 meters] but no more than this, his vision is 6/60. This means he can see an object only when he stands at 6 meter distance which one should normally see from a distance of 60 meters (8). Normal visual acuity is 6/6.

While taking the visual acuity if the subject has below 6/6 vision the power of their glasses was also noted.

RESULT

The visual acuity of 126 students were taken with the help of Snellen's chart. 43 of them were having the normal vision i.e. 6/6. Out of 43, 13 were female students and 30 were male students. 83 students were having the visual acuity below normal.

81 of them were suffering from myopia wearing myopic glasses. In which 30 were having their power of glasses from -0.25D to -0.5D. Out of 30, 7 were female students and 23 were male students. Out of 81 myopic students 7 were having their power of glasses up to -1.0D in which only one was female student. Out of 81 myopic students 22 of them having the power of their glasses up to -2.0D in which 11 were female and 11 were male students. Out of 81 myopic students 15 were having the power of their glasses up to -3.0D in which 5 were female and 10 were male students. Out of 81 myopic students 7 were having their power of glasses more than -3.0D in which 5 were female and 2 were male students. 2 students were having myopia in one eye and hypermetropia in other in which one was male and the other was female.

DISCUSSION

Percentage of normal vision in male students were more i.e. 36.1% than female i.e. 30.2%.

Percentage of myopia in female students were more i.e. 67.4% than male i.e. 62.6%. Percentage of hypermetropia in female students were 2.3% which is 1.2% in male students.

Inference

Acuity of vision is more normal in male students as compare to female.

Female students are suffering from hyper meropia and myopia both more than the male students. There is higher percentage of high myopia in female students.

REFERENCES

- [1] Pandy R, AranhaPV, SamuelAJ, KumarSP, A Scoping Literature Review on effects of eye Exercise for Myopia in children, Physiotherapy and occupational therapy journal 2015;27
- [2] Holden BA Uncorrected refractive: The major and most easily avoidable causes of vision loss. Community Eye Health-2007;20:37-9
- [3] Pan CW Ramamurthy D, Saw SM. Worldwide prevalence and risk factors for myopia, Ophthalmic and physiological Optics. 2012 jan 1-32(1):3-16
- [4] Wong TY Foster PJ, Hee J, Ng TP, Tietsch JM, Chew SJ, Johnsen GJ, Sea SK, Prevalance and risk factor for refractive error in adult Chinese in Singapore, Invest Ophthamol vis sci 2000 41;2486-94
- [5] Text book of practical physiology by Dr B.K. Srivastva.
- [6] Text book of physiology by Dr. Prof. A.K. Jain.
- [7] Text book of practical physiology by G.K. Pal, Parvati Pal.
- [8] Concised Medical Physiology by Dr Sujit K. Chaudhuri.
- [9] Essencials of ophthamology by Samar K Basak.