Refractive Errors in Medical Students in a Teaching Hospital

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Abstract
Refractive errors are contributing to a severe public health problem. The increasing prevalence rates of myopia have reached epidemic levels in several areas. This study aimed to determine the prevalence rates of refractive errors in medical students. A prospective study was conducted in the Department of Ophthalmology, over a period of one year from January 2020 to December 2020. Medical students were randomly selected, as a total of 250 subjects. All underwent an ophthalmic examination. Of 250 students, 148 (59.2%) cases of RE were documented. The most common cases were female (89, 60.1%), whereas males were (59, 39.9%). Of these, 98 students have myopia (66.2%), 42 cases have astigmatism (28.4%) and 8 cases have hypermetropia (5.4%). The late classes (6th) stage has the most frequent RE cases. Myopia was the predominant RE among medical students. Advanced class and females are predisposing factors.

Keywords: Astigmatism; Myopia; Hypermetropia; Medical students; Refractive errors

Methods
Inclusion criteria
• Students from the first to the sixth year
• Age of 18 – 28 years
• Both sexes

Exclusion criteria
• DM
• Eye abnormality
• Past history of eye diseases
• Trauma to eye
• Retinopathy
• Prematurity
• Connective tissue or systemic diseases

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Statistical Analysis

Significance was assigned at P<0.05 level for all parameters. Categorical variables were compared with the χ² test. The t-test was used for continuous variables.

Results

Of 250 students, 148(59.2%) cases of RE were documented. The most common cases were female (89, 60.1%), whereas males were (59, 39.9%). Of these, 98 students have myopia (66.2%), 42 cases have astigmatism (28.4%) and 8 cases have hypermetropia (5.4%), (table 1). Table 2 listed the frequency of RE according to medical students’ stages. The late classes (6th) stage has the most frequent RE cases.

Table 1: Refractive error.

<table>
<thead>
<tr>
<th>RE</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Myopia</td>
<td>98</td>
<td>66.2</td>
</tr>
<tr>
<td>Astigmatism</td>
<td>42</td>
<td>28.4</td>
</tr>
<tr>
<td>Hypermetropia</td>
<td>8</td>
<td>5.4</td>
</tr>
</tbody>
</table>

Discussion

The long and hard study regimens of medical college involved extensive near-work such as reading and writing, this is suggested that the amount of near-work could cause myopia [5,9-12]. However, it is now generally agreed that multifactorial heredity and environment have important roles to cause RE. Also, ethnic variations and different genetic predispositions may play such roles. Besides, students with a high education state as well as above-average intelligence may lead to high prevalence rates of myopia [11].

According to recent theory blurred retinal images that occur during prolonged near work lead to myopia. This blurring of retinal images stimulates biochemical and structural changes in the sclera and choroid that lead to axial elongation [13].

Myopia is multifactorial with genetic and environmental factors, as well as - parental history of myopia is an important risk factor for its development which was reported in various studies [14-17]. The present study has also observed a marginal increase in the amount of near work done by those with refractive errors which was in correlation with the findings observed by Wu Y, et al. (2012) [2].

Almuamar HAH (2020) concluded myopia is the predominant RE detected among medical students. The occurrence of myopia was found to be higher among high classes. Female students showed a higher rate of RE [18].

Conclusion

Myopia was the predominant RE among medical students. Advanced class and females are predisposing factors.

References