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Research Article

**ANALYSIS OF ROLE OF FILL CORRECTION OF MYOPIA IN
REGULATION OF INTRA OCULAR PRESSURE**¹Dr Rumesa Mehmood, ²Dr Zoha Asim, ³Dr Bilal Younas¹Women Medical Officer at Basic Health Unit 34/Eb, ²Women Medical Officer at Basic Health Unit Nawabpur, Multan, ³Medical Officer at Basic Health Unit Baharwal.**Article Received:** January 2019**Accepted:** February 2019**Published:** March 2019**Abstract:**

Introduction: From a clinical perspective, high intraocular pressure (IOP) is a major risk factor for glaucoma, and it is the only proven treatable risk factor. People with a high IOP with no proof of having primary open-angle glaucoma are considered at risk of developing optic nerve damage, even if they do not suffer from any ocular disease.

Aims and objectives: The basic aim of the study is to analyze the role of fill correction of myopia in regulation of intra ocular pressure.

Material and methods: This analytical study was conducted in Basic Health Unit Nawabpur, Multan during March 2018 to December 2018. By independent simple random sample selection technique total 65 patients from 15 to 35 years old of either sex having spherical myopia -1.0 to -4.0 D, and intraocular pressure 14 to 20 mm Hg, and wearing glasses for the first time were enrolled for study. Inter pupillary distance, back vertex distance, and visual acuity were noted.

Results: The overall mean of IOP was 15.8 ± 3.6 mmHg, and the median IOP of total subjects was 15 (range: 6–28) mmHg. The median IOP of men was 15 (range: 6–28) mmHg and 16 (range: 6–28) mmHg for women, which was not statistically significant ($p = 0.268$). It shows a relationship between the overall median IOP and age comparing 20–45 years group to 46–69 years group, and there was no statistically significant difference ($p = 0.748$).

Conclusion: It is concluded that myopia should not be under corrected in young persons, as full correction is more effective in reducing IOP than under correction.

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INTRODUCTION:

From a clinical perspective, high intraocular pressure (IOP) is a major risk factor for glaucoma, and it is the only proven treatable risk factor. People with a high IOP with no proof of having primary open-angle glaucoma are considered at risk of developing optic nerve damage, even if they do not suffer from any ocular disease. The longitudinal fibers of ciliary muscle, which are attached to scleral spur are also relaxed and no longer produce any effect on trabecular meshwork and result in increase in intra ocular pressure [1]. IOP is decreased when pilocarpine is used in open angle glaucoma by inducing accommodation. When normal accommodation is reduced or totally lost in myopia and restored by full refractive correction, it results in reduction of intra ocular pressure especially in young persons [2].

Furthermore, IOP distribution and associated ocular features and its correlation with age are of clinical interest [3]. The relationship between IOP and age varies in different ethnicities. Studies conducted in Western countries, Iran, and Barbados show a positive correlation between IOP and age [4]. On the contrary most of the East Asia studies reported a negative correlation between IOP and increasing age. In emmetropic persons, Yellow green light is focused on the retina, which is natural phenomenon of colour preference for focusing the images on the retina, but myopics are under corrected which can lead to so many problems [5]. Several clinical studies have also established relation between intra ocular pressure and myopia. Long standing uncorrected or under-corrected myopia will not tolerate full correction immediately after wearing spectacles due to disuse weakness of ciliary muscle [6]. In time accurate refraction and constant wear of glasses can manage all these problems. Along with visual impairment, refractive errors are also a significant cause of morbidity besides having social and economic impact.

Ammetropia results from an imbalance between the refractive power and the axial length of the eyeball [7].

Aims and objectives

The basic aim of the study is to analyze the role of fill correction of myopia in regulation of intra ocular pressure.

MATERIAL AND METHODS:

This analytical study was conducted in Basic Health Unit Nawabpur, Multan during March 2018 to December 2018. By independent simple random sample selection technique total 65 patients from 15 to 35 years old of either sex having spherical myopia -1.0 to -4.0 D, and intraocular pressure 14 to 20 mm Hg, and wearing glasses for the first time were enrolled for study. Inter pupillary distance, back vertex distance, and visual acuity were noted. Slit lamp examination of anterior and posterior segment was done. Intra-ocular pressure was measured with applanation tonometer. Full correction of myopia (equally readable in red and green on duochrome test at 6 meter) was prescribed and constant wear was advised.

Statistical Analysis

All statistical analyses were performed using SAS Version 9.2. Mixed linear models were used to examine the effect of age, refractive error, ethnicity, sex, and measurement protocol on IOP.

RESULTS:

The overall mean of IOP was 15.8 ± 3.6 mmHg, and the median IOP of total subjects was 15 (range: 6–28) mmHg. The median IOP of men was 15 (range: 6–28) mmHg and 16 (range: 6–28) mmHg for women, which was not statistically significant ($p = 0.268$). It shows a relationship between the overall median IOP and age comparing 20–45 years group to 46–69 years group, and there was no statistically significant difference ($p = 0.748$).

Table 01: Univariate analysis for the associations between IOP and age, gender or refractive error.

Variables		IOP (mmHg) median (range)	p value
Gender	Male	15 (6–28)	0.268
	Female	16 (6–28)	
Age (years)	20–45	15 (8–28)	0.748
	46–69	16 (6–28)	
Refractive error category	High Myopia	14.5 (12–24)	0.461
	Moderate Myopia	15 (12–19)	
	Mild Myopia	16 (6–28)	
	Emmetropia	15 (8–28)	
	Mild Hypermetropia	15 (6–26)	
	Moderate Hyperopia	17 (12–24)	
High Hypermetropia	15 (14–16)		

DISCUSSION:

Various studies on IOP in several racial groups and geographical areas revealed substantial diversity even though these studies were performed on populations within similar racial groups and geographic areas. For example, studies performed on Japanese population showed considerable variations in terms of mean IOP values and IOP associations [8]. These variations can be attributed to the different methods in sample selection, criteria for exclusion of certain participants and instrumentation used to measure the IOP. Moreover, intrinsic ocular variations such as central corneal thickness and axial length and systemic factors can affect some communities such as obesity and hypertension [9]. Aqueous humor dynamics depends on ciliary muscle and trabecular meshwork function which in turn are related with the refractive state of eye and play important role in regulation of intra ocular pressure [10]. The prevalence of myopic refractive error is highest in the Asian population. An association between open angle glaucoma and myopia is well established, this relation is reported for children in young adults and presbyopic adults [11].

CONCLUSION:

It is concluded that myopia should not be under corrected in young persons, as full correction is more effective in reducing IOP than under correction.

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