Evaluation of IOP >21 mm Hg in Patients with Pseudoexfoliation in Hilly Terrains of North India

Amit Chopra¹, Amit Sharma², Rakesh Kumar Gupta³

ABSTRACT

Introduction: Pseudoexfoliation (PEX) is characterized by the deposition of dandruff like fibrillary material in the anterior segment mainly pupillary margins, angles of anterior chamber, anterior lens capsule. PEX is frequently associated with open angle glaucoma, the cause of which mainly is the obstruction of trabecular meshwork by this extracellular dandruff like material. The characteristic appearance of pseudoexfoliation material on the anterior lens capsule has three distinct zones: a central disc with curled edges; a clear zone, probably corresponding to contact with the moving iris; and a peripheral granular zone. Study aimed to Evaluate IOP >21 mm Hg in Patients with Pseudoexfoliation in hilly terrains of North India

Material and methods: This study was conducted in Department of Ophthalmology, MM Medical College and Hospital, Solan from January 2014 to December 2016. Four hundred confirmed cases of pseudoexfoliation were included in the study. Pseudoexfoliation was diagnosed on slit lamp biomicroscopy by the presence of white dandruff like material on the pupillary margin, on the trabecular meshwork, and or on the anterior lens capsule of one or both eyes.

Results: Out of 400 patients with pseudoexfoliation, 241 (60.25%) were males and 159 (39.75%) were females. 313 (78.25%) patients had unilateral and 87 (21.75%) had bilateral involvement with PEX. 118 eyes had intraocular pressure of more than 21 mm Hg in which 60 patients had unilateral involvement with PEX. 118 eyes had intraocular pressure of more than 21 mm Hg in which 60 patients had unilateral involvement with PEX. 118 (60.25%) were males and 159 (39.75%) were females. 313 (78.25%) patients had unilateral and 87 (21.75%) had bilateral involvement. It was seen that frequency of eyes with pseudoexfoliation increased with age.

Conclusion: In this study it was observed that significant number of patients with pseudoexfoliation had high IOP and in higher age group both eyes were involved with PEX more frequently. Higher magnification under slit lamp is needed to document the evidence of fibrillary material in the fellow eye in which changes of PEX are less evident or doubtful under low magnification as compared to the primary eye.

Keywords: PEX, High IOP, Glaucoma.

INTRODUCTION

Pseudoexfoliation (PEX) is characterized by the deposition of dandruff like fibrillary material in the anterior segment mainly pupillary margins, angles of anterior chamber, anterior lens capsule. In PEX syndrome the deposition of this extracellular material the exact nature of which is not known, occurs in various other organ systems like liver, lungs, cardiovascular system as in many cases PEX is associated with systemic hypertension, myocardial infarction, stroke. It was first described by Lindberg in 1917. PEX is frequently associated with open angle glaucoma, the cause of which mainly is the obstruction of trabecular meshwork by this extracellular dandruff like material. In PEX syndrome various ocular manifestations include iris depigmentation, transillumination defects, hyperpigmentation of trabecular meshwork, zonular dehiscence and even iridodonesis, phacodonesis. The characteristic appearance of pseudoexfoliation material on the anterior lens capsule has three distinct zones: a central disc with curled edges; a clear zone, probably corresponding to contact with the moving iris; and a peripheral granular zone.

The aim of study was to evaluate IOP > 21 mm of Hg in patients with pseudoexfoliation in hilly terrains of North India

MATERIAL AND METHODS

This prospective study was carried out at Department of Ophthalmology, MM Medical College, Solan from 2013 to 2016. A total of 400 patients, 40 years and above were screened for pseudoexfoliation. The ocular examination consisted of visual acuity testing, routine slit lamp examination of anterior segment which included the evidence of dandruff like fibrillary material on the edge of pupil or lens in nonmydriatic state, gonioscopy, applanation tonometry and dilated fundus examination.

Written informed consent was taken before proceeding. The patients were subdivided into two subgroups of IOP < 21 mm of Hg and IOP > 21 mm of Hg. The characteristics of these groups were compared by the chi square test. P value of < 0.05 was taken as significant. Data was entered and analysed by using statistical program for social sciences (SPSS for windows software). The frequency and percentage were recorded.

The sample size is estimated taking into account confidence level of 95%.

Inclusion Criterion

• Patients with pseudoexfoliation changes on pupillary margin.
• Patients with pseudoexfoliation changes on anterior capsule of lens.
• Age more than 40 years.

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Exclusion Criterion
- Patients on treatment for high IOP.
- Patients with primary glaucoma.
- Patients with secondary glaucoma due to causes other than pseudoexfoliation.
- Patients with compromised corneas.
- Patients with age less than 40 years.

RESULTS
In this study 400 patients were included. Minimum age of presentation was 47 years. Out of 400 patients with pseudoexfoliation, 241 (60.25%) were males and 159 (39.75%) were females. 313 (78.25%) patients had unilateral and 87 (21.75%) had bilateral involvement. 118 eyes had intraocular pressure of more than 21 mm Hg in which 60 patients had unilateral and 29 patients had bilateral high IOP. It was also seen that frequency of eyes with pseudoexfoliation increased with age.
- Table 1 shows the overall characteristics of patients.
- Table 2 shows characteristics of the patients with high IOP and association of IOP with age.
- Table 3 shows the relationship of IOP, PEX with Age.

DISCUSSION
In our study it was noted that significant percentage (22.25%) of the subjects with PEX had high IOP > 21 mm Hg which was consistent with the studies which had shown the prevalence of high IOP with or without glaucoma to be in between 22% to 30%.7-9 In various studies it was noted that the frequency of PEX increased with increasing age.10-12 There was no statistically significant difference with regards to gender in high IOP in our study. There were some conflicting reports of gender differences in the prevalence of PEX.9,12-15 It was also assessed that bilateral cases of PEX and high IOP were more frequent in higher age groups and it was found to be statistically significant. In a study it had been established in unilateral cases of PEX where no apparent fibrillary material was documented in the fellow eye based on slit lamp biomicroscopy, this extracellular material had been detected by ultrastructural studies on electron microscopy.16 The increased incidence of glaucoma in eyes with pseudoexfoliation is thought to indicate a causal relationship between the abnormal material and the elevated intraocular pressure. Mechanisms of rise in intraocular pressure in PEX may include local production of pseudoexfoliation material, endothelial cell damage of the trabecular meshwork and

<table>
<thead>
<tr>
<th>Gender</th>
<th>IOP&lt;21</th>
<th>IOP&gt;21</th>
<th>P Value</th>
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<tr>
<td>Male</td>
<td>189</td>
<td>52</td>
<td>0.69</td>
</tr>
<tr>
<td>Female</td>
<td>122</td>
<td>37</td>
<td></td>
</tr>
</tbody>
</table>

Table-2: Gender with IOP >21mm of Hg and <21mm of Hg.
pigment originating from elsewhere in the anterior segment

CONCLUSION

In this study it was observed that significant number of patients with pseudoexfoliation had high IOP and in higher age group both eyes were involved with PEX more frequently. Higher magnification under slit lamp is needed to document the evidence of fibrillar material in the fellow eye in which changes of PEX are less evident or doubtful under low magnification as compared to the primary eye.

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