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Research Article

**EFFICACY OF LANTANOPROST FOR THE TREATMENT OF
PRIMARY OPEN ANGLE GLAUCOMA**¹Muhammad Ali, ²Muhammad Faaiz, ²Sajjad, Sidra Jamil¹Sharif Medical City Hospital Lahore²Sheikh Zayed Hospital Rahim Yar Khan**Abstract:**

Objective; To determine the efficacy of Lantanoprost for the treatment of primary open angle glaucoma.

Methodology: This was a descriptive cases series conducted at Department of Ophthalmology, Services Hospital, Lahore during July 2017 to April 2018. In this study, the cases of primary open angle glaucoma of both genders and with age range of 20 years or more were included. The diagnosis of primary open angle glaucoma was made on the basis of intra ocular pressure of more than 21 mmHg and damage to the optic disc on ophthalmoscopy and decreased in vision of perimetry. IOP is measured at baseline and then Lantanoprost 0.005% was used in a once daily dosage for 3 months. The IOP will be checked at 4, 8 and 12 weeks, where the final IOP will be measured. The mean change in IOP will be noted. **Results:** In the present study there were total 100 cases of primary open angle glaucoma were included. There were total 62 (62%) males and 38 (38%) females and 53 (53%) of the cases had Right eye involvement. New diagnosis was made in 73 (73%) of the cases. The mean IOP at presentation was 24.78 ± 7.31 mmHg. The mean change is IOP at 4 weeks was 7.45 ± 4.03 mmHg with $p = 0.001$. This difference in mean change in pressure was also significant at 8 and 12 weeks where it was seen as 9.34 ± 5.37 and 11.05 ± 7.12 mmHg with p values of 0.001.

Conclusion: Lantanoprost is significantly efficacious in the treatment of primary open angle glaucoma even at 4, 8 and 12 weeks.

Key words: Primary open angle glaucoma, Lantanoprost, IOP

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INTRODUCTION:

Glaucoma is one of the most common causes of decreased visual acuity in the ophthalmology clinics and the Primary open-angle glaucoma (POAG) is a type of optic neuropathy, that leads to the damage to the optic nerve head and resulting in optic disc cupping and ultimately thinning in the neuro-retinal rim. These changes in combination end up in specific peripheral visual field defects [1].

The basis underlying pathophysiology of the development of PAOG is the acquisition of raised intra-ocular pressure (IOP). This raised pressure leads to ongoing damage in the visual field and also directs toward the basic key for management of such cases by reducing the IOP. The management can be broadly classified into medical and surgical options. There are a number of drugs in the medical modality, used in the past with different degree of efficacy, mechanism of actions and side effect profiles. These include carbonic anhydrase inhibitors, beta-blockers, alpha-agonists and prostaglandin analogues [2,3].

Prostaglandin analogues are one of the oldest drugs used in this context and are being used since 1995. Lantanoprost reduces the intra ocular pressure by facilitating the aqueous drainage through the uveoscleral route and they are associated with minimal side effects when used topically [4,5].

OBJECTIVE:

To determine the efficacy of Lantanoprost for the treatment of primary open angle glaucoma.

Study design:

Descriptive case series

Study Setting:

Department of Ophthalmology, Services Hospital, Lahore

Study Duration:

July 2017 to March 2018

Sampling techniques;

Non probability consecutive sampling.

In this study, the cases of primary open glaucoma of both genders and with age range of 20 years or more were included. The diagnosis of primary open angle glaucoma was made on the basis of intra ocular pressure of more than 21 mmHg and damage to the optic disc on ophthalmoscopy and decreased in vision of perimetry. The cases with allergy to the drug and those with history of any previous eye surgery were excluded. IOP is measured at baseline and then Lantanoprost 0.005% was used in a once daily dosage for 3 months. The IOP will be checked at 4, 8 and 12 weeks, where the final IOP will be measured. The mean change in IOP will be noted.

Statistical analysis;

The Data was entered and analyzed by using SPSS-version 23. Post stratification independent sample t test was applied taking P value of ≤ 0.05 as significant.

RESULTS:

In the present study there were total 100 cases of primary open angle glaucoma were included. There were total 62 (62%) males and 38 (38%) females and 53 (53%) of the cases had Right eye involvement. New diagnosis was made in 73 (73%) of the cases (table I). The mean IOP at presentation was 24.78 ± 7.31 mmHg. The mean change in IOP at 4 weeks was 7.45 ± 4.03 mmHg with $p = 0.001$. This difference in mean change in pressure was also significant at 8 and 12 weeks where it was seen as 9.34 ± 5.37 and 11.05 ± 7.12 mmHg with p values of 0.001 each as in table II.

Table No. I Study Demographics

| Variables | Number | Percentage |
|--------------------|--------|------------|
| Male | 62 | 62% |
| Female | 38 | 38 % |
| Right eye | 53 | 53% |
| Left eye | 47 | 47% |
| New diagnosis | 73 | 73% |
| Previous Diagnosis | 27 | 27% |

Table No. II Change in Intra-ocular pressure

| Time | Mean IOP | Mean IOP Change | Significance |
|----------|------------|-----------------|--------------|
| Baseline | 24.78±7.31 | ---- | -- |
| 4 weeks | 17.33±5.03 | 7.45±4.03 | 0.001 |
| 8 weeks | 15.44±7.67 | 9.34±5.37 | 0.001 |
| 12 weeks | 13.73±8.12 | 11.05±7.12 | 0.001 |

DISCUSSION:

Glaucoma is one of the silent entity leading to significant visual loss. There is an ongoing raised intra ocular pressure that presses over the optic disc and lead to its deterioration and visual loss. There are multiple surgical laser and medical modalities used in the past and prostaglandins i.e. Lantanoprost has shown good efficacy in terms of lowering intra ocular pressure.

The mean change is IOP at 4 weeks was 7.45±4.03 mmHg with p= 0.001. This difference in mean change in pressure was also significant at 8 and 12 weeks where it was seen as 9.34±5.37 and 11.05±7.12 mmHg with p values of 0.001 each. This was similar to the study done by Janjua MI et al where they also used the Lantanoprost in the same dose and protocol; bu the follow up period was a bit different and they evaluated at 2, 6 and 12 weeks. It was seen that the mean change in the IOP at 2 weeks was 4.76±3.26 mmHg, at 6 weeks was 7.60±4.89 and at 12 weeks it was 9.28±5.36 each having p values of less than 0.001 [6]. This was also proved by the studies done by Mckibbin M et al and Thomas R et al where they used Lantanoprost and found that this led to significant reduction in IOP at 3 months follow up period with p < 0.05 [7,8].

In other studies this drug was compared with other drugs like beta blockers and topical carbonic anhydrase inhibitors and it was seen that Lantanoprost was significantly better in lowering IOP.⁹⁻¹⁰ Nagar et al compared Lantanoprost with had a better effect in selective laser trabeculoplasty (SLT) and the efficacy was significantly better with Lantanoprost with p < 0/05 [11].

CONCLUSION:

Lantanoprost is significantly efficacious in the treatment of primary open angle glaucoma even at 4, 8 and 12 weeks.

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