The comparison of the effects of prostaglandin analogues on intraocular pressure, anterior and posterior segment parameters in phakic glaucoma patients: three-year follow-up

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Purpose: To investigate the efficacy and influence of topical administration of latanoprost 0.005%, bimatoprost 0.03% and travoprost 0.004% on intraocular pressure, central corneal thickness, anterior chamber depth, macular thickness and volume in glaucoma patients with phakic eyes.

Methods: A total of 65 eyes of 65 patients with primary open angle glaucoma were included in the study. The patients were categorized into three groups according to the medical therapy: Latanoprost (Group 1, n = 24), Bimatoprost (Group 2, n = 21) and Travoprost (Group 3, n = 20). All patients underwent a complete ophthalmic examination including best-corrected visual acuity, slit-lamp biomicroscopy, fundus examination and intraocular pressure (IOP). Central corneal thickness (CCT) and anterior chamber depth (ACD) were measured with Pentacam and changes in central macular thickness (CMT), macular volume (MV) and average macular thickness (AMT) were analyzed with optical coherence tomography (OCT). Pentacam and OCT images were acquired before the commencement and after 6, 12, 24 and 36 months of treatment.

Results: IOP decreased by 26%, 28% and 26% from the baseline during the treatment period in Group 1, 2 and 3, respectively (p < 0.05). A statistically significant reduction in CCT was found within the groups (p < 0.005), but it was not statistically different between the groups (p > 0.05). Although ACD was reduced in Group 1 and increased in Group 2 and 3, these changes were not statistically significant (p > 0.05). Also, there were no statistically significant differences in the change analysis of all parameters between the groups (p > 0.05). CMT, MV and AMT measurements did not significantly change in all three groups and there was no statistically significant difference between the groups during 3-year follow-up (p > 0.05).

Conclusions: Prostaglandin analogues are found to have similar intraocular pressure lowering effects. Besides, they result in reduction of central corneal thickness and have no effect on anterior chamber depth and macular thickness in 3-year follow-up.