Purpose: To compare intraocular pressure (IOP) and anterior segment (AS) morphometry changes after uneventful phacoemulsification cataract surgery between non-glaucomatous eyes with open angles from patients with and without type 2 diabetes mellitus (DM), and determine which factors may predict greater IOP-lowering effect.

Methods: Forty-five diabetic (45 eyes) and 44 (44 eyes) age and sex-matched non-DM patients with age-related cataract were enrolled in this prospective observational study. Goldmann applanation tonometry and AS scheimpflug tomography (Pentacam® HR) were performed preoperatively and at 1 and 6 months follow-up. Uni and multivariate linear regression analyses were performed to evaluate the relationship between the demographical, clinical, ocular, intraoperative parameters and postoperative absolute and relative IOP changes at 6 months.

Results: There was a significant postoperative IOP reduction 6 months after surgery (p<0.001) by an average of 2.9±2.9 mmHg (15.5%) and 2.4±2.8 mmHg (13.0%) in the DM group and non-DM groups (p=0.410), respectively. All AS parameters (anterior chamber depth, volume and angle) increased significantly postoperatively (p<0.001 for all). Multivariate linear regression analysis showed that higher preoperative IOP was significantly associated with greater absolute (B=-0.53; 95%CI, -0.88 to -0.19) and relative (B=-2.20; 95% CI, -4.32 to -0.08) IOP reduction at 6 months follow-up.

Conclusion: Non-glaucomatous eyes with open angles from both type 2 diabetic and non-diabetic patients experienced similar AS changes and IOP reductions following uneventful phacoemulsification, and this IOP-lowering effect was correlated with preoperative IOP.