

Diabetes Mellitus and Primary Glaucoma in a South Brazilian Population - Projeto Glaucoma

Abstract: Purpose: To evaluate the association between primary glaucoma and Diabetes Mellitus (DM), and also between Intraocular Pressure (IOP) and blood glucose levels in adults over 40 years old in a South Brazilian population.

Methods: Population-based cross-sectional study. Subjects older than 40 years (n=1636, participation rate of 76.5%) underwent a two phase evaluation. The screening visit included a medical interview, glucose level test, slit lamp examination, tonometry, and fundoscopy. Those with suspected glaucoma (based on optic disc exam and/or IOP) underwent a comprehensive ophthalmic evaluation during the confirmatory examination. Glaucoma was diagnosed based on the International Society of Geographical and Epidemiologic Ophthalmology classification. DM was diagnosed based on history of previous diagnosis associated to the use of anti-diabetic medication or non-fasting measured capillary glycemias higher than 200mg/dl.

Results: Of the 1636 participants (71% white ethnicity) primary glaucoma was found in 52 subjects. Primary open-angle glaucoma (POAG) was found in 40, and primary angle-closure glaucoma (PACG) in 12. DM was found in 181 (11.1%) subjects. Univariate analysis showed that the prevalence of glaucoma was higher in patients with DM (7.4%) than in those without DM (2.4%) ($p=0.01$). Multivariate analysis showed a significant association between the presence of glaucoma with age and IOP, but not DM ($r^2=0.14$, $p<0.001$, $p<0.001$; respectively); and IOP was significantly associated with the presence of glaucoma, systemic hypertension, blood glucose and race ($r^2=0.056$; $p<0.001$, $p<0.001$, $p=0.047$, $p=0.041$, respectively). Of note, there were 4 patients diagnosed with neovascular glaucoma, 2 of them due to DM.

Conclusions: This cross-sectional population-based study did not observe a significant association between DM and glaucoma, however, there was a positive borderline correlation between IOP and blood glucose