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PIBIC Last Name - Carvalhaes First Name - Maria Helena Middle - Mandello

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Multivariate statistical analysis of glaucomatosos patients using color Doppler imaging and visual field

Maria Helena Mandello Carvalhaes, Norma Allemann, João Antônio Prata Júnior

Purpose: To identify if the variables obtained with the color Doppler exam associated to the visual field could allow discrimination of normal patients from the glaucomatosos ones. **Methods:** Prospective study of 36 patients with primary open-angle glaucoma and 20 normal volunteers. In both groups, only one eye per person was chosen randomly for analysis. All patients were submitted to an eye exam, visual field and analysis of the retrobulbar blood flow using color Doppler imaging. The distribution of both groups according to sex, age, intraocular pressure, global index of the visual field and many hemodynamic parameters of the color Doppler were analyzed. A distinguished analysis was used for the variables that contained information to differentiate the control group from the glaucoma group. For the other sample, the Student t test was used. **Results:** Age and intraocular pressure of both glaucoma and control groups were similar. The variables that distinguished the studied groups were: Mean Deviation (MD), Loss Variance (LV), and resistive index (IR) in the short posterior ciliary artery (ACCP). The function used to discriminate both variables was: $-3,637 + 0,109 \times MD + 0,028 \times LV + 4,325 \times IR$ ACCP. Sensitivity and specificity were about 90% for the score of $-1,61$. **Conclusions:** In the present study, color Doppler imaging study of retrobulbar circulation associated to the visual field revealed to be an important method in helping the diagnosis of primary open-angle glaucoma.