

Homocysteine and Hydroxyproline Levels in Tear Fluid of Patients with Primary Open-Angle Glaucoma

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To investigate the levels of homocysteine (Hcy) and hydroxyproline (Hyp) in tear fluid and plasma of human eyes with primary open-angle-glaucoma (POAG) and to correlate their concentrations with dry eye syndrome and Bvitamin status. This prospective case-control study included 45 patients with POAG and 35 with senile cataract (control group) of matched age and gender. Tear fluid and corresponding plasma samples were analyzed for Hcy and Hyp by high performance liquid chromatography and spectrometrically respectively. Hcy and Hyp levels were significantly higher in tear fluid of POAG patients with respect to the comparative group of cataract patients ($P < 0.001$). No significant difference in the levels of Hcy and Hyp in plasma of POAG and cataract patients. A positive correlation was found between Hcy and Hyp in tear fluid ($P < 0.001$), and between tear fluid Hcy and plasma Hcy in POAG patients ($P < 0.001$). POAG patients with dry eye disease had significantly higher Hcy and Hyp levels in tear fluid than POAG patients without dry eye disease ($P < 0.001$). There was no association between Hcy levels and B vitamin status in patients with POAG. Increased levels of tear fluid Hcy and Hyp may be associated with POAG. Elevated Hcy and Hyp may be useful biomarkers in tear fluid of POAG and dry eye syndrome in POAG patients.