

# BDNF, IL-6, PPAR $\gamma$ GENE AND BDNF PROTEIN POLYMORPHISMS IN PATIENTS WITH GLAUCOMA

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## Background

- Glaucoma is a slowly progressive chronic optic neuropathy whose exact pathomechanism is still unknown.
- It is one of the major causes of irreversible blindness in the world.
- The goal is to detect glaucoma as early as possible so proteomic profiling or specific biomarker detection in the aqueous humor may be a way to follow glaucoma progression.

## Material & Methods

- Samples were surgically taken from 145 age matched subjects from the Reference Center for Glaucoma, UHC "Sestre milosrdnice" that were divided into two groups; glaucoma patients and a control group with cataracts.
- BDNF concentration was measured in aqueous humor and serum by ELISA method and BDNF polymorphism (Val66Met, VM), IL-6 (-174, GC) and PPAR $\gamma$  (Pro12Ala, CG) by PCR-RFLP.

## Results

Significantly lower levels of BDNF concentration were detected in aqueous humor than in serum. BDNF concentration in serum and aqueous humor: glaucoma /cataract 13.0/13.9 ng/ml and 4.5/3.0 pg/ml.

Polymorphism gene distribution (%): BDNF VV 61.4/58.1, VM 36.1/35.5, MM 2.4/6.5; IL-6 GG 38.9/41.9, GC 45.8/41.9, CC 13.3/16.1; PPAR $\gamma$  CC 75.9/74.2, CG 21.7/24.2, GG 2.4/1.6.



## Conclusion

- Preliminary polymorphism results indicate possible polygenic markers of BDNF MM, IL-6 CC, and PPAR $\gamma$  GG and differences in aqueous humor BDNF concentration between examinee with glaucoma and cataract.
- Given the difference in the concentration of BDNF in aqueous humor between two groups, the potential for new treatment modalities opens.
- More research on a larger number of samples is needed to better understand the role of gene and polygenic markers in glaucoma.