Polymorphism of endothelial nitric oxide synthase Glu298Asp in patients with normal tension glaucoma and primary open angle glaucoma

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Normal tension glaucoma represents a subtype of primary open angle glaucoma with intraocular pressure within the normal range. A variety of cardiovascular abnormalities have been described in patients with NTG including vasospasm and vascular dysregulation.

Nitric oxide (NO) maintains the basal vasodilator tone. It is synthesized in the vascular endothelium through the action of endothelial nitric oxide synthase (eNOS) on the substrate L-arginine. Polymorphism of eNOS gene in G894T base pair changes the enzyme structure by replacing the amino acids. Mutation G894T in eNOS gene has been implicated in vasospastic disease elsewhere in the body.

**Aim:** Comparison of allelic variant frequency of eNOS gene Glu298Asp in patients with normal tension glaucoma and primary open angle glaucoma.

**Material and methods:** The studied group constituted 92 patients with NTG and 45 patients with POAG. DNA was isolated from blood and part of 7th exon was amplified with site of Glu298Asp mutation, which was checked using Eco24I restricting enzyme.

**Results:**
In NTG patients GG genotype was present in 19.5% patients, GT in 65.2% and TT in 15.3%. In POAG patients genotype GG was detected in 33.3% persons, GT in 55.4% and TT in 13.3%. The difference in allelic frequency was not
statistically significant (p=0.79). In women with NTG the allelic frequency was similar to men (respectively, in women: GG-17.7%, GT-66.1%, TT-16.2% and men GG-23.3%, GT-63.3%, TT-13.4%; p=0.82). In group of women with POAG the allelic frequency was also similar to men (in women: GG-31.2%, GT-56.3%, TT-12.5% and men: GG-38.5%, GT-46.1% a TT-13.3%; p=0.5).

Comparing the difference in genotype frequencies and presence of T allele between both glaucoma types no significant difference was detected in women (p=0.71 and 0.18) and men (p=0.96 and 0.15).

**Conclusions:** The frequency of particular genotypes of Glu298Asp polymorphism of eNOS gene did not significantly differ in patients with NTG and POAG.