

16<sup>th</sup> International Conference on

# Clinical and Experimental Ophthalmology

September 18-20, 2017 | Zurich, Switzerland

## Chemostat based *Escherichia coli* sensor for the detection of carcinogenic compounds in surface water

**Anca Pantalon**<sup>1</sup>Gr T Popa University of Medicine and Pharmacy<sup>2</sup>Sf. Spiridon University Hospital

**Statement of the Problem:** Primary open-angle glaucoma (POAG) is characterized by loss of retinal ganglion cells and their axons, resulting in optic nerve cupping and visual field loss. Until now, no specific cause was attributed to POAG development, but multiple pathogenic theories have been approached, beside IOP elevation and aging.

**Aim:** The aim of this prospective cross-sectional study was to assess the inflammatory and immune dysregulation theory in POAG.

**Material & Methods:** We included a total of 40 eyes, from 40 patients in this study: 16 eyes with POAG and 24 eyes from healthy subjects who underwent conventional cataract surgery. Aqueous was collected before beginning of cataract surgery. 21 inflammatory markers were quantified and compared between groups using a cytokine LUMINEX® high detection kit based on flowcytometric methods.

**Results:** Mean age in POAG group was 75.69+/-5.54 years vs 72.33+/-11.26 years in controls (p=0.23). Mean IOP in healthy controls was 14.21+/-2.68 mmHg compared to 18.19+/-4.3 mmHg, controlled by 3+/-0.87 topical substances. Mean MD level was -13.59+/-9.35 dB, whereas PSD mean level was 4.25+/-4.22dB. Cytokines expression in glaucoma patients compared to healthy controls was found significantly different for CXCL5 (p=0.008), CXCL8 (p=0.048), IL-1 $\alpha$  (p=0.005), IL-2 (p=0.015) and TNF $\alpha$  (p=0.041). Therefore, a prediction statistical model for these cytokines was created. For all markers, the common activation pathway is triggered by TNF $\alpha$ . As such in the mathematical model we analyzed the prediction power of CXCL5, CXCL8, IL-1 $\alpha$  and IL-2 over TNF $\alpha$ . R square in this model was 0.842, p=0.000.

**Conclusion:** Our results show that in POAG patients there is an increased production of inflammatory cytokines. Moreover, our statistical predictions point out TNF $\alpha$  molecule as the main pathogenic pathway in inflammation in POAG patients.

anca\_pantalon@yahoo.com