

PECULIARITIES OF PATHOGENESIS OF AGE-RELATED CATARACT

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Introduction

• Age-related cataract is an important cause of blindness and affects 70% of people over the age of 60 years. The pathogenesis of age-related cataract is not completely understood.

Keywords: age-related cataract.

Purpose

• The aim of the present study was to determine the concentration of some pro-inflammatory and anti-inflammatory cytokines in the aqueous humor of patients with age-related cataract and arterial hypertension or stable angina pectoris.

Material and methods

- A total of 60 patients aged 63 to 70 years who had cataract extraction and received an intraocular lens implant were enrolled in the study.
- The aqueous humor samples (0.1 ml) were obtained during surgery by puncture of the anterior chamber.
- The concentrations of cytokines in the aqueous humor were measured by using the multiplexed cytokine analysis.

Results

- Concentration of IL-1 beta (interleukin-1 beta) in patients without comorbidities was 1.13 ± 0.08 pg/ml, in patients with arterial hypertension - 1.52 ± 0.13 pg/ml, and in patients with stable angina pectoris - 1.58 ± 0.11 pg/ml (Fig.1a).
- Concentration of TNF- α (tumor necrosis factor alpha) in patients without comorbidities was 3.77 ± 0.32 pg/ml, in patients with arterial hypertension - 4.17 ± 0.39 pg/ml, and in patients with stable angina pectoris - 4.19 ± 0.38 pg/ml (Fig.1b).
- Concentration of IL-1Ra (interleukin-1 receptor antagonist) in patients without comorbidities was 8.72 ± 0.47 pg/ml, in patients with arterial hypertension - 7.84 ± 0.56 pg/ml, and in patients with stable angina pectoris - 7.56 ± 0.53 pg/ml (Fig.1c).

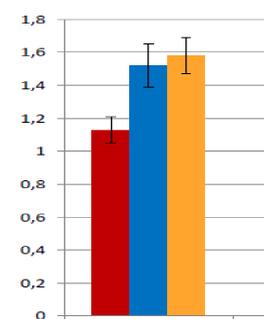


Fig. 1a Concentration of IL-1 beta, pg/ml

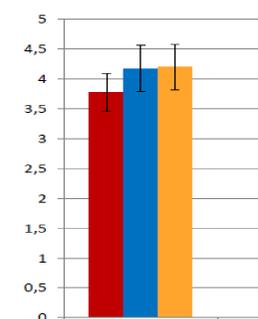


Fig. 1b Concentration of TNF- α , pg/ml

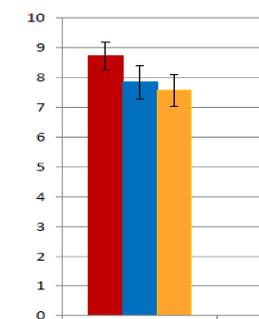


Fig. 1c Concentration of IL-1Ra, pg/ml

Conclusion

Increased concentration of pro-inflammatory cytokines and decreased concentration of anti-inflammatory cytokines in the aqueous humor of patients with arterial hypertension and stable angina pectoris may play an important role in the pathogenesis of age-related cataract.