J Eye Cataract Surg 2018, Volume 4
DOI: 10.21767/2471-8300-C1-003

Proinflammatory and Th17-cell related cytokines in ocular fluid of patients with proliferative diabetic retinopathy patients

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Inflammation involved in progression of diabetic retinopathy has been known. Macrophages are involved in low-grade inflammation in diabetes, and play pathogenic roles in proliferative diabetic retinopathy (PDR) by producing proinflammatory cytokines. T cells as well as other cells are also activated by proinflammatory cytokines, and infiltration in to the vitreous of patients with PDR has been shown. We have recently found that levels of IL-4, IL-6, IL-17A, IL-21, IL-22, and TNFα in the vitreous were significantly higher than those in the serum in PDR patients, and that vitreous levels of IL-4, IL-17A, IL-22, and TNFα in PDR patients were also significantly higher than those of epiretinal membrane, macular hole, or ocular sarcoidosis patients. In PDR patients, vitreous IL-17A level correlated significantly with vitreous levels of IL-22 and TNFα. Although percent detectable of IL-17A, IL-22, and TNFα were significantly lower in the aqueous humor than in the vitreous fluid, these correlations were also observed in the aqueous humor as well as in the vitreous fluid. In addition, IL-17A in the aqueous humor was significantly correlated with IL-10, IL-17A, and TNFα in the vitreous fluid. Although it is unclear whether these cytokines play facilitative roles or inhibitory roles for the progression of PDR, the present study indicated that Th17-related immune responses are involved in the pathogenesis of PDR.

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