New Questions – New Answers

Is Intravitreal Triamcinolone Injection Superior to Orbital Floor Injection in Uveitic Cystoid Macular Edema?

Roesel et al., Münster, Germany

Ophthalmic Res 2009;42:81–86

The authors aimed to compare the effect of orbital floor or intravitreal administration of triamcinolone acetonide on visual acuity and chronic cystoid macular edema (CME) in patients with uveitis. A retrospective analysis was performed in patients suffering from chronic noninfectious uveitis, in whom CME ($n = 97$) did not respond to systemic corticosteroids and/or immunosuppression combined with acetazolamide. Patients received a single injection of either intravitreal (IVTA, $n = 48$, group 1) or orbital floor (OFTA, $n = 49$, group 2) triamcinolone acetonide. Best-corrected visual acuity, macular edema (fluorescein angiography), uveitis activity, ocular hypertension, and cataract formation were analyzed over the course of 1 year. Improvement in visual acuity was noted in 50% (IVTA) and 34% (OFTA) after 3 months ($p = 0.23$), and in 18% (IVTA) and 20% (OFTA) after 12 months. CME improved in 100% (IVTA) and 76% (OFTA) of the eyes within the first month postoperatively ($p = 0.36$). Macular edema was reduced in 100% (group 1) and 20% (group 2) after 3 months ($p < 0.01$). At 1 year, cataract progression was noted in 68% (IVTA) and 27% (OFTA) ($p < 0.01$). Increased intraocular pressure (>21 mm Hg) was detected in 21% (IVTA) and 0% (OFTA) at 4 weeks ($p < 0.01$) after injection. The authors conclude that uveitic CME and visual acuity not responding to systemic immunosuppression and acetazolamide may improve after an intravitreal and orbital floor TA injection. The effect was mostly transient. While the intravitreal TA injections were more effective for improving CME, ocular hypertension and cataracts developed more often.

What Is the Role of Pentosidine in Predicting the Progression of Diabetic Retinopathy?

Salman et al., Cairo, Egypt

Ophthalmic Res 2009;42:96–98

The authors evaluated the role of pentosidine in predicting the progression of diabetic retinopathy. The study included 30 subjects with insulin-dependent diabetes mellitus (type 1) and 10 healthy control individuals in a case-control study. Full ophthalmological examinations together with laboratory investigations

(blood glucose level, HbA_{1C} and blood pentosidine level) were performed in all subjects. The level of pentosidine was correlated with the duration of diabetes and the stage of retinopathy. The authors report a significant elevation of pentosidine in patients during the earliest detectable phase of diabetic retinopathy (early non-proliferative diabetic retinopathy). A higher elevation at the preproliferative stage of retinopathy was found, which returned to lower levels at the proliferative stage of diabetic retinopathy. The authors conclude that pentosidine can be used as a biochemical marker for the early occurrence of diabetic retinopathy and as an alarming factor in the preproliferative stage of diabetic retinopathy. This may help to decrease the occurrence of ocular complications.

Are Cell-Cell Adhesions in the Prelaminar Region of the Optic Nerve Head a Possible Target for Ionic Stress?

Carreras et al., Granada, Spain

Ophthalmic Res 2009;42:106–111

Carreras et al. studied the anterior surface of the optic nerve in relation to its ability to support a source of stress acting from the vitreous cavity. Intercellular junctions of the lining astrocytes mediated by cellular adhesion molecules (CAM) may be the main targets for ionic stress. The optic nerve of the domestic pig was prepared for light confocal laser and transmission electron microscopy. Immunostaining was performed with antibodies against glial fibrillary acidic protein, N-cadherin, and N-CAM. The authors found only 1 type of intercellular junction among bordering astrocytes, characterized as zonula adherens. Unions between lining cells showed positive immunogold and immunofluorescence against N-cadherin in the zonula adherens and membrane apposition. N-CAM was also present in areas of non-junctional cellular adhesion. The authors conclude that the stability of intercellular junctions of the nerve-vitreous boundary is sensitive to altered concentrations of Ca^{2+} . Since aqueous humor has half the concentration of Ca^{2+} that plasma does, contact of aqueous humor with the optic nerve head can interfere with the ionic concentration of calcium in the extracellular spaces. This mechanism may contribute to aging changes and some types of glaucoma.

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