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EXPERIMENTAL EVALUATION OF A IOTA-CARRAGEENAN/POLY-VINYLPYRROLIDON GEL AS VITREOUS SUBSTITUTE

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Purpose: A new hydrogel composed of iota-carrageenan/polyvinylpyrrolidon (i-cgn/pvp) was tested in rabbit eyes to determine its intraocular tolerance and to evaluate its suitability as a vitreous substitute.

Methods: After pars-plana lensectomy and pars-plana vitrectomy 1,5ml of i-cgn/pvp were injected into 4 eyes of 4 rabbits.The untreated contralateral eye served as control.All eyes were examined clinically by slit-lamp and indirect ophthalmoscopy.The eyes were enucleated after an observation period of 16/17 days and 8/9 weeks and prepared for lightmicroscopic examination.

Results: Injected intraocularly, i-cgn/pvp mixed with the intraocular fluid immediately and moved to the anterior chamber. All eyes showed moderate signs of acute inflammation of the ant. segment and neovascularisation of the cornea, which almost cleared after 2 weeks.Increasing turbidity of the vitreous was observed from the 2.day on.IOP was less than 4mmHg from the 2nd week postoperatively. After enucleation the vitreous content was homogenous and solid after 16/17 d; after 8/9 weeks consistency was imhomogenous,partialy liquid and showed hemorrhagic infiltration.Retinal detachement had developed in 1 eye.Lightmicroscopic examination showed infiltration by macrophages and foam-cells in the iris,the vitreous,and the retina after 16/17d,in addition granulomatous reactions after 8/9 weeks. Structural disarrangement of the retina and increased vacuolisation of the nerve fiber layer were observed,more distinct after 8/9 weeks.

Conclusions:Due to insufficient gel stability i-cgn/pvp seems to us in this composition unsuitable as vitreous substitute.The acute and chronic inflammatory reactions can possibly be influenced pharmacologically,but this needs further investigation.

This work is part of a study of the Arbeitsgemeinschaft Glaskörperersatz of the university eye clinics of Berlin (B.F.U.),Köln,Lübeck,Munich (L.M.U.),Regensburg and the department for development of biocompatible substances university Ulm.

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Human Cytomegalovirus Plays a Role in Inhibition of Host-Cell Protein Synthesis in a Receptor-Independent Manner

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CMV retinitis is the most frequent ocular complication occurring in AIDS patients. Virus and host-cell interactions should be more precisely studied to determine the molecular pathogenesis of viral infection and latency.

Purpose : To analyze the role of Human Cytomegalovirus (HCMV) proteins in the host-cell protein synthesis shut-off, immediately after contact between cells and HCMV.

Methodology : Fibroblasts or astrocytoma cells were labeled with ^{35}S-methionine in the presence or absence of 5 pfu/cell of active or UV-irradiated AD169 strain CMV. Cells are then sampled after 10, 60, 180 and 360 minutes and the radiolabeled precursor incorporation into TCA precipitable proteins was measured. In order to analyze the role of incoming viral proteins, we asked if HCMV could affect protein synthesis independent of receptor-mediated events. Purified virus and dense body enriched preparations were added to an in vitro coupled transcription/translation system using a luciferase (Luc) reporter gene.

Results : Less than one min elapses between contact of inoculum with the cell membrane and penetration of nucleocapsids and dense bodies into the cell. After contact with HCMV, host-cell protein synthesis was inhibited in a dose-dependent manner and about 70-90% compared to the controls . This was a transient but not a toxic effect as protein synthesis mostly recovered after 360 min. UV-irradiated virus showed the same shut-off. Reduction of Luc activity after 30 min incubation in vitro averaged 90-95%. Translation but not transcription was involved in this phenomenon. pp65 (ppUL83), which composes 95% of dense bodies, 15% of virions and has a kinase activity is a possible candidate explaining these mechanisms.

Conclusions : HCMV modifies cell metabolism by inhibiting protein synthesis immediately after contact with the cell in a receptor-independent manner. This could help the virion controlling the cell machinery and changing it's pre-defined program.

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EVALUATION OF VITRECTOMY IN TREATMENT OF ENDOPHTHALMITIS

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Purpose

To evaluate vitrectomy in conjunction with intraocular antibiotics for treatment of 10 patients with endophthalmitis, to analyse surgical difficulties and pronostic factors with bacteriological results.

Methods

Before surgery, we isolated endocular samples from anterior or posterior chamber for bacteriological analysis. All patients were treated with pars plana vitrectomy and intravitreal and systemic antibiotics.

Results

The short coming out of the endophthalmitis and the nature of germs (streptococcus, negative gram bacillus) are bad pronostic factors. Moreover, complete vitrectomy and transparency of the anterior segment are important for good surgical treatment. Sometimes, the extraction of the posterior chamber lens is not necessary.

Conclusions

Vitrectomy in treatment of endophthalmitis provides short and long term benefits. This therapeutic must be associated with intraocular antibiotics.

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DIAGNOSTIC VALUE OF POLYMERASE CHAIN REACTION OF AQUEOUS AND VITREOUS HUMOR FOR INFECTIOUS UVEITIS IN AIDS PATIENTS

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Purpose: To evaluate polymerase chain reaction perfomed in aqueous and vitreous as a diagnostic tool for infectious uveitis. **Methods:** Aqueous (n=14) and vitreous (n=6) samples were withdrawn from 14 eyes of AIDS patients with uveitis and PCR for herpes viruses and toxoplasma was perfomed. **Results:** Aqueous analysis showed: CMV (7 eyes), herpes virus type 6 (2), coinfection of CMV-VHS (1), toxoplasma gondii (1). Vitreous analysis showed: CMV (2), coinfection of VZV-CMV (2), and EBV (2). An infectious etiology was diagnosed in 13/14 eyes (92%) by PCR of aqueous and vitreous. **Conclusions:** PCR is a useful test in the diagnosis of infectious uveitis in AIDS patients.