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ABSTRACTS



Tartalom

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Results: We observed a trend of increased ecDNA concentration in all ALF mice compared to controls. This result correlated with an increased DNase activity and nuclear DNA concentration, but not mitochondrial DNA. The result from noetic cell number analysis was variable.

Conclusion: Despite the high variability in values and mortality of the animals, we found increased extracellular DNA and absent NETosis in mice with acute liver failure.

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NEUROECTODERMAL STEM CELLS IMPROVE THE FUNCTIONAL AND MORPHOLOGICAL OUTCOME AFTER CHRONIC SPINAL CORD INJURY VIA MULTIPLE MECHANISMS

Mate Ignacz, Tamas Bellak, Krisztian Pajer, Sudheer Babu Sangeetham, Laszlo Gal, Zoltan Fekecs, Annamaria Marton, Denes Torok, Csaba Vizler, Antal Nogradi (Department of Anatomy, Histology and Embryology, Albert Szent-Györgyi Medical School, University of Szeged, Institute of Biochemistry, Biological Research Centre)

Keywords: stem cell, regeneration, spinal cord injury

Aims: Spinal cord contusion injury leads to severe tissue loss and subsequent deficit of motor, sensory and vegetative functions below the lesion. In this study we investigated whether transplantation of neuroectodermal stem cells into the injured rat spinal cord is able to induce morphological and functional improvement in a chronic spinal cord injury model.

Methods: Mouse embryonic clonal neuroectodermal stem cells were grafted intraspinally five weeks after a thoracic spinal cord contusion injury performed in SD rats. Control animals underwent contusion injury without stem cell transplantation. Functional tests and detailed morphological analysis were performed to evaluate the effects of grafted cells.

Results: Grafted animals showed significantly better functional recovery compared with control animals. Morphologically, the contusion cavity was significantly smaller, and the amount of spared tissue was significantly higher in grafted animals than in controls. Retrograde tracing studies showed a statistically significant increase in the number of FB-labelled neurons rostral to the injury. The extent of functional improvement was related to the amount of inhibitory factors around the cavity and microglial reactions in the injured segment. Five days after transplantation the majority of grafted cells appeared to survive, formed clusters and a small proportion of the cells differentiated into neurons and astrocytes. Ten days after grafting the majority of the grafted cells appeared as nonviable fragments in microglia/macrophage cells.

Conclusions: These data suggest that grafted neuroectodermal stem cells are able to induce morphological and functional recovery after chronic spinal cord contusion injury despite the limited survival of transplanted cells.

A NEW POTENTIAL THERAPEUTIC TARGET IN INFLAMMATORY RETINOPATHY

Inez Bosnyak, Alexandra Vaczy, Balazs Meresz, Dorottya Molitor, Bela Kocsis, Tamas Atlasz, Dora Reglodi (Department of Anatomy, ELKH-PTE PACAP Research Team, University of Pecs, Medical School Pecs Hungary, Department of Medical Microbiology and Immunology, University of Pecs, Medical School, Pecs, Hungary, Department of Sportbiology, University of Pecs, Pecs, Hungary)

Keywords: retinal inflammation, PAC1R, PACAP

Retinal inflammation may lead to visual impairment, even blindness in most severe cases. Pituitary adenylate cyclase activating polypeptide (PACAP) is a neuropeptide, which has strong neuroprotective and general cytoprotective effects. It is also found in the eye and it is involved in several ocular processes. Three receptors can be distinguished, however the specific PAC1 receptor plays the key role in its protective mechanisms.

Our aim was to investigate the effectiveness of a specific, exogenous PAC1 receptor agonist agent, maxadilan, in inflammatory retinopathy.

Inflammation was induced by bacterial lipopolysaccharide in mice. Maxadilan was administered by intravitreal injection. Optical coherence tomography was used to follow the changes in thickness of all retinal layers. Change of ganglion cell number was evaluated after toluidine blue staining. Electroretinography provided functional information. Expression level of forty different types of cytokines was also analyzed.

Results: Our data show that maxadilan is able to prevent the decrease of the outer nuclear layer, outer plexiform layer, inner nuclear layer, inner plexiform layer and the photoreceptor layer. In addition, it improves functional outcome. Significant ganglion cell degeneration was observed in the inflamed group. However, ganglion cell number remained similar to control group after maxadilan treatment. Based on our Results, PAC1 receptor-mediated signaling pathways significantly influence the level of several cytokines and chemokines (such as MIG, MIP2, G-CSF and C5/C5a).

Conclusion: The specific, exogenous PAC1 receptor agonist maxadilan prevents the morphological and functional damage in inflammatory retinopathy. Based on our Results PAC1 receptor is a new potential therapeutic target in this disease.

EXAMINATION OF PITUITARY ADENYLATE CYCLASE-ACTIVATING POLYPEPTIDE (PACAP) IN PATIENTS WITH ATRIAL FIBRILLATION UNDERGOING PULMONARY VEIN ISOLATION

Kata Anna Toller^{1,2}, Peter Kupo¹, Beata Polgar³, Dora Reglodi², Kristof Janosi¹, Dorottya Debreceni¹, Tunde Toth², Andrea Tamás² (1Heart Institute, Clinical Centre, University of Pecs Medical School, 2Department of Anatomy, ELKH-PTE PACAP Research Team, Centre for Neuroscience, University of Pecs Medical School, 3Department of Medical Microbiology and Immunology, Clinical Centre, University of Pecs, Medical School)

Keywords: PACAP, atrial fibrillation, pulmonary vein isolation, electroanatomical mapping

Introduction: PACAP is a multifunctional neuropeptide having cardioprotective effects. Recently we showed that plasma PACAP level increases in myocardial infarction and decompensated heart failure (HF), while it decreases in compensated chronic HF. The aim of the present study was to examine the changes of PACAP levels in patients with atrial fibrillation (AF) undergoing pulmonary vein isolation (PVI).

Material and Methods: We collected blood samples from patients (n=20) with AF undergoing PVI from the femoral vein at the beginning of the procedure, the left atrium before the ablation, the femoral vein at the end of the procedure, and the cubital vein on the first postoperative day. ELISA was used to measure the endogenous PACAP level. Patients were divided into intact (n=11) and scarred (n=9) left atrial groups based on the left atrial voltage map created by electroanatomic mapping system.

Results: We detected significantly higher PACAP levels in left atrial and post-operative femoral vein samples compared to peripheral blood samples collected at the beginning of the procedure and 1 day after the procedure. We found a significantly larger increase in PACAP levels in femoral vein blood samples immediately after surgery in patients with scarred left atrium compared to patients with intact atrium.

Conclusions: We found significant differences between PACAP levels of blood samples from the atrium and peripheral veins. Elevated PACAP levels in atrial samples may be due to myocardial cells and/or neurons. After the procedure, we found elevated PACAP levels in peripheral blood samples, although the dynamics of the elevation varied depending on myocardial scarring.

SFS1.HIGHLIGHTED SESSION

ORTHOGNATIC SURGERY FOR CRANIOFACIAL DEFORMITIES

Prof. Chung. H. Kau (USA)

No abstract available.