The level of receptor for advanced glycation end products in the serum of amyotrophic lateral sclerosis patients undergoing stem cell experimental treatment – preliminary study

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Amyotrophic lateral sclerosis (ALS) is fatal, neurodegenerative disorder affecting upper and lower motor neurons in the cerebral cortex, brainstem and spinal cord. Multiple factors are thought to contribute to the progression of ALS but its pathogenesis still remains unclear. Recent studies suggest that enhanced oxidative stress and neuroinflammation are involved in the progression of the disease. Mounting evidence implicates the receptor for advanced glycation end products (RAGE) as a significant contributor to the pathogenesis of certain neurodegenerative diseases and chronic conditions. Therefore, the aim of this study was to determine the level of RAGE in the serum of ALS patients treated with mesenchymal stem cells originating from Wharton's jelly. Experimental group of patients included seven females and eight males (five – control and 10 – ALS patients, age range between 35-63 years). The level of RAGE in the serum after the first and third stem cells transplantation was measured using ELISA method. The obtained data has shown that the level of RAGE in the serum is significantly lower in the pateints with ALS than in the control group (847.51±91.56 vs. 401.83±67.55 and 523.70±95.17; $p<0.01$ and $p<0.05$, respectively). However, no changes were observed beetwen first and third transplantation of stem cells. In conclusion, it can be supposed that RAGE system might be involved in the course of ALS. The present study indicate that stem cells transplantation do not modulate the secretion of RAGE in the serum of ALS patients, but the further comprehensive studies need to be undertaken to cofirm this.

Biography

Mariusz Dziekoński is a PhD student in Department of Animal Physiology at University of Warmia and Mazury in Olsztyn (Poland). Now, he works as a Laboratory Technician in Department of Patophysiology, Faculty of Medical Sciences, University of Warmia and Mazury in Olsztyn (Poland) in the project "Innovative strategy for diagnostics, prevention and adiuvant therapy of selected neurodegenerative disorders in population of polish ancestry".

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