Does the transplantation of bone-marrow MSCs to ALS patients changing levels of IL-18, CCL2 and CXCL12 in the blood serum and cerebrospinal fluids?

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Using Proteome Profiler Kit, we earlier detect many cytokines/chemokines in blood serum and cerebrospinal fluid (CSF) of amyotrophic lateral sclerosis (ALS) patients after and before bone marrow-derived mesenchymal stem cells (BM-MSCs) transplantation. In all human physiological fluids, most of identified factors were present on the lower level; only amounts of interleukin/IL/-18 as well as chemokine CXCL12 and CCL2 were increased. Therefore, the goal of this study was to check the concentrations of those three components in the above fluids using ELISA method. Blood and CSF samples were drawn from 10 ALS patients and 10 patients with other non-inflammatory neurological disorders (NND) served as a control group. The concentration of IL-18 and CCL2 and CXCL12 has been checked in the blood serum and CSF using Quantikine ELISA Kit (R&D Systems, MN, USA). Data were statistically analyzed using one-way analysis of variance (ANOVA) followed by the Bonferroni test. IL-18 concentration ($P<0.01$) in the blood serum and CSF of ALS patients was greater than in control group and in those after stem cell transplantation. In turn, the higher CCL2 amount ($P<0.05$) was only found in the CSF of ALS patients, but not in the serum. The opposite situation was noted in the case of CXCL12 ($P<0.01$), where the concentration of this chemokine was only elevated in the blood serum of sick individuals. Obtained data indicate that those three components (IL-18, CCL2 and CXCL12) may play a role in the pathogenesis of the disease and may suggest about the immunomodulatory properties of transplanted cells.

Biography

Dagmara Głód completed her PhD in Agricultural Sciences at University of Warmia and Mazury in Olsztyn (Poland). Now, she works as a Laboratory Technician in Department of Pathophysiology, Faculty of Medical Sciences, University of Warmia and Mazury in Olsztyn (Poland) in the project “Innovative strategy for diagnostics, prevention and adjuvant therapy of selected neurodegenerative disorders in population of polish ancestry”.

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