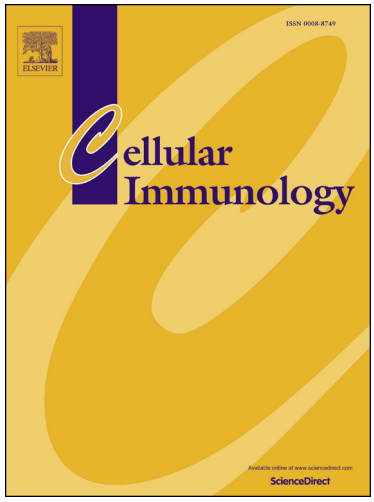

Research paper

Interleukin-1β, Interleukin-1 receptor antagonist, Interleukin-6, Interleukin-10, and Tumor Necrosis Factor-α Levels in CSF and Serum in Relation to the Clinical Diversity of Parkinson's Disease

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PII: S0008-8749(18)30071-6
DOI: https://doi.org/10.1016/j.cellimm.2018.02.011
Reference: YCIMM 3771

To appear in: *Cellular Immunology*

Received Date: 8 August 2017
Revised Date: 17 February 2018
Accepted Date: 18 February 2018

Please cite this article as: M.N. Karpenko, A.A. Vasilishina, E.A. Gromova, Z.M. Muruzheva, A. Bernadotte, Interleukin-1β, Interleukin-1 receptor antagonist, Interleukin-6, Interleukin-10, and Tumor Necrosis Factor-α Levels in CSF and Serum in Relation to the Clinical Diversity of Parkinson's Disease, *Cellular Immunology* (2018), doi: https://doi.org/10.1016/j.cellimm.2018.02.011

Interleukin-1β, Interleukin-1 receptor antagonist, Interleukin-6, Interleukin-10, and Tumor Necrosis Factor-α Levels in CSF and Serum in Relation to the Clinical Diversity of Parkinson's Disease

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ABSTRACT

Several parameters representing the clinical diversity of Parkinson's disease (PD), including severity, phenotypes, cognitive decline, anxiety and depression were analyzed to examine the link with interleukin-1β (IL-1β), the interleukin-1 receptor antagonist (IL-1RA), IL-6, IL-10, and tumor necrosis factor-α (TNFα) and also to determine the relationship between levels of these factors in serum and cerebrospinal fluid (CSF). Significantly elevated serum IL-1β and IL-6 and reduced IL-1RA levels were found in the PD group. In CSF and serum, inflammatory factors behaved differently, with increased CSF TNFα indicating rapid PD progression, and increased IL-1β in serum. A low level of IL-6 was associated with a longer duration of PD. Anxiety, depression, non-tremor phenotype and late-onset PD correlated with a high serum level of IL-10. The serum TNFα level was lower in PD patients with mild cognitive impairment compared to controls. Serum IL-1β, IL-6 and IL-10 levels correlated with CSF markers.

Keywords

Parkinson's disease; CSF; inflammation; biomarker; tremor phenotype; IL-1β; TNFα; interleukins, depression.

1. Introduction