Enriched CD161$^+$ CCR6$^+$ T cells in the cerebrospinal fluid of patients with multiple sclerosis.

Abstract:

To investigate the expression of CD161 (KLRB1) and CCR6 on human T cells in blood and cerebrospinal fluid (CSF) of patients with a clinically isolated syndrome (CIS) and multiple sclerosis (MS) in relapse. Flow cytometry analysis of CD161 and CCR6 expression and intracellular cytokine staining for interleukin 17 and interferon-? on human T cells in blood and CSF samples. Department of Neurology, Klinikum rechts der Isar, Technische Universität München, a tertiary referral center. Twenty-six patients with CIS/MS in active relapse, 10 patients with other autoimmune disorders, 12 patients with neuroinfectious diseases, and 15 patients with noninflammatory neurological diseases. Frequencies of CD161$^+$ CCR6$^+$ T cells in blood and CSF samples of patients with CIS/MS in relapse and control patients. T cells were increased in both blood and CSF of patients with CIS/MS in relapse as compared with controls with noninflammatory disease. The fraction of CD161$^+$ CCR6$^+$ T cells was significantly higher in the CSF of patients with CIS/MS in relapse than of those with systemic autoimmune disorders or controls with noninflammatory disease. The CD161$^+$ CCR6$^+$ double-positive T-cell population was further enriched in the CSF in relation to blood in patients with CIS/MS in relapse but not in patients with infectious disease or the other control groups. The CD161$^+$ CCR6$^+$ T-cell population was
characterized by its capacity to produce interleukin 17. Interleukin 17-producing CD161<sup>high</sup> CCR6<sup>+</sup> T cells might contribute to the compartmentalized inflammatory process in the central nervous system of patients with MS.