The neuroimmunology pathogenesis of multiple sclerosis – current concepts

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Multiple sclerosis (MS) is an inflammatory disorder of the central nervous system (CNS). Within the brain, there is an abundance of T cells and myeloid cells in MS lesions. The pathogenesis of MS has long been considered autoimmune and CD4⁺ T helper cell-mediated, as this disorder is associated with HLA-DRB1*15:01. Also, the experimental autoimmune encephalomyelitis (EAE) model of MS is driven by antigen-specific CD4⁺ T cells.

The evidence for CD4⁺ T cells in the pathogenesis of MS will be examined by reviewing biological plausibility, observations in other disorders, and treatment trials that target these cells. Also, recent data on the role of B lymphocytes will be discussed. The cellular interplay of lymphocytes subsets regarding MS pathogenesis will be explained. Finally, the potential role of the innate immune system will be reviewed.