Interictal alterations of cytokines and leukocytes in patients with active epilepsy.

Involvement of the innate immune system in the pathogenesis of epilepsies has been suggested but possible interactions between the immune system and human epilepsy remain unclear. We analyzed the interictal immuno-phenotype of leukocyte subsets and proinflammatory cytokine profiles in epileptic patients and correlated them with the epilepsy syndrome. 101 patients with active focal or generalized epilepsy were prospectively included and compared to 36 healthy controls. Immuno-phenotype of leukocyte subsets and cytokines IL-1β, IL-6 and TNF-α were measured in peripheral blood. Multivariate analyses were performed to test group differences. As compared to controls, the patients showed an elevated percentage of monocytes (18.06±7.08% vs. 12.68±4.55%, p<0.001), NK cells (14.88±7.08% vs. 11.43±5.41%, p=0.019) and IL-6 concentration (3.33±3.11 pg/ml vs. 1.5±1.36 pg/ml, p=0.002). This remained true when focal epilepsies or generalized epilepsies were compared separately to controls but only focal epilepsies showed additionally a decrease in B lymphocytes (8.16±3.76% vs. 11.54±4.2%, p<0.001). Treatment with lamotrigine was associated with a higher percentage of B lymphocytes and valproate with an increased percentage of CD4(+) T lymphocytes. Therapy with levetiracetam showed a
trend towards decreased CD8(+) T cell counts. No significant differences were seen between focal and generalized epilepsies and between temporal and extratemporal lobe epilepsies. Patients with active epilepsy revealed interictal alterations of the immune system which varied among specific syndromes and were influenced by antiepileptic drug treatment.