

The vast majority (>90%) of neurological manifestations of Lyme borreliosis (LB) will occur in the early disseminating stage of the disease, when adult patients with neuroborreliosis (NB) usually present with Bannwarth's syndrome (BS), a painful meningoradiculoneuritis. About 50% have cranial nerve involvement, predominantly uni- or bilateral facial palsy. Cerebrospinal fluid analysis of these patients shows a lymphocytic pleocytosis and, depending on the time of the disease course, intrathecal *Borrelia burgdorferi*-specific antibody (Bb-ab) synthesis. Demonstration of high CSF-levels of the chemokine CXCL13 may be helpful to establish the correct diagnosis in early cases when intrathecal Bb-ab synthesis may still be absent. In children BS is extremely rare. Mild meningitis or facial palsy with CSF pleocytosis but without any other neurological symptoms are the most frequent manifestations in pediatric NB of the early disseminated stage. Historical follow-up studies prior to 1983 on untreated patients with BS clearly demonstrated that the clinical course of BS is usually self-limiting after a period of up to 6 months. Chronic manifestations of NB defined as progressing disease of >6 months duration are extremely rare. They make up for less than 5% of all cases with NB and manifest as chronic meningitis or chronic encephalomyelitis. In both conditions the demonstration of CSF pleocytosis and of intrathecal Bb-ab synthesis is mandatory for a definite diagnosis. Chronic peripheral neuropathy in patients with acrodermatitis chronica atrophicans, another chronic form of NB, shows no involvement of meninges or of the central nervous system. Treatment of NB in the early disseminated stage consists of a 2 weeks course of parenteral ceftriaxone. Alternatively parenteral penicillin or cefotaxime can be used. In mild cases a two weeks course of oral doxycycline may be sufficient. Sequelae will be unlikely, when treatment is started at the early course of the neurological symptoms. Chronic manifestations of NB are treated with parenteral ceftriaxone over two to four weeks. This will stop disease progression and improve some symptoms, but at this late stage full recovery is unlikely.