

COMMENT. Unlike pertussis, in which paroxysmal coughing, episodic apnea and cyanosis, or disturbed ventilatory perfusion may result in severe hypoxemia and neurological dysfunction, the coughing in cystic fibrosis is rarely accompanied by significant hypoxemia and serious neurological sequelae. A direct effect of B pertussis toxins on surfactant function leading to alveolar atelectasis has been invoked as the cause of hypoxemia in pertussis.

LYME DISEASE AND CNS COMPLICATIONS

Four adult patients with chronic meningoencephalitis caused by tick-transmitted *Borrelia burgdorferi* infection are reported from the Depts of Neurology, University of Freiburg, Freiburg, and University of Koln, Koln, Federal Republic of Germany. All patients lived in wooded areas in which the transmitting tick (*Ixodes ricinus*) was widely distributed. IgG antibody titers were higher in CSF than in serum, indicating a specific intrathecal immune response against the B burgdorferi antigen and suggesting neuroborreliosis (Bannwarth's syndrome), although the characteristic painful meningopolyneuritis was absent. MRI showed either multiple lesions of high signal density in the white matter suggestive of MS or evidence of vascular involvement, as in other spirochetal infections, such as meningovascular syphilis. The authors consider the clinical spectrum of neuroborreliosis to be comparable to the different forms of neurosyphilis. Only one patient had a complete clinical remission after intravenous penicillin therapy, in 2 there was no further progression, and one showed no improvement. (Kohler J et al. Chronic central nervous system involvement in Lyme borreliosis. Neurology June 1988;38:863-867).

COMMENT. The manifestations of Lyme disease are in 3 stages: Stage I, erythema chronicum migrans, in 80-95% cases, minor flu-like symptoms with headache, fatigue, fever, myalgias, and other signs of disseminated disease such as arthralgias; Stage II, neurological complications in 15% cases, onset at 2-11 wks, with meningitis, Bell's palsy, and peripheral radiculoneuropathy; carditis (8%); and Stage III, arthritis (60%) and chronic neurological syndromes as described above. The most common neurological complication is aseptic meningitis which presents with headache and stiff neck and associated encephalitic symptoms including somnolence, emotional lability, memory loss, poor concentration and behavioral changes. Seventh nerve palsy is seen in 50% patients with meningitis or it occurs alone. Peripheral neuropathies are motor or sensory or mixed. Less common neurological complications include mononeuritis multiplex, transverse myelitis, Guillain-Barre syndrome, chorea, cerebellar ataxia, and pseudotumor cerebri. Maternal-fetal transmission has been described, although no definite link to fetal anomalies has been documented.

Treatment recommended in the literature varies with the age: for children over 8 yrs and adults, oral tetracycline; for children under 8 yrs, phenoxymethyl penicillin. (For details, see Hurwitz S. Contemporary Pediatrics June 1988;74-82; Stechenberg BW. Pediatr Infect Dis J. June 1988;7:402-409). Preventative methods include: (1) avoidance of wooded, grassy areas; (2) use of tick repellants such as Deet and permethrins on clothes; (3) removal of ticks by pulling straight out with tweezers.