perception had no influence on the complaints of insomnia. (Leger D, Prevot E, Philip P et al. Sleep disorders in children with blindness. Ann Neurol Oct 1999;46:648-651). (Respond: Dr C Guilleminault, Stanford University Sleep Disorder Center, 401 Quarry Road, Suite 3301, Stanford, CA 94305).

COMMENT. Insomnia is more common in blind children than controls, with early awakening particularly on school days. The resultant daytime sleepiness may have an adverse effect on learning.

Melatonin treatment of insomnia in children is reviewed from the University of British Columbia, Vancouver, Canada (Jan JE, Freeman RD, Fast DK. Dev Med Child Neurol Aug 1999;41:491-500). The light-dark cycle is the strongest "zeitgeber,"an entraining factor that adjusts the function of the suprachiasmatic nucleus of the anterior hypothalamus and the endogenous circadian brain rhythms by environmental stimuli. Circadian disturbances can result from psychiatric and neurologic disorders, environmental factors, and use of drugs which interfere with pineal melatonin (MLT) secretion. Lack of appreciation of environmental zeitgebers may occur in mentally retarded or blind children, although the incidence was low in the Stanford study. Chronic disabilities may alter the perception of cues for synchronizing sleep with the environment, leading to sleep-wake cycle disorders. Abnormal endogenous MLT secretion has been reported in blind children with sleep disorders, especially those with cortical visual impairment, and in patients with cerebral palsy, or brain tumors involving the hypothalamus, optic chiasma, pineal, or prefrontal cortex. Patients with ocular visual loss are less affected.

The pineal produces MLT in the evening, reaching a peak at 3 am. Newborns have no MLT until 3 months, levels increase in the first year and remain stable until early puberty, when they begin to decline. MLT for the treatment of sleep-wake cycle disorders in children is discussed at length in this review article. Fast-release MLT is effective for about 5 hours; time-release MLT may last up to 9 hours. MLT should not be taken at the same time as other drugs or vitamins. Anticonvulsants and food alter the absorption of MLT. The dose recommended by researchers is dependent on age and the cause of the sleep disorder. Low doses (0.3 to 0.5 mg) are sometimes successful, but larger amounts are usually required: 1 to 3 mg in toddlers and 2.5 to 5 mg for older children. Sleep induction occurs within half an hour. Environmental changes to strengthen zeitgebers and foster healthy sleep habits are required to reset the circadian rhythm. The MLT assists in learning better sleep habits, and cognitive functioning and behavior improve. Once the desired effect is achieved, the MLT may be withdrawn, usually after some months, but depending on the underlying cause of the sleep disorder. Although no serious side effects are reported, the indiscriminate use of MLT is discouraged.

INFECTIOUS DISORDERS

NEUROLOGIC COMPLICATIONS OF ENTEROVIRUS 71 INFECTION

The neurologic complications associated with the 1998 Taiwan enterovirus 71 epidemic are reported from National Cheng Kung University, Tainan; Chang Gung Children's Hospital, Kaohsiung; and National Defense Medical Center, Taipei, Taiwan. In 41 children with acute neurological manifestations, the mean age was 2.5 years (range, 3 months to 8 years), 28 (68%) had hand-foot-and-mouth disease, 6 (15%) had herpangina, and skin or mucosal lesions were absent in 7. Three neurologic syndromes identified were aseptic meningitis (3 patients {7%}), acute

flaccid paralysis (4 {10%}), and brain-stem encephalitis or rhombencephalitis (37 {90%}).

In 37 patients with rhombencephalitis, 86% had myoclonus, and tremor, ataxia, or both were present in 62%. Ocular disturbance occurred in 9 and bulbar palsy in 1. Cardiorespiratory failure developed in 7, and 5 (14% of total) died despite ventilatory support. EEGs showed bilateral slow waves in 5, and MRI had high signal intensity lesions in the brain stem on T2 images of 71%, the frequency of MRI abnormalities increasing with severity of the rhombencephalitis. At follow-up, 14% had neurologic sequelae, including myoclonus, abducens palsy, facial diplegia, ataxia, internuclear ophthalmoplegia, and ventilator-dependent apnea. (Huang C-C, Liu C-C, Chang Y-C, Chen C-Y, Wang S-T, Yeh T-F. Neurologic complications in children with enterovirus 71 infection. N Engl J Med Sept 23, 1999;341:936-942). (Reprints: Dr Huang, Department of Pediatrics, College of Medicine, National Cheng Kung University, 138 Sheng-Li Rd, Tainan, 704. Taiwan).

COMMENT. Rhombencephalitis is the chief neurologic complication of enterovirus 71 infection in children affected during an epidemic in Taiwan. MRIs show lesions in the brain stem, depending on the severity of the illness, and 14% are fatal. Except for enterovirus 71, enteroviral meningoencephalitis generally has a good prognosis. The infection is characterized by self-limiting fever, vomiting, ulceration of mouth and palate, and vesicular lesions on the hands and feet, but may be followed by aseptic meningitis, meningoencephalitis, or acute flaccid paralysis resembling polio.

"INFANTILE" BOTULISM IN AN ADULT

A diagnosis of adult-onset "infant" botulism was confirmed by identification of botulinum toxins A and E in stool and serum of a 32-year-old woman with cystic fibrosis treated for a pseudomonas pneumonia and having a percutaneous gastrostomy tube placed for poor intake and weight loss, at the Department of Neurology, University of Minnesota, Minneapolis. Wound infection was not established, but 2 weeks after gastrostomy the patient developed nausea and vomiting, with ileus, progressive dysphonia, neck and proximal weakness, and respiratory failure. Partial ptosis and slowly reacting pupils were noted 2 days later, but extraocular movements, tendon reflexes, and sensation were normal. EMG studies were suggestive of presynaptic neuromuscular junction defect. Motor unit potentials were of small amplitude and brief duration with increased polyphasia. There was early recruitment with interference pattern and reduced peak-to-peak amplitude. Increments in CMAP amplitude with 50-Hz stimulation, and single-fiber EMG of extensor digitorum were abnormal. Sensory and motor conductions in all limbs were normal. Stool culture grew *Clostridium botulinum*, but the source of the infection was not identified. (Li LYJ, Kelkar P, Exconde RE, Day J, Parry GJ. Adult-onset "infant" botulism: An unusual cause of weakness in the intensive care unit. Neurology Sept (1 of 2) 1999;53:891). (Reprints: Dr Praful Kelkar, Department of Neurology, University of Minnesota, Box 295, 516 Delaware St, Minneapolis, MN 55455).

COMMENT. Adult-onset infantile botulism is rare, but this case report is of interest because the patient was suffering from cystic fibrosis, a childhood disease, which affects intestinal motility and, along with prolonged antibiotic therapy, predisposes to colonization of the gut by *C botulinum*. The diagnosis should be considered in a child admitted to the intensive care unit in respiratory distress, and presenting with nausea, vomiting, and fever that precede the onset of ptosis, nonreactive pupils, dysphagia, dysphonia, weakness of facial and neck