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INFECTIOUS DISORDERS

NEUROLOGIC COMPLICATIONS OF PARVOVIRUS INFECTION

Researchers in the Division of Pediatric Infectious Diseases at Albert Einstein College of Medicine, Bronx, New York conducted a PubMed database search of English and French literature for neurologic complications of parvovirus (PV) B19 infection or erythema infectiosum (fifth disease), Jan 1966 through July 2008. The diagnosis of PVB19 infection was confirmed by DNA-PCR (in 81% CSF and 85% serum samples) or detection of specific antibodies in 33% of CSF samples. Eighty-one cases of PVB19 neurologic disease were reviewed, mostly children; 62 (77%) had CNS manifestations and 19 had peripheral nervous system (PNS) disorders. The mean age was 15 years, and median age 9 years (range, 1 day to 68 years). CNS cases had a median age of 8 years, and PNS cases, 29.5 years. Male to female ratio was 1:1. The majority was immunocompetent; 32% had altered immunity. Viral or nonspecific flu-like symptoms were reported in 40%, and were more frequent in immunocompetent patients ($P=.002$); rash occurred in 38%, arthralgia in 17%, and lymphadenopathy in 16%. CNS manifestations included encephalopathy, encephalitis, or meningoencephalitis in 39/62 cases, meningitis (12), stroke (8), seizures, chorea, cerebellar ataxia, and opsoclonus. PNS manifestations included Guillain-Barre syndrome (1), neuropathies, brachial plexus neuropathy (8), and carpal tunnel syndrome (6 cases, all in adult women).

Encephalopathy or meningitis was reported mainly in children (mean age 15 years); seizures occurred in 46%, status epilepticus in 10% of patients. Prognosis was poor in 16/39 (41%); 4 died, 12 (31%) had sequelae (epilepsy, spastic quadriplegia), and 3 showed some improvement. Rare reports of intrauterine PVB19 infection with stroke and encephalopathy were not included in the review.

Laboratory findings in patients with CNS disease included elevated CSF WBC count

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in 31%, CSF protein elevation in 51%, and CSF glucose was decreased in 12%. MRI revealed white matter abnormalities in frontal or parietal lobes, or periventricularly, enlarged ventricles, and lesions in gray matter, brainstem, basal ganglia, and corpus callosum. EEG abnormalities included diffuse or focal slowing, and spike wave discharges. Brain biopsy of 2 patients with encephalitis showed chronic leptomenigeal inflammation and PVB19 DNA. Duration of CNS manifestations was 38 days (range, 2-198 days). Treatment with IV immunoglobulin (IG), with or without steroids, in 13 patients resulted in improvement in 8 (61%), and none of the patients who received IG or steroids died. Neurologic sequelae occurred in 22% of 77 patients with known outcome in the total group, some improvement occurred in 16%, and 56% recovered completely. Prevalence of sequelae was not different in immunocompetent patients compared to those with altered immunity, or in those with CNS manifestations, treated or untreated with IG with or without steroids. (Douvoyiannis M, Litman N, Goldman DL. Neurologic manifestations associated with parvovirus B19 infection. *Clin Infect Dis* June 2009;48:000). (Response and reprints: Dr Douvoyiannis. E-mail: mdouvoyi@montefiore.org).

COMMENT. The clinical manifestations of parvovirus B19 infection, listed in the AAP Red Book 27th ed, 2006, include erythema infectiosum (fifth disease), polyarthropathy, chronic anemia, aplastic crisis (with sickle cell anemia), and hydrops fetalis. The current article provides an extensive review of the neurological complications of PVB19 infection.

Parvovirus B19 infection is most commonly recognized by a distinctive rash, preceded for 7 to 10 days by a mild nonspecific illness consisting of fever, myalgia, and headache. The rash is intensely red, affecting the cheeks, trunk and extremities. The incubation period is 4 to 14 days.

WEST NILE VIRUS NEUROINVASIVE DISEASE

Epidemiological features of West Nile Virus (WNV) disease among children (<18 years of age) reported to the Centers for Disease Control and Prevention from 1999 through 2007 were analyzed and compared with those of adult WNV neuroinvasive disease (WNND), in a study at CDC&P, Fort Collins, CO. Of 1478 pediatric WNV cases reported, 443 (30%) had WNND, 1009 (68%) were classified as WN fever, and 26 (2%) were unclassified. The majority had onset between July and September. Among all cases of WNND reported, only 4% were in children. Of the 443 cases of pediatric WNND, 208 (47%) presented as meningitis, 163 (37%) as encephalitis or meningoencephalitis, 5 (1%) as acute flaccid paralysis (AFP), and 67 (15%) as unspecified WNND. The median age of WNND cases was 12 years. Three patients died. Median annual incidence of WNND was 0.07/100,000 children, in 40 states, primarily in South Dakota, Wyoming, and New Mexico. Of a total 11,081 WNND cases in the US, 4% occurred in children. The proportion classified as WNND was 30% and the same in children (<18 yrs) as in young adults (18-49 yrs). Older adults (>50 yrs) with WNND were more often classified with encephalitis (59%) than meningitis (23%), whereas in children and young adults, meningitis was preponderant (47% and 51%, respectively). (Lindsey NP, Hayes EB, Staples JE, Fischer M. West Nile virus disease in children, United States, 1999-2007. *Pediatrics* June 2009;123:e1084-e1089). (Respond: Nicole P Lindsey MS, Division of Vector-Borne Infectious Diseases, Centers for