Researchers examine cases in California of neurological illness affecting limbs

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There have been nearly 60 cases identified in California from 2012 - 2015 of acute flaccid myelitis, a rare syndrome described as polio-like, with most patients being children and young adults, according to a study in the December 22/29 issue of *JAMA*. The cause of the condition in these cases remains unknown.

With the elimination of wild poliovirus in populations throughout most of the world, the clinical syndrome of acute flaccid paralysis (characterized by weakness or paralysis and reduced muscle tone) due to spinal motor neuron injury has largely disappeared from North America. Despite occasional case reports, the absence of centralized public health surveillance for non-polio acute flaccid paralysis in the United States has precluded accurate incidence estimates. In the fall of 2012, the California Department of Public Health (CDPH) received 3 separate reports of acute flaccid paralysis cases with evidence of spinal motor neuron injury. No such cases had been reported to the program during the preceding 14 years. In response to these unusual case reports, the CDPH implemented enhanced surveillance for similar cases with the goal of characterizing observed cases and identifying possible causes.

Keith Van Haren, M.D., of Stanford University, Palo Alto, Calif., and colleagues summarized reported cases of acute flaccid myelitis, which encompasses a subset of acute flaccid paralysis cases, in patients with radiological or neurophysiological findings suggestive of spinal motor neuron involvement reported to the CDPH with symptom onset between June 2012 and July 2015. Cerebrospinal fluid, serum samples,

nasopharyngeal swab specimens, and stool specimens were submitted to the state laboratory for infectious agent testing.

Fifty-nine cases were identified. Median age was 9 years (50 of the cases were younger than 21 years). Symptoms that preceded or were concurrent included respiratory or gastrointestinal illness (n = 54), fever (n = 47), and limb myalgia (n = 41; muscle pain). Among 45 patients with follow-up data, 38 had persistent weakness at a median follow-up of 9 months. Two patients, both immunocompromised adults, died within 60 days of symptom onset. Enteroviruses were the most frequently detected pathogen in either nasopharynx swab specimens, stool specimens, serum samples (15 of 45 patients tested). No pathogens were isolated from the cerebrospinal fluid. The incidence of reported cases was significantly higher during a national enterovirus D68 outbreak occurring from August 2014 through January 2015 compared with other monitoring periods.

"The etiology of acute flaccid myelitis cases in our series remains undetermined. Although the syndrome described is largely indistinguishable from poliomyelitis on clinical grounds, epidemiological and laboratory studies have effectively excluded poliovirus as an etiology," the authors write.

The researchers note that "ongoing surveillance efforts are required to understand the full and potentially evolving levels of infectious agent-associated morbidity and mortality."

"To our knowledge, the California surveillance program for acute flaccid paralysis is the first to use specific case criteria and report subsequent incidence data for the subset of paralysis cases attributable solely to acute flaccid myelitis and may serve as a guide for similar surveillance efforts in the future."

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