Acute flaccid myelitis cases in the USA

Sources


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An acute flaccid myelitis (AFM) outbreak is under investigation in 5 states of the USA. This syndrome is not really new, but the recent excess of cases in several states of the USA in children raises questions and a number of national media are now covering the outbreak. From August 2014 to September 2018 (https://www.cdc.gov/acute-flaccid-myelitis/afm-surveillance.html), a total of 386 confirmed cases across the US was reported to CDC, most of these cases occurring in children (more than 90% of cases, average age 4 years). The usual incidence of AFM cases in the US is evaluated to be less than one in a million people each year. The etiology is unknown so far, but there is a strong suspicion on Enterovirus D68.

In the 2014-2016 period a first outbreak was observed in 22 states. This outbreak coincided with a national outbreak of severe respiratory infections due to EV D68. Nevertheless, it was not possible to biologically demonstrate EV D68 as a clear cause of AFM.

On October 16th 2018, CDC declared that 127 new cases had been reported in 2018 but no clear causative pathogen has been identified so far. On October 22nd, 28 more cases were still “under investigation”.

Experimental studies are ongoing, trying to evaluate the neurological pathogenicity of EV D68. This virus is able to infect in vitro the neuroblastoma cell line. These preliminary findings are confirmed in studies using primary human neuron cell cultures, and in a mouse model. Investigators (J. Craig Venter Institute) and the CDC reports suggest that host factors (possibly genetic) as well as specific pathogenicity of some viral strains could explain, totally or partly, the low incidence of AFM compared to the respiratory disease resulting from EV D68.

Nevertheless, besides infectious agents, CDC is looking at other potential causes, such as environmental toxins.

Jean-Paul Stahl (Maladies Infectieuses et Tropicales, CHU Grenoble, France) and Nicola Petrosillo & Eskild Petersen, ESCMID Emerging Infection Taskforce (EITaF)