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Enterovirus D68: a new cause of acute paralysis?

If you haven’t heard of enterovirus D68 yet, the chances are you will soon. In 2014, an outbreak of acute flaccid myelitis (AFM) leading to lower limb paralysis affecting about 50 children in the US and Canada caused great concern; the typical prodrome of a febrile respiratory illness led to suspicions of a viral cause, and an enterovirus seemed a likely candidate because of its known predilection for attacking neural tissue. Worryingly, two of these children died, and the majority have yet to make a full functional recovery (Lancet Infect Dis 2014;14:1023–23). A cluster of these cases was first reported in The Lancet (Messacar K et al. doi.org/10.1016/S0140-6736(14)62457–0), but the role of D68 was initially unclear.

Now a detailed molecular analysis of the viruses isolated from clusters of these cases in Colorado and California has been reported (Greninger AL et al. Lancet Infect Dis doi.org/10.1016/S1473-3099(15)70093–9). They studied 25 children who had AFM, and found D68 in the respiratory secretions of 12 (48%). The characteristic clade B1 strain they had in common suggested that the cases were linked. They also studied 16 children with aseptic meningitis or encephalitis who were enterovirus positive, and their analysis suggested that D68 was involved in at least some of these. They found a sibling pair where both had D68 respiratory infection but only one developed AFM, suggesting a variable host response. One child had the virus identified in blood. All had lumbar punctures, and although the CSF was abnormal, the virus could not be identified: this is characteristic of enteroviruses. They looked hard for but failed to find evidence of any other viruses that might have caused paralysis. Their conclusion was that this D68 strain, first identified in 2010, was indeed the culprit. It remains uncertain whether this outbreak occurred primarily because D68 had for some reason become more prevalent generally, or because it had developed new neurotropic virulence. Whatever, enteroviruses have been shown to spread readily between continents: the rest of the world may see more of this rare but particularly devastating illness, which so ominously resembles polio.

Competing interests None.

Provenance and peer review Commissioned; internally peer reviewed.

Accepted 9 April 2015
Published Online First 28 April 2015
Arch Dis Child 2015;100:541. doi:10.1136/archdischild-2015-308763