Many Cases of Polio-Like Illness in Kids May Be Misdiagnosed

FRIDAY, Nov. 30, 2018 – There's a good chance that some cases of the mysterious polio-like illness seen recently in U.S. children may have been misdiagnosed, a new study reports.

Acute flaccid myelitis (AFM), which causes potentially life-threatening paralysis and primarily strikes children, has been recurring in the United States in every-other-year waves since 2014.

But it's likely some kids diagnosed with AFM actually have some other neurological disorder. And it's an equally good possibility that some true cases of AFM are being missed, said Dr. Matthew Elrick, a pediatric neurologist with Johns Hopkins University in Baltimore.

"This is a challenging diagnosis," said study lead researcher Elrick. "There is overlap with other diseases."

His team reviewed 45 children who met the broad federal definition of AFM, and found that 11 were actually suffering from other neurological illnesses.

Elrick and his colleagues believe they've identified specific symptoms that more clearly indicate AFM, based on the group of kids they studied.

It's important to come up with a more precise definition because AFM is "a major public health concern that we really need to focus on," Elrick said.

So far in 2018, the U.S. Centers for Disease Control and Prevention has confirmed 116 cases of AFM out of a total 286 reports under investigation. These cases have occurred in 31 U.S. states.

This is the third wave of AFM to strike the United States, and it's expected to be the largest on record.

AFM first appeared in 2014, when 120 children across 34 states were stricken with mysterious muscle weakness.

Another wave hit in 2016, with 149 patients affected in 39 states.

"During the first outbreak in 2014, it was sort of a curiosity we hoped was a one-time thing, but it's now established a pattern, coming back in 2016 and

2018 with higher numbers each time," Elrick said. "There's plenty of reason to be concerned that there could be another outbreak in 2020 and beyond."

The new study, published Nov. 30 in the journal *JAMA Pediatrics*, found that children with definite AFM share several characteristics:

- All of the kids with more restrictively defined AFM had a viral infection that preceded their weakness.
- These children all shared similar readings on MRI scans, spinal fluid tests and electromyography (a test of the electrical activity of muscle tissue).
- All of the kids had a pattern of muscle weakness indicating damage to the lower motor neurons, which are nerve cells in the spinal cord that initiate muscle contraction.

"They were not only weak but also their muscle tone was decreased and their reflexes were decreased or absent," Elrick said.

A couple of other symptoms could indicate AFM but are not conclusive, the researchers added.

Nearly every case of AFM starts out asymmetrically, with one side of the body more affected than the other, Elrick said. But this can't be used to rule out AFM in a child with symmetric muscle weakness.

Timing also could be important. "The symptoms come on relatively suddenly but then gradually progress over the course of hours to days, where some of the other cases have this really rapid onset," Elrick said.

On the other hand, there are some symptoms that should prompt doctors to consider diagnoses other than AFM, the researchers said.

For example, kids with AFM do not typically lose feeling or sensation alongside their paralysis. They tend to be awake and alert, and MRI scans do not show any signs of lesions or damage to the brain, Elrick said.

"I wouldn't necessarily say that a child who does not meet these criteria in the hospital absolutely does not have AFM, but it would at least make me pause and go back and reconsider alternative diagnoses," Elrick said.

The CDC set a broad case definition for AFM, so the agency's epidemiologists could gather as many potential cases as possible for evaluation, Elrick said. Out of those, a smaller number will be confirmed.

But when it comes to finding a treatment or cure for AFM, researchers will need to be much more precise when they select patients to study, Elrick said. That way, they will know they are working with someone who has the actual disease.

"This is a step forward for how you define these patients in a research setting, but also provides some guidance in a clinical setting," Elrick said.

It is indeed very possible that some AFM cases are being misdiagnosed, said

Dr. Riley Bove, a neurologist with the University of California, San Francisco.

“I know sometimes presentations in children can overlap. Several different types of conditions can cause injury to the spinal cord,” said Bove, who wrote a perspective piece that accompanied Elrick’s study.

Bove’s son, 8-year-old Luca, developed AFM during the first wave in 2014, and he shares the characteristics identified by Elrick’s research team.

The boy fell ill with a virus that went through his home and his school, and recovered from it, Bove said.

“About 10 days later he woke up and his head fell back, and he said he was dizzy and couldn’t sit up straight,” Bove said. “Over the course of the day, his neck and right arm paralyzed.”

He further worsened over the next week, losing all muscle function from his face down. At one point, Luca’s paralysis became so dire he needed assistance with breathing and feeding, Bove said.

The boy walked out of rehab “very floppy and weak” two months later, Bove said.

“He still has patchy weakness in most parts of his body, especially his right arm and neck and shoulder,” Bove said. “He’s had to learn how to write left-handed. He has that classic floppy, skinny, short little limb with polio.”

Still, worried parents should keep in mind that this is “really, really rare,” Bove said.

But since it’s a rare condition, parents should be prepared to push their doctors hard if their child develops muscle weakness following a viral infection, she added.

“Parents really have to be advocates here, because the condition is rare and there’s poor awareness of it,” Bove said. “If a parent does notice unusual symptoms in their kid, be really persistent about having those evaluated.”

More information

The U.S. Centers for Disease Control and Prevention has more about acute flaccid myelitis.

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