

Study Challenges Advice on First Febrile Seizure

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New data indicating that a first simple febrile seizure in infants and young children rarely signals bacterial meningitis suggest the American Academy of Pediatrics' recommendation of lumbar puncture in this population should be reconsidered, researchers from Children's Hospital Boston have reported.

The American Academy of Pediatrics (AAP) recommended in its 1996 practice parameter for the neurodiagnostic evaluation of children with a first simple febrile seizure (FSFS) that lumbar puncture be strongly considered for infants younger than 12 months and that it be considered for those aged between 12 and 18 months who present within 12 hours of the event. The rationale was that bacterial meningitis commonly presents with seizure, and the identification of subtle signs of the infection via clinical assessment can be difficult and is dependent on the skill level and experience of the clinician (*Pediatrics* 1996;97:769-72).

In the current study, Dr. Amir A. Kimia and colleagues in the division of emergency medicine at Children's Hospital Boston, performed a retrospective cohort review for patients aged 6-18 months who were evaluated for FSFS in the hospital's emergency department (ED) between October 1995 and October 2006. Of the 71,234 ED visits for children aged 6-18 months during that period, 704 were for otherwise healthy children presenting with FSFS, including 188 for children younger than 12 months and 516 for children aged 12-18 months.

Of the 704 children, lumbar puncture was attempted in 271 (38%) and cerebrospinal fluid (CSF) was successfully obtained in 260, including 131 children aged at least 6 months but younger than 12 months and 129 aged 12-18 months. Cerebrospinal fluid pleocytosis was found in 10 of the 260 samples and no pathogen was identified in CSF cultures.

"None of the 10 patients with CSF pleocytosis had isolation of bacteria from blood cultures," the authors wrote, and "none of the 704 with FSFS returned to the hospital with a diagnosis of bacterial meningitis" (*Pediatrics* 2009;123:6-12). Of the remaining 70,530 patients aged 6-18 months without FSFS who were seen in the ED during the same period, 8 were diagnosed with bacterial meningitis.

When compliance with the AAP recommendations was considered, performance of lumbar punctures during the study period decreased significantly, from 70% for infants younger than 12 months old to 25% for infants aged 12-18 months, wrote the authors, who also observed that "rates of [lumbar puncture] performance decreased over time in both age groups."

The 38% rate of lumbar punctures performed at Children's Hospital Boston, a pediatric tertiary care facility, was significantly higher than that which has been reported for children aged younger than 18 months who received care in community EDs, the authors noted.

This fact, combined with the finding that it is very rare for bacterial meningitis to present as FSFS, suggests the AAP practice parameters "have limited utility," they wrote. Given the lack of evidence to support a recommendation of lumbar puncture for first simple febrile seizures in young children, "the [AAP] recommendations should be changed to state simply that meningitis should be considered in the differential diagnosis for any febrile

child and [lumbar puncture] should be performed if there are clinical signs or symptoms of concern," they concluded.

The chair of the American Academy of Pediatrics Committee on Pediatric Emergency Medicine, Dr. Kathy N. Shaw, disagreed with their conclusion. "A lumbar puncture should be considered in all children who present with a simple febrile seizure," she said in an interview. In fact, "the possibility of meningitis should al-

ways be considered in the emergency department evaluation of young, febrile infants. The younger the age, the more difficult it is to use clinical judgment alone, and the lower the threshold for performing a lumbar puncture. This statement is true regardless of whether the infant had a seizure or not."

The authors reported having no relevant financial conflicts of interest with respect to this study. ■

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