

PEDIATRIC NEUROLOGY BRIEFS

A MONTHLY JOURNAL REVIEW

J. GORDON MILLICHAP, M.D., F.R.C.P., EDITOR

Vol. 23, No. 1

January 2009

SEIZURE DISORDERS

LUMBAR PUNCTURE FOR FIRST SIMPLE FEBRILE SEIZURE

Compliance with American Academy of Pediatrics consensus statement recommendations regarding lumbar puncture for infants 6-18 months of age with a first simple febrile seizure was investigated by a retrospective review of 704 infants evaluated in the pediatric emergency medicine division at Children's Hospital Boston, MA, Oct 1995-Oct 2006. Immunization was up to date in 80% of 563 patients with recorded data. Lumbar puncture was performed for 271 (38%) of the children. CSF samples were available for 131 (70%) of 188 children 6-12 months of age and 129 (25%) of 516 children 12-18 months of age. Rates of lumbar puncture decreased significantly after 12 months of age and over time in both age groups ($P < 0.001$). The proportion of patients, 6-12 months of age, with LP decreased from 100% (5 of 5) in 1995 to 22% (2 of 9) in 2006; in infants 12 to 18 months of age, the proportion with LP decreased from 71% (17 of 24) in 1995 to 5% (1 of 20) in 2006. No pathogen was discovered in CSF cultures. CSF white cell count was elevated in 10 patients, and a contaminant was identified in 10 cultures (3.8%). None of the 10 patients with CSF pleocytosis had bacteria isolated from blood cultures. No patient was diagnosed as having bacterial meningitis. Of 68 patients (10%) who had received antibiotics before the ED visit, 36 (53%) underwent LP, and 1 had CSF pleocytosis (9 WBCs/mm³, with 80% monocytes/lymphocytes). No pretreated child received a course of antibiotics as recommended for meningitis. The AAP consensus recommendation that clinicians strongly consider or consider LP for very young children with first simple febrile seizure has limited utility. The recommendations should be reconsidered and LP performed if there are clinical signs or symptoms of concern of meningitis. There is currently no evidence that a first simple febrile seizure represents any increase in risk for meningitis, compared with children in the

PEDIATRIC NEUROLOGY BRIEFS (ISSN 1043-3155) © 2009 covers selected articles from the world literature and is published monthly. Send subscription requests (\$68 US; \$72 Canada; \$75 airmail outside N America) to **Pediatric Neurology Briefs - J. Gordon Millichap, M.D., F.R.C.P.-Editor**, P.O. Box 11391, Chicago, Illinois, 60611, USA. The editor is Pediatric Neurologist at Children's Memorial Hospital and Professor Emeritus, Northwestern University Medical School, Chicago, Illinois.

PNB is a continuing education service designed to expedite and facilitate review of current scientific information for physicians and other health professionals. Fax: 312-943-0123.

same age group with fever but without febrile seizure. (Kimia AA, Capraro AJ, Hummel D, Johnston P, Harper MB. Utility of lumbar puncture for first simple febrile seizure among children 6 to 18 months of age. **Pediatrics** Jan 2009;123:6-12). (Respond: Amir A Kimia MD, Division of Emergency Medicine, Children's Hospital Boston, 300 Longwood Ave, Boston, MA 02115. E-mail: amir.kimia@childrens.harvard.edu).

COMMENT. The AAP practice parameter emphasizes age as the main criterion for considering LP in young patients with first simple febrile seizure (AAP Practice parameter. **Pediatrics** 1996;97:769-772; discussion 773-775). In contrast, pediatric emergency medicine physicians consider symptoms of meningitis, independent of the seizure and fever, are required before LP is performed (Rosenberg NM et al. **Pediatr Emerg Care** 1992;8:300-301)(Nozicka C. **Pediatrics** 1997;99:306-307). A representative of the AAP committee responded that practice guidelines should not eliminate clinical judgment and are not mandatory (Duffner PK. **Pediatrics** 1997;99:306-307).

A recent 2008 report of patients with febrile seizures (FS) treated in a 1-year period, 2005-06, at an East Carolina University-affiliated hospital found that FS were first episodes in 64%, simple in 77%, and complex in 23%. At 100 consecutive FS patient visits, LP was performed in 14%; 11 had complex FS and 3 were simple FS (no SFS patient was aged <12 months and only 1 was aged <18 months). Of 49 patients with FSFS, only 3 (6%) underwent LP, and age (13 months) was an indication in 1. In a total of 77 patients with SFS, 3.9% underwent LP, compared with 48% of those with complex FS. (Millichap JJ et al. **Pediatr Neurol** 2008;39:381-386). All were negative for evidence of bacterial or viral meningitis. Age was not a prominent criterion for LP. Complex FS was the main criterion for LP. Other factors significantly more prevalent in patients with LP compared to those without were an abnormal neurological examination, and signs of infection prompting blood culture and empiric antibiotic treatment. In the year 2006, the proportion of patients aged 6-18 months with first SFS who received LP was 3.5% (1 of 28) in the East Carolina and 10% (3 of 29) in the Boston studies. The decision to perform LP based on clinical indications and the physician's judgment is supported by the findings and recommendations of both groups.

EFFECT OF FEBRILE SEIZURES ON OXIDANT STATUS

Erythrocyte malondialdehyde (EMA), glutathione peroxidase (GPO), and superoxide dismutase (SDM) levels were assessed in 31 children with a febrile seizure and 30 without, in a study at Dokuz Eylul University, Izmir, Turkey. Febrile seizures were simple in 25 (80%) and complex in 6 (20%) patients. EMA and GPO levels were significantly higher and SDM significantly lower in the febrile seizure group. Levels were not different in the simple and complex seizure groups. Changes in antioxidant enzyme levels are evidence of oxidative stress that may lead to brain cell damage following febrile seizures. (Gunes S, Dirik E, Yis U et al. Oxidant status in children after febrile seizures. **Pediatr Neurol** Jan 2009;40:47-49). (Respond: Dr Gunes, Department of Pediatrics, Dokuz Eylul University School of Medicine, 35340 Balcova, Izmir, Turkey. E-mail: sezgin_gunes@yahoo.com).

COMMENT. The authors conclude that the oxidant-antioxidant balance is disturbed in children with febrile seizures, and changes in lipid peroxidation and level of antioxidant