Behavioral and Intellectual Disabilities in Pediatric Epilepsy
Examined in Three Studies at AES Annual Meeting

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SEATTLE, December 8, 2014 – Children with epilepsy can face greater intellectual and behavioral problems compared to their peers. New research presented at the American Epilepsy Society’s (AES) 68th Annual Meeting explores the complex emotional, behavioral and intellectual disabilities associated with childhood epilepsy and their effect on development.

The first of three studies (Platform Session A.04) presents a culmination of 20-30 years of research that sought out to understand if intellectual disability (ID) predicts a low chance of remission and a high risk of intractability in epilepsy. Researchers of this study focused on examining the severity of ID to predict epilepsy outcome.

A cohort of children from Nova Scotia who developed epilepsy between 1977 and 1985 and had ID was followed for an average of 21 years following diagnosis. The initial study followed 692 children with incident epilepsy, of which 147 (21%) had intellectual disability. The degree of intellectual disability was established by standard psychometric testing around 5 years of age, and confirmed by subsequent academic achievements.

Researchers at Dalhousie University found that the degree of intellectual disability in children with epilepsy did predict seizure outcome. Mild intellectual disability was associated with a substantially better prognosis for remission and absence of intractability than moderate or severe/profound ID. Focal epilepsy and mild intellectual disability had the same rate of remission and intractability as focal epilepsy with normal intelligence. While mild ID seriously affects social outcome, it is not an important prognostic factor for seizure outcome, particularly if the epilepsy is focal.

The level of ID varied by the type of epilepsy present, with focal epilepsy apparent in 70% with mild ID, 38% with moderate and 29% with severe/profound ID. Generalized symptomatic epilepsies were most common with moderate (53%) and severe/profound ID (65%) than with mild ID (13%). Participants with mild ID were more likely to be in remission at the end of the twenty-year follow up (50%) than moderate (34%) or severe/profound ID (28%). Intractable epilepsy was more common with moderate (35%) and severe/profound (59%) than with mild ID (17%).

“Mild intellectual disability has a profound effect on a child’s adaptation to adult life,” said Dr. Peter Camfield, M.D., Professor Emeritus, Department of Pediatrics, Dalhousie University. “However, it is not particularly associated with severe epilepsy. Moderate to severe ID has ominous implications for seizure control.”

A second study (Poster 1.097) explores the relationship between behavioral/psychiatric disorders and childhood epilepsy. Researchers at Northwestern University’s Feinberg School of Medicine referenced children with the Connecticut Study of Epilepsy (CSE) that were recruited between 1993 and 1997, and underwent comprehensive reassessments between 2002 and 2006, 8 to 9 years after they were diagnosed with epilepsy. Within those 16 years, cognitive testing was conducted with a Wechsler IQ test.
and behavioral assessment with the parent-reported Child Behavior Check List (CBCL). Controls of this study were similar-aged siblings without epilepsy who received the same assessment instruments.

“Further analyses suggest the findings based on parent-reported behavior largely reflect parental emotional impact,” said Dr. Soong Eom, Ph.D., Northwestern University Feinberg School of Medicine.

Researchers analyzed the CBCL and Wechsler IQ test results of 301 children with epilepsy (CWE) and 156 controls. The average age of CWE cases was 12.5, and 13.2 for controls. The cases of CWE were divided into two groups, “complicated” indicating a clear brain insult or abnormal exam, and “uncomplicated” indicating all normal exams. The case group was comprised after excluding complicated cases and those who were not seizure-free and on medication.

In an initial comparison, children with epilepsy across the board had worse behavioral problem scores and a lower social competency score than controls. After excluding complicated cases and those who were not seizure-free and off medication, there was a persistent difference between children with epilepsy and controls on parental reports of behavioral problems.

In a third study (Poster 2.023) presented by the University of Wisconsin Madison, a standardized psychiatric interview was conducted to determine whether children with recent-onset epilepsy would have higher rates of any psychological disorder than controls.

The study followed 178 children between the ages of 8 and 18, consisting of 105 children with epilepsy and 73 controls. The inclusion criteria for CWE were diagnosis of epilepsy in the past 12 months, no developmental disabilities or neurological disorders, normal neurological examinations and clinical imaging. Controls in this study were first-degree cousins of CWE with no history of seizures, early initial precipitating injuries, developmental or neurological diseases, or loss of consciousness greater than 5 minutes. Information was gathered through separate interviews with parents and participants at baseline and at a 2 year follow-up.

“This study indicates that rates of psychological disorders are higher in children with epilepsy compared to children without seizures,” said Dr. Jana Jones, Ph.D., University of Wisconsin. “This study also indicates that there may be differences in the course of psychological disorders in children with epilepsy associated with focal and generalized seizures.”

Results of the study found that compared to controls, children with epilepsy have higher rates of psychological disorders at baseline and 2-year follow-up (59.0% vs. 23.3%). At baseline, children with epilepsy were more likely to have depression (15.2% vs. 2.7%), anxiety (34.3% vs. 15.1%) and ADHD (22.9% vs. 6.8%). These differences remained at the two-year follow-up with one exception; rates of depression were no longer significantly different (7.6% vs. 2.7%) between the CWE and the controls. At baseline, children with focal seizures and generalized seizures had similar rates of psychological disorders (67.3% vs. 51.0%). At 2-year follow-up children with focal seizures had higher rates of psychological disorders (65.5% vs. 36.7%). Children with focal seizures also had higher rates of anxiety disorders (43.6% vs. 20.4%) and ADHD (25.5% vs. 8.2%) but not depression (7.3% vs. 8.2%) when compared to children with generalized seizures.

All three research studies will be provided in full at the American Epilepsy Society Annual Meeting in Seattle, December 5-9. Abstracts referenced above can be found on the American Epilepsy Society’s Annual Meeting Page.
Editor’s Note: Authors of these studies will be available at a press briefing on December 8, 2014 at 11:45 AM (PT)/ 2:45 PM (ET), in the onsite press room, Room 304, Level 3 of the Washington State Convention Center. The call-in number for off-site journalists is 1-605-475-4000, passcode 521653#.

About the American Epilepsy Society
The American Epilepsy Society (AES) is a non-profit medical and scientific society. Our individual members are professionals engaged in both research and clinical care for people with epilepsy from private practice, academia and government. For more than 75 years, AES has been unlocking the potential of the clinical and research community by creating a dynamic global forum where professionals can share, learn and grow. AES champions the use of sound science and clinical care through the exchange of knowledge, by providing education and by furthering the advancement of the profession.

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