Emerging Research: Epilepsy and Behavioral/Intellectual Disabilities and the Challenge of SUDEP

New research sheds light on the greater intellectual and behavioral problems that children with epilepsy may experience compared to their peers. Presented at the American Epilepsy Society’s (AES) 68th Annual Meeting, studies explore how the emotional, behavioral and intellectual disabilities associated with childhood epilepsy affect development.

One study (Platform Session A.04) involved a cohort of children from Nova Scotia who developed epilepsy between 1977 and 1985 and had intellectual disabilities. Subjects were followed for an average of 21 years following diagnosis. Researchers found that the degree of intellectual disability in these subjects predicted 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.

“Mild intellectual disability has a profound effect on a child’s adaptation to adult life,” said Dr. Peter Camfield, MD, 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) exploring the relationship between behavioral/psychiatric disorders and childhood epilepsy referenced children in the Connecticut Study of Epilepsy (CSE) that were recruited between 1993 and 1997, who underwent comprehensive reassessments between 2002 and 2006, eight to nine 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). Similar-aged siblings without epilepsy served as controls and received the same assessment instruments.

The cases of CWE were divided into two groups: “complicated” (a clear brain insult or abnormal exam) and “uncomplicated” (all normal exams).

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.

A third study (Poster 2.023) followed 178 children (105 children with epilepsy; 73 controls) between the ages of 8 and 18. 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.

Compared to controls, children with epilepsy had 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 two-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.

**EXPLORING SUDEP**

The leading killer of people with chronic, uncontrolled epilepsy, sudden unexpected death in epilepsy (SUDEP) remains poorly understood. Studies presented at the AES 68th Annual Meeting aim to improve communication around SUDEP.

Although people with epilepsy who die suddenly and unexpectedly often undergo post-mortem evaluation by medical examiners or coroners, epilepsy is not always noted on the death certificate; There is no standardized terminology to describe SUDEP. Researchers from the University of Alabama (Poster 2.070) surveyed members of the National Association of Medical Examiners, asking the respondents to indicate how they would certify immediate and underlying causes of death (Part 1), contributing factors (Part 2) and manner of death on death certificates for each of several clinical vignettes describing the sudden deaths of individuals with epilepsy or other seizure-related disorders. None of the vignettes described status epilepticus.

A total of 77 forensic pathologists completed the surveys, which were sent to the National Center for Health Statistics (NCHS) for coding according to the ICD-10 coding system. Participants submitted a total of 847 responses on 11 different cases. Approximately three to 62 percent of responses within each case were not assigned an ICD-10 seizure code. The most common code, G40.9 (i.e., “Epilepsy, unspecified”), was used six times.

Results of the survey suggest that a significant portion of death certificates relevant to SUDEP investigators would not be identified based on ICD-10 epilepsy codes. According to the authors, clear collaboration between neurologists and forensic pathologists is needed to develop a fine-tuned strategy and uniform approach to death certification in SUDEP.

A qualitative descriptive study (Poster 2.065) assessed patient preferences about the amount of SUDEP-related information shared by medical professionals, to inform practice guidelines on SUDEP counseling.

Though more than 90% of surveyed adult patients (n=23) had been diagnosed with epilepsy for at least one year, more than half of them reported having no understanding of SUDEP before being invited to participate in the study. The patients expressed differing opinions on the desired topics of SUDEP discussions: risk of SUDEP was the most requested topic, followed by prevention, causes, personal relevance, and potential sources of more information. All participants preferred hearing about SUDEP from a physician, neurologist or expert in the field, while more than half suggested that the presence of a nurse or social worker would provide added support.

While most participants agreed that greater awareness of SUDEP might benefit patients and caregivers, about a quarter of the participants believed the information could contribute to emotional stress and worry. An overwhelming majority of the participants surveyed wanted to hear about SUDEP from their neurologist during an in-person meeting, preferably at the time of epilepsy diagnosis.

Additional research (Poster 2.142) explored why care givers may not discuss SUDEP. Researchers surveyed 22 board-certified child neurologists to assess their communication of SUDEP to pediatric patients and their families, focusing on their communication practices, knowledge of and comfort with the topic.

Nearly half of the respondents had finished their training within the previous five years, and half reported seeing between 21 and 50 patients with epilepsy in their clinic each month. Most respondents had experienced at least one patient death from SUDEP: 10 respondents reported zero cases of SUDEP, five reported one case, four reported two cases, two reported three cases, and one reported more than five cases. Only four participants reported discussing SUDEP with the majority of their patients, while 10 of the respondents reported discussing the topic with fewer than 10 percent of their patients.

Respondents cited several reasons for the lack of communication about SUDEP with their patients: minimal or low patient risk (15), SUDEP being so rare that the risks of discussion outweigh the benefits (6), lack of sufficient personal knowledge of SUDEP (6), insufficient research-based knowledge about SUDEP (5), absence of a trusting relationship with the patient (5), no proven way to prevent SUDEP (4), lack of time during an office visit (4) and possible negative effect on quality of life or mood (2).

Findings show that there can be a wide spectrum of experience and practice concerning SUDEP within a single institution and that potential barriers of knowledge and practice can limit patient-provider discussions.

**Smoke and Mirrors?**

Researchers presented data at the AES regarding the effectiveness of cannabidiol (CBD) and its derivatives as a viable treatment for people with epilepsy. To read about the studies, visit PracticalNeurology.com.