SEATTLE, December 7, 2014 – People with epilepsy often struggle with limited independence due to state and federal driving restrictions. Three studies to be presented at the American Epilepsy Society's (AES) 68th Annual Meeting analyze potential factors that impair driving in people with epilepsy and in people who experience “seizure-like” non-epileptic events.

The first of three studies (Platform Session A.02) evaluates factors that could potentially impair driving and cause motor vehicle accidents in people with medically refractory epilepsy. Using a Multicenter Epilepsy Surgery database, researchers at Yale Medical School identified 533 people with epilepsy who shared similar demographic and clinical features. The patient population primarily had localization related epilepsy. The participants were divided into two groups: those who had seizures while driving that led to a motor vehicle accident (MVA) (i.e., the ‘accident’ group) and those who had seizures while driving but did not have a MVA (i.e., the ‘no-accident’ group).

“Many neurologists and patients with epilepsy believe that reliable auras provide some protection from having an MVA during seizures,” said Dr. Vineet Punia, former Yale Neurology visiting scholar and currently a Cleveland Clinic Epilepsy Fellow. “Our Multicenter database analysis suggests no such protective benefit of reliable auras.”

Of the 553 participants, 215 (nearly 39%) reported having at least one seizure while driving, including 141 ‘accident’ participants and 74 ‘no-accident’ participants. Researchers found that patients who had auras or warnings preceding their seizures had the same accident rate as patients without reliable auras. In addition, having longer-lasting auras continuing for over one minute in duration did not reduce accident risk. Patients with a history of at least one complex partial seizure per month in the last 3 months or with longer post-ictal period lasting longer than 1 minute had a higher likelihood of seizure-related MVA. The researchers conclude that auras do not protect epilepsy patients from MVA, and the most important factor determining MVA risk may be loss of consciousness during and following seizures.

A second study (Poster 1.062) assesses the threat of prolonged subclinical seizures, known as subclinical epileptiform discharges (SEDSs), on cognition and safety while driving. Inpatients admitted to the Comprehensive Epilepsy Center at Yale University underwent continuous video-EEG monitoring while navigating a computer-based video driving simulator. Analysis of the EEG recordings revealed that the participants experienced 30 clinical seizures and more than 100 SEDs with a duration of 1 minute or longer during the trials.

“We felt that the best way to assess driving safety during seizures is to prospectively test driving in as realistic manner as possible,” said Dr. Yang Si, M.D./ Ph.D. student at Yale University’s Department of Neurology. “The driving simulator was adapted for bedside use over prolonged periods in the epilepsy monitoring unit while patients awaited seizures.”

The researchers compared the baseline driving performance of each participant who experienced a seizure or SED and determined that changes in car velocity, steering wheel movement, accelerator
position, and crash rates during SEDs largely resembled baseline driving performance. However, the researchers noted clear evidence of driving impairment during clinical seizures, as evidenced by overt impaired consciousness or abnormal motor activity. The effects of SEDs were less clear and require further investigation, the authors note.

A third study (Poster 2.139) from researchers at the Mayo Clinic's Arizona campus examined a group of people who experience “seizure-like” non-epileptic events (NEE) but may be subject to the same stringent driving restrictions placed on people with epilepsy. The study sought to characterize the driving habits of people with NEE, their compliance with driving restrictions and the incidence of NEE-related MVAs. Patients admitted to the Clinic’s Epilepsy Monitoring Unit between November 2012 and December 2013 for the purposes of event classification were surveyed to determine if they had ever suffered an epileptic seizure or non-epileptic event while driving. The survey included other questions regarding driving history, prior counseling on driving, information regarding the frequency of seizure-like events and the severity of crashes that resulted.

“To err on the side of safety, many neurologists will recommend that patients diagnosed with non-epileptic events refrain from driving just like those with active epilepsy,” said Dr. Kristine Ziemba, M.D., Ph.D., Mayo Clinic Arizona. “We are gathering data to determine the necessity of such restrictions in this patient subgroup.”

Researchers examined surveys from 56 participants, including 27 (48%) who were ultimately diagnosed with NEE. Of these 27 patients, 21 (78%) had been counseled not to drive prior to admission and more than two-thirds complied with that recommendation. Ten of the 27 diagnosed patients (38%) reported experiencing NEEs while driving, with only one event leading to a minor MVA. Four of the 56 participants were diagnosed with epilepsy during their admission; two of these patients reported experiencing seizures while driving, both of which lead to MVAs.

Based on the data collected to date, the authors suggest that people with NEE may experience adverse events while driving, but that these events are less likely than epileptic seizures and other organic symptoms to result in a crash, suggesting that similar driving restrictions are not necessary.

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 7, 2014 at 2:15 PM (PT)/ 5:15 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.
Information Contacts:
Ellen Cupo, Big Voice Communications, (203) 314-6545, ellen@bigvoicecomm.com
Natalie Judd, Big Voice Communications, (203) 605-9515, natalie@bigvoicecomm.com