

## AAN 69<sup>th</sup> ANNUAL MEETING ABSTRACT

Media Contacts:

Renee Tessman, [rtessman@aan.com](mailto:rtessman@aan.com), (612) 928-6137

Michelle Uher, [muher@aan.com](mailto:muher@aan.com), (612) 928-6120

**EMBARGOED FOR RELEASE UNTIL 4 P.M. ET, TUESDAY, FEBRUARY 21, 2017**

**Abstract Title:** Seizure Triggers in Epilepsy Patients: A National Perspective

**Press Release Title:** Seizures Tracked with Apple Watch App Linked to Stress, Missed Sleep

**Objective:** To identify common seizure triggers in a US epilepsy population using the EpiWatch research app.

**Authors:** Anije Ge, Erie Gonzalez, Seung Wook Lee, Yaretson Carmenate, Maxwell Collard, Tracy Dixon-Salazar, Nathan Crone, Gregory Krauss

**Background:** Medical research can be performed using mobile devices and computer networks to transmit encrypted patient data. We used this approach to estimate the relative frequency of different seizure triggers in a US population of patients with epilepsy.

**Design/Methods:** Participants tracked their seizures using the EpiWatch app which uses the ResearchKit framework for e-consenting and encrypted data transmission from the Apple Watch and iPhone. Seizure tracking included collection of biosensor data and responsiveness testing on the Apple Watch. Participants completed a post-seizure survey on the Apple Watch after each tracked seizure, including questions about seizure type, aura, loss of awareness, and possible seizure triggers.

**Results:** 598 patients enrolled in the EpiWatch study during an initial 10-month study period; 40% tracked a total of 1485 seizures. 177 participants reported seizure triggers. These by frequency were: stress (37%); missing sleep (18%); menses (12%), overexertion (11%), diet (9%), missed medications (7%) and fever/infection (6%). Participants reporting vs. not reporting seizure triggers had generally similar demographics and seizure types (similar gender distribution; median age 32). Seizure triggers did not vary by types of seizures. Stress was more commonly reported as a trigger among participants working full-time (35.0%), compared to those working part time (20.8%), unemployed participants (27.3%), or disabled participants (28.6%). Anticonvulsant non-adherence was reported only slightly more frequently among younger participants (16-25 years; n=43), among whom 39.5% reported a missed medication as a trigger, compared to older participants (26 to 66 years; n=127), among whom 33.8% reported a missed medication.

-more-

**Conclusions:** Mobile technology can be used to perform clinical research in a national cohort of epilepsy patients. Many patients are aware of potential triggers for their seizures. Stress is the most commonly reported trigger. Medication non-adherence is also a commonly reported trigger.

**Study Supported by:** InHealth Research Grant, Johns Hopkins University