UF and VA awarded patent for seizure-prediction technique

by Victoria White

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Early in the 1990s, Sackellares and Iasemidis, who is now at Arizona State University, became the first to identify the existence of a pre-seizure transition period. In the past several years, they have begun to develop methods to detect the transition anywhere from minutes to many hours ahead of time. They accomplish this through computer analysis of the brain's complex electrical signals, which can be recorded by electroencephalograms, or EEGs.

With the new grant, a multidisciplinary team of researchers, including scientists at Arizona State, will seek to improve the accuracy of the seizure-prediction technique, in part by analyzing additional measures of electrical activity in the brain and determining which sites to monitor with electrodes to yield the most significant information about the potential for seizures. They are conducting the research by analyzing brain electrical activity in people and in mice.

"We need to look at the complex patterns involved in the transition to the pre-seizure state. Like turbulence in the air, this occurs in a very complex way, not always in the same place, and not the same size or length of time, so it's not easy to identify," Sackellares said. "We're trying to develop more sophisticated time-series analysis techniques to account for this."

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