MedicalXpress

Early treatment stops epilepsy in its tracks

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Yale graduate student standing in front of neuroimage. Credit: Yale University

Yale School of Medicine researchers have shown for the first time that it is possible to suppress the development of epilepsy in genetically predisposed animals—which could open the door to treating epilepsy as a preventable disease.

According to the study published this month in *Epilepsia*, early treatment of epilepsy-prone rats with the anti-convulsant medication ethosuximide before the onset of seizures led to a marked suppression of seizures both later in life and months after treatment stopped.

“Current treatments for epilepsy may control seizures, but they do nothing to alter the underlying disease,” said Hal Blumenfeld, M.D.,

associate professor of neurology and lead author of the study. “These findings are important because they set the stage for prevention of epilepsy in genetically susceptible people.”

Epilepsy is a common neurological disorder that affects about 50 million people worldwide. It is characterized by seizures—temporary loss of consciousness or muscular control—that are precipitated by abnormal electrical overload on neurons within the brain.

Using a combination of molecular profiling, electroencephalogram (EEG) recordings, and power spectral analysis, Blumenfeld and his colleagues demonstrated that ethosuximide effectively blocked the expression of an epilepsy-associated maladaptive protein within neurons of the brain and reduced the number of seizures in treated animals.

“These findings prove that prevention of epilepsy in people is an achievable goal,” Blumenfeld said. “Strategies for primary prevention of diseases like epilepsy will be increasingly important as genetic prediction of these diseases improves.”

He said the results must be confirmed in other animals and with other medications before moving on to human treatment trials.

Source: Yale University