

Lay Summary

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Epilepsy: What is the significance of the density of ectopic neurons in the white matter of temporal, parietal and frontal lobe, and are they normal or pathological?

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Epilepsy is the fourth most common neurological disorder, and in the U.K. approximately 1 in 30 people develop it as some stage in their life. Drug resistant epilepsy can have serious implications on quality of life and increase risk of memory loss, mood difficulties and death, observed in patients with frequent untreated seizures [1]. Our research investigates the significance of densities of ectopic (abnormal) neurons in the white matter of three lobes of the brain: temporal, parietal and frontal. Ectopic neurons in the white matter of these lobes are noted in variable number in normal and epilepsy patients. It is not clear what is the normal or abnormal density of these ectopic neurons. Therefore, we look to compare the density of these neurons between epilepsy patients and normal. Autopsy brain samples of patients who died of sudden unexplained death in epilepsy (SUDEP) and non-epileptic samples will be used. Temporal, parietal and frontal lobe slides will be gathered from two populations (non-epileptic and SUDEP patients) from patients autopsied. Results will be documented and matched with the clinical history of the patient. Our research hopes to enhance the understanding of the pathogenesis of epilepsy and ultimately provide improved management strategies.

<http://www.epilepsy.com/learn/types-epilepsy-syndromes/temporal-lobe-epilepsy>