



WCN 2023
XXVI WORLD CONGRESS
OF NEUROLOGY
MONTREAL, 15-19 OCTOBER, 2023



[EEG slowing and CSF amyloid status: Implications for Alzheimer's disease detection and progression. Kim, Nathan K, Nakahira S, Lee A, Carrazana E, Viereck J, Liow K Journal of the Neurological Sciences, Volume 455, 121409](#)



EEG Slowing and CSF Amyloid Status: Implications for Alzheimer's Disease Detection and Progression

Nathan N. Kim^{1,2}, Shay Nakahira^{1,2}, Anson Y. Lee^{1,2}, Eliza Hagen², Enrique Carrazana², Jason Viereck^{1,2}, Kore K. Liow^{1,2}

¹John A. Burns School of Medicine, University of Hawai'i, Honolulu, HI, USA ²Hawai'i Pacific Neuroscience, [Alzheimer's Neural Network EEG \(ANNE\) Research Lab](#), [Memory Disorders Center](#), [Alzheimer's Research Unit](#), Honolulu

Background and aims Cerebrospinal fluid (CSF) biomarkers amyloid- β and tau proteins play a significant role in diagnosing Alzheimer's disease (AD). However, alternative non-invasive biomarkers are still being investigated for the early detection of the disease. Electroencephalogram (EEG) findings, particularly the slowing of brain wave patterns, have been observed in AD patients, but their relationship with CSF amyloid status has yet to be characterized.

Methods This was a retrospective cohort study investigating the association between CSF amyloid status, EEG findings, and AD stage. Logistic regression analysis was employed to examine the relationship between the presence of abnormal slowing and CSF amyloid status. Demographic information, MMSE scores, CSF amyloid status, and MRI reports were collected for each participant. EEG recordings were analyzed through visual analysis and manual counting.

Results In total 19 participants were included, of which 13 were CSF amyloid positive and 6 were CSF amyloid negative. Among the CSF amyloid positive individuals, 8 (61.5%) displayed evidence of diffuse background slowing, while 2 (33.3%) of the CSF amyloid negative individuals exhibited diffuse background slowing. Logistic regression analysis revealed a statistically significant association between positive CSF amyloid status and the presence of diffuse background slowing (odds ratio = 6.667; p-value = 0.039).

Conclusions This study provided evidence of an association between abnormal diffuse background slowing observed in EEG recordings and positive CSF amyloid status. Integrating EEG analysis may enhance AD diagnosis and facilitate means of early intervention in disease progression.