ALZHEIMER'S DISEASE PATIENTS' TELOMERE INTENSITY DIFFERS FROM CONTROLS: PILOT STUDY RESULTS

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Introduction: We analyzed telomere intensity in patients with Alzheimer's disease (AD) and compared it to normal controls of the same age, to investigate potential differences and/or onset of genomic instability in this population.

Aim: To assess the feasibility and sensitivity of telomere quantitative fluorescence in situ hybridization technique (Q-FISH) in buccal samples, and possible telomere intensity differences in AD patients compared to cognitively normal controls.

Methods: Twelve patients with AD (ranging in stage from mild to severe) and their 12 cognitively normal age-matched caregivers were included in this pilot study. Patients' caregivers served as normal controls. Cells were obtained from buccal swaps at regular memory clinic visits, and smears frozen for later processing for telomere analysis. Using Q-FISH we analyzed numbers and length of nuclei telomeres. 3D analysis of telomeres images was performed using Telo-View program. Differences in telomere intensity between AD patients stratified by disease stage and their normal controls, were analyzed by Chi-Square, and number of telomeres by ANOVA. A p< .05 was considered significant.

Results: Q-FISH technique was feasible and sensitive to analyze telomere intensity and number from buccal samples. Telomere intensity and number were significantly different in AD patients than controls. Patients with mild, moderate or severe AD, all had different telomere intensity and number than their age-matched controls with p< .0001.

Conclusions: Q-FISH technique is sensitive for analysis of telomere characteristics in buccal cell samples. In this pilot study, telomere intensity in patients with AD in all stages was significantly different than in normal controls.