

Abstract

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Comparisons of telomere lengths in peripheral blood and cerebellum in Alzheimer's disease.

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BACKGROUND: Alzheimer's disease (AD) patients have been reported to have shorter telomeres in peripheral blood leukocytes (PBLs) than age-matched control subjects. However, it is unclear if PBL telomere length reflects brain telomere length, which might play a more direct role in AD pathogenesis. We examined the correlation between PBL and cerebellum telomere length in AD patients, and compared telomere lengths in cerebella from individuals with AD versus age-matched control subjects.

METHODS: Mean telomere lengths were measured using quantitative telomere polymerase chain reaction of genomic DNA prepared from matched PBL and cerebellum samples from 29 individuals with pathologically confirmed sporadic AD. Telomere length was also measured in cerebellum samples of 30 AD patients versus 22 unaffected age-matched control subjects.

RESULTS: The PBL and cerebellum telomere lengths were directly correlated in individuals with AD ($r = 0.42$, $P = 0.023$). Nonetheless, cerebellum telomere lengths were not significantly different in AD patients and age-matched control subjects.

CONCLUSIONS: Reduced PBL telomere length in AD might not reflect reduced telomere length in bulk brain tissue, but may be a marker of changes in a subset of brain tissues or other tissues that affect the pathogenesis of AD.

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