# Meta-analysis of Telomere Length in Alzheimer's Disease

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Background: Alzheimer's disease (AD) is a common and severe neurodegenerative disorder. Human telomeres are fundamental for the maintenance of genomic stability and play prominent roles in both cellular senescence and organismal aging. Regulation of telomere length (TL) is the result of the complex interplay between environmental and genetic factors. Alterations in TL are increasingly being studied as a possible risk factor for AD, and published studies on TL in AD show discrepant results, highlighting the need for a meta-analysis. Methods: In the current study, we carried out a meta-analysis of published studies of TL in AD patients and healthy controls. PubMed, Web of Science and Google Scholar databases (from inception to September 2015) were used to identify relevant articles reporting TL in humans with AD, from which we retrieved data such as sample size, experimental methods, and mean TL for cases and controls. A random-effects model was used for meta-analytical procedures. Results: The meta-analysis included 13 primary studies and demonstrated a significant difference in TL between 860 AD patients and 2,022 controls, with a standardized mean difference of -0.984 (confidence interval: -1.433 to -0.535; p value: <.001). Conclusions: Our results show a consistent evidence of shorter telomeres in AD patients and highlight the importance of the analysis of epigenomic markers associated with neurodegeneration and with the risk for common and severe neurological diseases, such as AD. 

Alzheimer's disease

Dementia

Epigenomics

Meta-analysis

Telomeres

aging

Alzheimer disease

evidence based medicine

genetics

human

meta analysis

risk factor

telomere

telomere shortening

Aging

Alzheimer Disease

Evidence-Based Medicine

Humans

Risk Factors

Telomere

Telomere Shortening