Shorter telomeres are associated with mortality in those with APOE epsilon4 and dementia.

Honig LS, Schupf N, Lee JH, Tang MX, Mayeux R.

Taub Institute for Research on Alzheimer's Disease and the Aging Brain and the Gertrude H. Sergievsky Center, New York, NY, USA.

OBJECTIVE: Reduced telomere length may be a marker of biological aging. We hypothesized that telomere length might thus relate to increased risk for dementia and mortality.

METHODS: This nested case-control study used stored leukocyte DNA from 257 individuals (mean age, 81.4 +/- 7.9 years; 64.6% female; 44.7% Hispanic, 33.5% non-Hispanic black, and 21.8% non-Hispanic white). Our assay used real-time polymerase chain reaction, with two separate reactions amplifying telomere sequence and reference single copy gene (ribosomal-protein-P0), providing a calculated telomere-to-single copy gene (T/S) ratio.

RESULTS: Mean telomere length was shorter among subjects dying during follow-up than in those surviving (0.453 +/- 0.211 vs 0.525 +/- 0.226 [+/- standard deviation]; p < 0.009). It was also shorter in those with Alzheimer's disease compared with control subjects (0.458 +/- 0.207 vs 0.516 +/- 0.229; p < 0.03). For participants with Alzheimer's disease, compared with those with the longest telomeres, the mortality odds ratio (OR) was 4.8 (95% confidence interval [CI], 1.7-13.8) in those with intermediate-length telomeres and 7.3 (95% CI, 2.4-22.0) in those with the shortest telomeres. The presence of an epsilon4 allele also increased the mortality OR, with an OR of 5.8 (95% CI, 1.3-26.4) for intermediate-length telomeres and an OR of 9.0 (95% CI, 1.9-41) for the shortest telomeres.

INTERPRETATION: Our findings suggest that leukocyte telomere length is related to both dementia and mortality and may be a marker of biological aging.

PMID: 16807921