

Abstract

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Studying telomeres in a longitudinal population based study.

De Meyer T, Rietzschel ER, De Buyzere ML, Van Criekinge W, Bekaert S.

Department of Molecular Biotechnology, Faculty of Bioscience Engineering, Ghent University, Ghent, Belgium. Tim.

BACKGROUND: Telomeres, the termini of linear chromosomes, consist of large but variable numbers of DNA oligomer repeats embedded in a nucleoprotein complex. In humans, telomere length (TL) is largely genetically determined but also featured by an age dependent attrition. TL has therefore been put forward as a marker for biological aging and was also reported to be associated with aging diseases such as cardiovascular disease.

DISCUSSION: However it remains unclear whether the biomarker value in a particular disease depends on shorter TL at birth or rather if it's a mere reflection of an accelerated telomere attrition during lifetime, or else, if it is a combination of both. While the importance of telomere attrition is supported by cross-sectional evidence associating shorter telomeres with oxidative stress and inflammation, longitudinal studies are required to accurately assess telomere attrition and its presumed link with accelerated aging.

SUMMARY: In this review we present different models for the biomarker value of TL and discuss the theoretical and methodological considerations of studying TL in a longitudinal population study with a special emphasis on cardiovascular disease.

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