

Abstract

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Accumulation of cells with short telomeres is associated with impaired zinc homeostasis and inflammation in old hypertensive participants.

Cipriano C, Tesesi S, Malavolta M, Giacconi R, Muti E, Costarelli L, Piacenza F, Pierpaoli S, Galeazzi R, Blasco M, Vera E, Canela A, Lattanzio F, Mocchegiani E.

Immunology Center, Research Department Istituto Nazionale Riposo e Cura per Anziani, Ancona, Italy.

BACKGROUND: Critical shortening of telomeres, likely associated with a considerable increase of senescent cells, can be observed in PBMC of individuals aged 80 and older.

METHODS: We investigated the relationship between critical telomere shortening and zinc status in healthy or hypertensive participants with or without cardiovascular disease in old and very old participants.

RESULTS: Telomere shortening and accumulation of cells with short telomeres (percent of cells with short telomeres) in advancing age was evident in patients and healthy controls, but exacerbated in those patients aged 80 and older.

CONCLUSIONS: Moreover, in very old patients, the accumulation of % CST may impair intracellular zinc homeostasis and metallothioneins expression, which itself is linked to an increased number of inflammatory agents, thereby suggesting the existence of a possible causal relationship between % CST and zinc homeostasis. The determination of % CST could be a more reliable means than the simple measure of telomere length as fundamental parameter in ageing to determine whether individuals are still able to respond to stress.

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