

Chronic stress of cancer causes accelerated telomere shortening

April 2 2011

Results of a study presented at the AACR 102nd Annual Meeting 2011, held here April 2-6, lend credence to the idea that improving quality of life affects stress-related biological markers and possibly the health of people with cancer.

Researchers know that telomeres shorten and deteriorate with aging, but they are learning that stress also affects [telomere](#) length.

"We are trying to understand the interconnections between the mind and the body; that is, how does the diagnosis and treatment of cancer impact patients not only psychologically, but also physiologically and how can we improve their outcome. Cancer drives a chronic [stress response](#) in some patients," said Edward Nelson, M.D., division chief of hematology/oncology at the University of California, Irvine.

Just as aglets prevent a shoelace from unraveling or fraying, telomeres are structures on the ends of chromosomes that protect the chromosome from deteriorating, breaking apart or joining with other [chromosomes](#), which can lead to mutations. Chromosomal rearrangements are seen in cancers and provided a biological reason to investigate this link, according Nelson.

"For this study, we wanted to know if chronic stress was associated with accelerated telomere shortening in cancer patients, and if a psychosocial intervention that modulates the stress response could also modulate telomere length," he said.

In this retrospective study, the researchers took biological samples from 31 women with [cervical cancer](#) who had been randomized to one of two groups — those who received six counseling sessions by telephone and those who received usual care without counseling.

The six sessions consisted of a quality of life and psychosocial profile, managing stress and emotions, enhancing health and wellness, addressing relational and sexual concerns, and integrating and summarizing the information. At enrollment and after four months, the researchers obtained biological samples from both groups and investigated changes over time to see if psychological counseling had any physical effects.

"Improved quality of life and reduced stress response was associated with changes in telomere length," Nelson said.

"It is important to recognize that this was an exploratory and preliminary analysis. We embarked on the first study of telomere length and chronic stress in a cancer population and the first longitudinal analysis in whether changes in quality of life and changes in the stress response would be associated with modulating the telomere length," he said.

Still, he added, "there is no doubt that offering psychological services has the potential to improve quality of life and outcomes of patients. After all, making patients feel better should be an outcome that a [cancer](#) team should want to have, but whether we can draw conclusions or make recommendations about the capacity of a behavioral intervention to modulate telomere length remains an open question."

Provided by American Association for Cancer Research

Citation: Chronic stress of cancer causes accelerated telomere shortening (2011, April 2) retrieved 28 April 2024 from

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