Abstract

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Effect of long-term hormone therapy on telomere length in postmenopausal women.

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OBJECTIVE: Telomeres undergo attrition with each cell division, and telomere length is associated with age-related diseases and mortality in the elderly. Estrogen can influence the attrition of telomeres by diverse mechanisms. This is a retrospective case control study that investigated the influence of long-term hormone therapy (HT) on telomere length in postmenopausal women.

METHODS: We recruited 130 postmenopausal women from 55 to 69 years of age for this study, and divided them into two groups. The first group included 65 women who had been on estrogen and progesterone therapy for more than five years (HT group). The other group was composed of 65 women matched in age to the HT group who had never had HT (non- HT group). The relative ratios of telomere length of study subjects to a reference DNA from a healthy young female were measured using quantitative PCR. Plasma levels of lipid profiles, total antioxidant status (TAS), C-reactive proteins (CRP), fasting glucose levels, and estradiol levels were measured. Age at menopause, vitamin use, and exercise, alcohol, and cigarette smoking histories were also assessed in a questionnaire. Mean duration (+/- SD) of HT was 8.4 +/- 2.3 years.

RESULTS: Prevalence of vitamin use and regular exercise were higher in the HT group than in the non-HT group ($p < 0.01$). Relative telomere length ratios in the HT group were significantly greater than those in the non-HT group ($p < 0.01$). HT was significantly correlated with the relative telomere length ratio in multivariate analysis when potential confounding variables were controlled for ($p < 0.05$).

CONCLUSION: In conclusion, telomere lengths were longer in postmenopausal women who had a history of long-term HT than in postmenopausal women without HT. Long-term HT in postmenopausal women may alleviate telomere attrition.

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