

Healthy Lifestyle and Mediterranean Diet Decreases Mortality in the Elderly

Knoops KT, de Groot LC, Kromhout D, et al. Mediterranean diet, lifestyle factors, and 10-year mortality in elderly European men and women: the HALE project. JAMA 2004;292:1433–9.

Study Overview

Objective. To investigate single and combined effects of Mediterranean diet, being physically active, moderate alcohol use, and nonsmoking on all-cause and cause-specific mortality.

Design. Analytic cohort study.

Setting and participants. The HALE (Healthy Ageing: a Longitudinal study in Europe) population, which consists of individuals who participated in 2 other studies: Finland, Italy, the Netherlands Elderly (FINE) study and Survey in Europe on Nutrition and the Elderly: a Concerned Action (SENECA) study. The study was conducted between 1988 and 2000 and included 1507 healthy men and 832 women aged 70 to 90 years in 11 European countries.

Main outcome measure. 10-year mortality from all causes, coronary heart disease, cardiovascular disease, and cancer.

Main results. Multivariable adjusted hazard ratios (HRs) for adhering to Mediterranean diet (HR, 0.77 [95% confidence interval {CI}, 0.68–0.88]), moderate alcohol use (HR, 0.78 [95% CI, 0.67–0.91]), physical activity (HR, 0.63 [95% CI, 0.55–0.72]), and nonsmoking (HR, 0.65 [95% CI, 0.57–0.75]) were associated with lower risk for all-cause mortality. Similar results were observed for coronary heart disease, cardiovascular disease, and cancer mortality. Combining the 4 lifestyle habits furthered lowered all-cause mortality (HR, 0.35 [95% CI, 0.28–0.44]). Lack of adherence to this lifestyle pattern was associated with a population attributable risk of 60% of all deaths.

Conclusion. Individuals aged 70 to 90 years who adhere to Mediterranean diet, not smoking, moderate alcohol consumption, and being physically active have a 50% or lower rate of all-cause and cause-specific mortality.

Commentary

The worldwide population of persons older than 60 years is projected to rise to 1 billion by 2020 [1]. This increase in life

expectancy also increases the prevalence of chronic diseases and shifts the causes of death to cardiovascular diseases and cancer [2]. Because of the cumulative effects of lifestyle patterns, it is particularly important for older persons to adopt lifestyle practices that maximize healthy aging. Previous studies have linked Mediterranean diet, moderate alcohol consumption, nonsmoking, and physical activity to lower mortality; however, few studies have considered these in combination [3–6].

The HALE project pooled participants from 2 other surveys. This was possible because both studies assessed the same endpoints, had similar populations, and had the either the same or equivalent assessment methods for key variables (eg, assessing physical activity using the Morris or Voorrips questionnaire). Further heterogeneity tests showed that the 2 populations were not different, and all pooled analyses included a variable to adjust for any confounding by study. Since few people had no healthful lifestyle factors, those with 0 or 1 healthful lifestyle factors were grouped as reference in the HALE study. Detailed analysis showed that even adopting 2 healthy lifestyle practices lower the HRs of all-cause mortality. The Kaplan-Meier curves for number of healthy lifestyle practices began to diverge from reference group at 1 year for those with 3 or 4 low-risk lifestyle factors and diverged from those with 2 healthy practices at 1.5 to 2 years. At the end of 10 years, those with 0 or 1 healthy lifestyle practice had close to 40% survival probability, while those with all 4 had a higher than 70%. Those following 2 healthful practices had roughly 55% survival probability, and those with 3 had nearly 65% probability.

Applications for Clinical Practice

Current national disease management guidelines for chronic conditions (ie, diabetes, hypertension, dyslipidemia) share a common first approach involving lifestyle modification; however, much of the evidence supporting lifestyle change have been focused on 1 or 2 changes at a time or extrapolated to older populations from studies of younger persons. The HALE study is important because the combined effects of known beneficial lifestyle practices were evaluated within an elderly and very elderly population. The results of this study strongly urge clinicians to advise the elderly just as

they would the middle-aged. Even if the clinician is reluctant to recommend alcohol consumption, the basic 3 tenets of eating right, exercising regularly, and quitting smoking should be routinely counseled. Future research will need to focus on outcomes other than mortality, specifically, quality of life, as recent shifts in societal values may make this measure, if appropriately derived, more relevant.

—Review by Mark S. Horng, MD

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