Inverse association between habitual polyphenol intake and incidence of cardiovascular events in the PREDIMED study.


Abstract

BACKGROUND AND AIMS: Epidemiologic and biological evidence supports an inverse association between polyphenol consumption and the risk of cardiovascular disease (CVD). However, no previous studies have prospectively evaluated the relationship between polyphenol intake and the incidence of CVD in such a comprehensive way. The aim was to evaluate the association between intakes of total polyphenol and polyphenol subgroups, and the risk of major cardiovascular events (myocardial infarction, stroke or death from cardiovascular causes) in the PREDIMED study.

METHODS AND RESULTS: The present work is an observational study within the PREDIMED trial. Over an average of 4.3 years of follow-up, there were 273 confirmed cases of CVD among the 7172 participants (96.3%) who completed a validated 137-item food frequency questionnaire (FFQ) at baseline. Polyphenol consumption was calculated by matching food consumption data from the FFQ with the Phenol-Explorer database on polyphenol content of each reported food. After multivariate adjustment, a 46% reduction in risk of CVD risk was observed comparing Q5 vs. Q1 of total polyphenol intake (HR = 0.54; 95% confidence interval [CI] = 0.33-0.91; P-trend = 0.04). The polyphenols with the strongest inverse associations were flavanols (HR = 0.40; CI 0.23-0.72; P-trend = 0.003), lignans (HR = 0.51; CI 0.30-0.86; P-trend = 0.007), and hydroxybenzoic acids (HR = 0.47; CI 0.26-0.86; P-trend 0.02).

CONCLUSION: Greater intake of polyphenols, especially from lignans, flavanols, and hydroxybenzoic acids, was associated with decreased CVD risk. Clinical trials are needed to confirm this effect and establish accurate dietary recommendations. Clinical trial registry: International Standard Randomized Controlled Trial Number (ISRCTN of London, England) 35739639.

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