

Abstract

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Plasma selenium and risk of dysglycemia in an elderly French population: results from the prospective Epidemiology of Vascular Ageing Study.

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BACKGROUND: A preventive role of selenium on the risk of diabetes has been reported and ascribed to the "insulin-like" activity of selenium and the antioxidant properties of the selenoenzymes. By contrast, data from cross-sectional studies and clinical trials have suggested an adverse effect of high selenium status and selenium supplementation on type-2 diabetes risk. Given these controversial results, we investigated prospectively the relationship between baseline plasma selenium concentration and occurrence of dysglycemia (impaired fasting glucose or type 2 diabetes) in an elderly French cohort.

METHODS: The Epidemiology of Vascular Ageing (EVA) study (n = 1389, 59-71 years) is a 9-year longitudinal study in which, fasting plasma glucose was measured at baseline, 2, 4 and 9 years. Analyses were performed on 1162 participants with complete data.

RESULTS: At baseline plasma selenium mean levels were 1.08 (0.21) $\mu\text{mol/l}$ in men and 1.10 (0.20) $\mu\text{mol/l}$ in women. During the 9-year follow-up, 127 cases of dysglycemia occurred. A significant interaction was found between plasma selenium and sex. Risk of dysglycemia was significantly lower in men with plasma selenium in the highest tertile (T3:1.19-1.97) compared to those in the lowest tertile (T1:0.18-1.00) [HR = 0.48 (0.25-0.92)], but no significant relationship was observed in women. After controlling for socio-demographic factors, lifestyle factors, cardiovascular diseases, body mass index, hypertension and lipid profile, plasma selenium remained marginally significantly associated with occurrence of dysglycemia in men [T3 vs. T1, HR = 0.50 (0.24-1.04)] and unrelated in women.

CONCLUSIONS: This prospective study suggests a sex-specific protective effect of higher selenium status at baseline on later occurrence of dysglycemia.

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