Long-term arsenic exposure and ischemic heart disease in arseniasis-hyperendemic villages in Taiwan

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摘要

Abstract

he association between long-term arsenic exposure and peripheral vascular disease has been well documented in our previous epidemiologic studies. The purpose of this study was to evaluate whether long-term arsenic exposure could be associated with ischemic heart disease (IHD). A total of 462 subjects living in the blackfoot disease-hyperendemic villages along the southwestern coast of Taiwan and characterized by long-term arsenic exposure from drinking artesian well water was studied. The subjects were recruited from an epidemiologic cohort who participated in a health examination. IHD was diagnosed by coding the resting electrocardiograms with the Minnesota code. History of arsenic exposure was estimated through information obtained from a personal interview according to a structured questionnaire and the arsenic content in artesian well water of the villages. Cumulative arsenic exposure (CAE) was calculated as the sum of the products multiplying the arsenic concentration in artesian well water (mg/l) by the duration of drinking the water (years) in consecutive periods of living in the different villages. Among the subjects, 78 cases (16.9%) were diagnosed as having IHD. The prevalence rates of IHD for the age groups of 30--39, 40-49, 50-59, and ≥ 60 years were 4.9, 7.5, 16.8, and 30.7%, respectively (P < 0.001). For those with CAE of 0, 0.1-14.9 and ≥ 15 mg/l-years, the prevalence rates of IHD were 5.2, 10.9 and 24.1%, respectively (P < 0.001). The odds ratios (95% confidence intervals) for IHD were 1.60 (0.48, 5.34), and 3.60 (1.11, 11.65), respectively, for those with CAE of 0.1-14.9 and ≥ 15.0 mg/l-years, when compared with those lacking drinking water exposure to arsenic after multivariate adjustment. It is concluded that IHD in the arseniasis-hyperendemic villages in Taiwan was associated with long-term arsenic exposure.