

Biological gradient between long-term arsenic exposure and carotid atherosclerosis

薛玉梅

**Wang CH;Jeng JS;Yip PK;Chen CL;Hsu LI;Hsueh
YM;Chiou HY;Wu MM;Chen CJ.**

摘要

Abstract

Background-Long-term exposure to ingested arsenic has been documented to induce peripheral vascular disease, ischemic heart disease, and cerebral infarction in a dose-response relationship. This study further examined the biological gradient between ingested inorganic arsenic and carotid atherosclerosis. Methods and Results-We studied 199 male and 264 female adult residents from the southwestern area of endemic arseniasis in Taiwan . The extent of carotid atherosclerosis was assessed by duplex ultrasonography. Diabetes mellitus was determined by oral glucose tolerance test, hypertension by mercury sphygmomanometers, and serum lipid profiles by autoanalyzers. Information regarding the consumption of high- arsenic artesian well water, cigarette smoking, and alcohol consumption was obtained through standardized questionnaire interviews. Logistic regression analysis was used to estimate the odds ratio and its 95% CI of carotid atherosclerosis for various risk factors. Three indices of long- term exposure to ingested arsenic, including the duration of consuming artesian well water, the average arsenic concentration in consumed artesian well water, and cumulative arsenic exposure, were all significantly associated with prevalence of carotid atherosclerosis in a dose-response relationship. The biological gradient remained significant after adjustment for age, sex, hypertension, diabetes mellitus, cigarette smoking, alcohol consumption, waist-to-hip ratio, and serum levels of total cholesterol and LDL cholesterol. The multivariate-adjusted odds ratio was 3.1 (95% CI 1.3 to 7.4) for those who had a cumulative arsenic exposure of greater than or equal to 20 mg/L-years compared with those without exposure to arsenic from drinking artesian well water. Conclusions -Carotid atherosclerosis is associated with ingested inorganic arsenic, showing a significant biological gradient.