Effects of arsenic exposure and genetic polymorphisms of p53, glutathione S-transferase M1, T1, and P1 on the risk of carotid atherosclerosis in Taiwan.

連立明

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摘要

Abstract

To evaluate the joint effects between genetic polymorphisms of glutathione S-transferase M1, T1, P1, and p53, and arsenic exposure through drinking well water on the risk of carotid atherosclerosis, 605 residents including 289 men and 316 women were recruited from a northeastern area of Taiwan. Carotid atherosclerosis was diagnosed by either a carotid artery intima-media thickness (IMT) of >1.0 mm, a plaque score of > or =1, or stenosis of >50%. A significant age- and gender-adjusted odds ratio of 3.3 for the development of carotid atherosclerosis was observed among the high-arsenic exposure group who drank well water containing arsenic at levels >50 microg/L. The high-arsenic exposure group with GSTP1 variant genotypes of Ile/Val and Val/Val, and with the p53 variant genotypes of Arg/Pro and Pro/Pro had 6.0- and 3.1-fold higher risks of carotid atherosclerosis, respectively. In addition, the high-arsenic exposure group with one or two variant genotypes of GSTP1 and p53 had 2.8- and 6.1-fold higher risks of carotid atherosclerosis, respectively, and showed a dose-dependent relationship. A multivariate-adjusted odds ratio of 3.4 for the risk of carotid atherosclerosis among study subjects with the two variant genotypes of GSTP1 and p53 was also found. Our study showed the joint effects on the risk of carotid atherosclerosis between the genetic polymorphisms of GSTP1 and p53, and arsenic exposure