Risk of carotid atherosclerosis associated with genetic polymorphisms of apolipoprotein E and inflammatory genes among arsenic exposed residents in Taiwan.

連立明

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摘要

Abstract

Arsenic had been reported to be associated with carotid atherosclerosis. However, there were few studies to evaluate the association between the susceptible gene of lipid metabolism and inflammation and carotid atherosclerosis among arsenic exposure residents. The aim of the study was to investigate the associations between the genetic polymorphisms of APOE and MCP-1 and the risk of carotid atherosclerosis among residents of Lanyang Basin in Taiwan which was a newly confirmed arsenic-endemic area. In total, 479 residents who had been genotyped of these two genes and examined the severity of carotid atherosclerosis were included in this study. The study subjects with carotid intima media thickness (IMT) >= 1.0 mm or with the observable plaque in the extracranial carotid artery were diagnosed as carotid atherosclerosis. A significantly age- and gender- adjusted odds ratio of 2.0 for the development of carotid atherosclerosis was observed in study subjects with EA allele of APOE than those without epsilon 4 allele. Compared with study subjects who carried wild genotypes of APOE and MCP-1, those with both risk genotypes of APOE and MCP-1 had 2. 5-fold risk of carotid atherosclerosis after adjustment for age and gender , revealing a significant dose- response relationship between number of risk genotypes of these genes and risk of carotid atherosclerosis. Additionally, study subjects with two risk genotypes of APOE and MCP-1 and either had ingested well water contained arsenic level >10 mu g/L or had arsenic exposure >0.22 mg/L- year would have strikingly highest risk of 10 .3-fold and 15 . 7-fold, respectively, for the development carotid atherosclerosis, showing significant joint effect of arsenic exposure and risk genotypes of APOE and MCP-1.