不同飲水砷濃度居民脂蛋白元E基因多形性與頸動脈粥狀硬化相關性研究

A study on the association between carotid atherosclerosis and genetic polymorphisms of apolipoprotein E among various arsenic exposure people.

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摘要

目標：過去的研究中，無機砷除了會引起癌症，也會引起如糖尿病、高血壓、心血管與腦血管疾病。因此，本研究的目的係爲探討不同飲水砷濃度居民脂蛋白元E基因多形性與罹患頸動脈粥狀硬化的相關性。方法：在蘭陽盆地選取不同飲水砷濃度居民爲研究對象，共有304名個案，其中包括157位頸動脈粥狀硬化病人及147位健康個案。研究中對許多與頸動脈粥狀硬化有關之危險因子做探討，如：井水含砷濃度、血清中脂質濃度等。實驗部分利用聚合連鎖反應(Polymerase Chain Reaction, PCR)和限制片段長度多形性(Restriction Fragment Length polymorphism, RFLP)分析脂 蛋白元E基因型分佈情形。資料分析使用對數迴歸分析，包含危險對比值及95%信賴區間。結果：研究結果發現，高血壓在高砷濃度組罹患頸動脈粥狀硬化的危險性(2.13倍，1.04-4.32)比低砷暴露組低(11.47倍，1.37-95.83)，均達統計上顯著意義。另外在低砷暴露組的脂蛋白元E基因型的不同，罹患頸動脈粥狀硬化的危險性也不同，但在高砷暴露組看不出此結果。結論：在脂蛋白元E基因對頸動脈粥狀硬化在低砷暴露仍與一般族群模式相同，當有高砷介入後其基因所貢獻的效果則被砷所修飾。(台灣衛誌 2001；20(5)：365-371)

Abstract

Objectives: Arsenic exposure has been reported to induce not only cancers but also many vascular diseases including ischemic heart diseases, cerebrovascular diseases, peripheral vascular diseases, diabetes mellitus, and hypertension. The study aimed at investigating the association between genetic polymorphisms of apolipoprotein E and carotid atherosclerosis among people with different arsenic exposure levels. Methods: A total of 304 study subjects including 157 atherosclerosis patients and 147 healthy con trols were recruited from the residents of Lanyang Basin. The carotid atherosclerosis was examined

by Doppler ultrasonography and genetic polymorphisms of apolipoprotein E were determined by PCR-RFLP. Logistic regression model was used to obtain odds ratio and the 95% confidence interval for the association between carotid atherosclerosis and genetic polymorphism of apolipoprotain. Results: The data showed that lower risk of developing carotid atherosclerosis was associated with hypertension in high-arseni c exposed group than in low-arsenic exposed group (2.13, 1.04-4.32 V.S. 11.47, 1.37-95.83). Different apolipoprotein E (3/4, 4/4) genotypes have different risk of developing carotid atherosclerosis was observed in low-arsenic exposed group but not in high-arsenic exposed group. Conclusions: Higher risk of developing carotid atherosclerosis was associated with hypertension in low-arsenic exposed group than in high-arsenic exposed group. The higher risk of carotid atherosclerosis for study subjects without e 2 genotype of apolipoprotein were observed in low-arsenic exposed group than those in high-arsenic exposed group. (Taiwan J Public Health. 2001;20(5):365-371)
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