

# **A Study on the Association Between Carotid Atherosclerosis and Genetic Polymorphisms of Apolipoprotein E Among Various Arsenic Exposure People**

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## **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 controls 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 apolipoprotein. **Results:** The data showed that lower risk of developing carotid atherosclerosis was associated with hypertension in high-arsenic 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  $\epsilon 2$  genotype of apolipoprotein were observed in low-arsenic exposed group than those in high-arsenic exposed group.