

頸動脈中層內膜厚度與動脈硬化風險因子的遺傳性 Heritability of Carotid Intima-Media Thickness and Risk Factors of Atherosclerosis in a Chinese Population

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Background and aim: Carotid artery intima-medial thickness (IMT), a marker of subclinical atherosclerosis, has been associated with incident stroke. High sensitive C-reactive protein (hsCRP) and fibrinogen have been demonstrated to be associated with atherosclerosis. Previous studies reporting estimates of heritability of IMT, hsCRP and fibrinogen in Chinese are limited. This study aims to estimate the heritability of these risk factors in relatives of residents who participated in the Taichung Community Health Study (TCHS), Taichung Community Health Study for Elders (TCHS-E) and Family Cohort.

Methods: A total of 2667 study subjects of 804 families with members were enrolled from a random sample of participants of TCHS, TCHS-E and their family members from 2009 to 2012. Anthropometric measurement, body composition, hsCRP and fibrinogen, as well as a questionnaire interview, were obtained from each participant. IMT was measured by high resolution B-mode ultrasound and expressed as the mean of the maximum. Heritability estimates and familial correlation of IMT, hsCRP and fibrinogen among family pairs were determined from SAGE software.

Results: With multivariate adjustments, significant heritability for IMT ($h^2=0.29 \pm 0.10$, $P<0.001$), hsCRP ($h^2=0.30 \pm 0.13$, $P<0.001$) and fibrinogen ($h^2=0.35 \pm 0.13$, $P<0.001$) were found. The intrafamilial correlation coefficients were significant for these three indexes in parent-offspring pairs ranging from 0.12 to 0.40; $P<0.001$. The sib-sib correlations were also significant for these three indexes (ranging from 0.18 to 0.44; $P<0.001$).

Conclusions: This study demonstrated significant heritability and familial aggregation of IMT, hsCRP and fibrinogen in a Chinese population.