

编号: YY001-20190916001

**标题: Leukocyte telomere length, mitochondrial DNA copy number, and coronary artery disease risk and severity: A two-stage case-control study of 3064 Chinese subjects**

简介: Background and aims

Leukocyte telomere length (TL) and mitochondrial DNA copy number (mtDNA-CN), as hallmarks of cellular aging, may be involved in the development of coronary artery disease (CAD) by modulating oxidative stress. This study aimed to investigate the effects of leukocyte TL and mtDNA-CN alone or in combination on CAD risk and severity in the Chinese population.

Methods

In this two-stage case-control study with 1511 CAD patients and 1553 controls, leukocyte TL and mtDNA-CN were determined by a quantitative PCR assay. Three oxidative parameters, including leukocyte 8-hydroxy-2'-deoxyguanosine (8-OHdG), plasma malondialdehyde, and plasma reactive oxygen species (ROS), were quantified by ELISA or colorimetric kits in a subset of 129 cases and 129 controls.

Results

In the combined cohort, each 1-SD decrease in TL and mtDNA-CN was significantly associated with a 1.17-fold and 1.14-fold increased risk of CAD ( $p < 0.001$  for all), respectively, after adjusting for confounders. The aggregated score, which reflected the cumulative dosage of the tertiles of TL and mtDNA-CN, showed inverse dose-response correlations with CAD risk ( $ptrend < 0.001$ ), and severity, as determined by the severity of clinical presentations ( $ptrend = 0.037$ ), the presence of multi-vessel CAD ( $ptrend = 0.004$ ), and modified Gensini scores ( $ptrend = 0.009$ ). Similar dose-response relations of the aggregated score to leukocyte 8-OHdG and plasma ROS were also identified.

Conclusions

Our data suggested reductions in both TL and mtDNA-CN as independent risk factors for CAD. The combination of TL and mtDNA-CN might jointly contribute to CAD risk, CAD severity, and oxidative stress.

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编号: YY001-20190916002

**标题: Comparison of plasma levels of different species of trans fatty acids in Japanese male patients with acute coronary syndrome versus healthy men**

简介: Background and aims

It remains unclear how trans fatty acid (TFA) at low-level intake affect lipid levels and the development of acute coronary syndrome (ACS). The study aimed to investigate how plasma TFA composition differs between male patients with ACS and healthy men.

Methods

Plasma fatty acid (FA) composition (as determined by gas chromatography) was analyzed in ACS patients on hospital admission and compared to that of age-adjusted

healthy men.

### Results

Total FA and TFA levels were similar between ACS and control subjects. Palmitelaidic acid, ruminant-derived TFA (R-TFA), levels were lower in ACS patients ( $0.17 \pm 0.06$  vs.  $0.20 \pm 0.06$  of total FA, in ACS and control, respectively,  $p < 0.01$ ), and were significantly directly associated with HDL cholesterol (HDL-C) ( $\rho = 0.269$ ) and n-3 polyunsaturated FA (n-3 PUFA) ( $\rho = 0.442$ ). Linoleic trans isomers (total C18:2 TFA), primary industrially-produced TFA (IP-TFAs), were significantly higher in ACS patients ( $0.68 \pm 0.17$  vs.  $0.60 \pm 0.20$  of total FA, in ACS and control, respectively). Total trans-C18:1 isomers were comparable between ACS and control. Differences between ACS and controls in C18:1 trans varied by specific C18:1 trans species. Absolute concentrations of trans-C18:2 isomers were significantly directly associated with LDL-C and non-HDL-C in ACS men. The ACS patients showed significantly lower levels of both n-6 and n-3 PUFA (i.e., eicosapentaenoic, docosahexaenoic and arachidonic acids).

### Conclusions

There were several case-control differences in specific TFA that could potential affect risk for ACS. Japanese ACS patients, especially middle-aged patients, may consume less R-TFA.

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**标题: Large aortic arch plaques correlate with CHADS2 and CHA2DS2-VASc scores in cryptogenic stroke**

简介: Background and aims

Current trends have suggested covert atrial fibrillation as a mechanism of cryptogenic stroke. However, etiological heterogeneity regarding the underlying embolic sources remains a critical issue in cryptogenic stroke.

### Methods

CHALLENGE ESUS/CS (Mechanisms of Embolic Stroke Clarified by Transesophageal Echocardiography for Embolic Stroke of Undetermined Source/Cryptogenic Stroke) is a multicenter observational registry of cryptogenic stroke patients admitted to participating hospitals, who underwent transesophageal echocardiography between April 2014 and December 2016. We obtained baseline characteristics, radiological and laboratory data, and echocardiographic findings, especially for embolic sources demonstrated on transesophageal echocardiography, and conducted comparisons according to CHADS2 and CHA2DS2-VASc scores (0–1 vs.  $\geq 2$ , respectively). This study was registered at [http://www.umin.ac.jp/ctr/\(UMIN000032957\)](http://www.umin.ac.jp/ctr/(UMIN000032957)).

### Results

The study comprised 677 patients (age,  $68.7 \pm 12.8$  years; 455 males; median National Institutes of Health Stroke Scale score, 2) with cryptogenic stroke. On multiple logistic regression analysis, large aortic arch plaque  $\geq 4$  mm (odds ratio [OR], 2.25; 95% confidence interval [CI], 1.51–3.36;  $p < 0.001$ ), with ulcerative or mobile components

(OR, 2.37; 95%CI, 1.38–4.06;  $p = 0.002$ ), was associated with CHADS2 score  $\geq 2$ . Large aortic arch plaque  $\geq 4$  mm (OR, 3.88; 95%CI, 2.07–7.27;  $p < 0.001$ ) and ulcerative or mobile components (OR, 3.25; 95%CI, 1.44–7.34;  $p = 0.005$ ) were linked to CHA2DS2-VASc score  $\geq 2$ .

#### Conclusions

The CHALLENGE ESUS/CS registry is a large TEE registry, and clarifies potential embolic etiologies of cryptogenic stroke using TEE. Large aortic arch plaques were associated with high CHADS2 and CHA2DS2-VASc scores, and represented important embolic sources in cryptogenic stroke.

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**标题: Circulating endostatin as a risk factor for cardiovascular events in patients with stable coronary heart disease: A CLARICOR trial sub-study**

简介: Background and aims

Raised levels of serum endostatin, a biologically active fragment of collagen XVIII, have been observed in patients with ischemic heart disease but association with incident cardiovascular events in patients with stable coronary heart disease is uncertain.

#### Methods

The CLARICOR-trial is a randomized, placebo-controlled trial of stable coronary heart disease patients evaluating 14-day treatment with clarithromycin. The primary outcome was a composite of acute myocardial infarction, unstable angina pectoris, cerebrovascular disease or all-cause mortality. In the present sub-study using 10-year follow-up data, we investigated associations between serum endostatin at entry (randomization) and the composite outcome and its components during follow-up. The placebo group was used as discovery sample (1204 events,  $n = 1998$ ) and the clarithromycin-treated group as replication sample (1220 events,  $n = 1979$ ).

#### Results

In Cox regression models adjusting for cardiovascular risk factors, glomerular filtration rate, and current pharmacological treatment, higher serum endostatin was associated with an increased risk of the composite outcome in the discovery sample (hazard ratio per standard deviation increase 1.11, 95% CI 1.03–1.19,  $p = 0.004$ ), but slightly weaker and not statistically significant in the replication sample (hazard ratio 1.06, 95% CI 1.00–1.14,  $p = 0.06$ ). In contrast, strong and consistent associations were found between endostatin and cardiovascular and all-cause mortality in all multivariable models and sub-samples. Addition of endostatin to a model with established cardiovascular risk factors provided no substantial improvement of risk prediction ( $< 1\%$ ).

#### Conclusions

Raised levels of serum endostatin might be associated with cardiovascular events in patients with stable coronary heart disease. The clinical utility of endostatin measurements remains to be established.

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**标题: Association of epicardial adipose tissue attenuation with coronary atherosclerosis in patients with a high risk of coronary artery disease**

**简介:** Background and aims

Density may indicate some tissue characteristics and help reveal the role of epicardial adipose tissue (EAT) in coronary artery disease (CAD). Therefore, we assessed the association of EAT density with the coronary artery plaque burden in patients presenting with chest pain.

**Methods**

This retrospective cohort study comprised 614 patients (mean age  $61 \pm 9$  years, 61% males) with a high cardiovascular disease risk, who underwent cardiac computed tomography angiography. Density was reflected as attenuation.

**Results**

EAT attenuation was significantly associated with EAT volume with a negative Pearson's correlation coefficient and gradually increased across coronary artery calcium (CAC) scores of 0, 1–100, 101–400 and  $> 400$ . EAT attenuation was tightly associated with CAD risk factors, including age, sex, BMI, total cholesterol, neutrophil to lymphocyte ratios and CAC score. The association between EAT attenuation and CAC score was strengthened after adjusting for multivariable indices (OR 1.21, 95% CI 1.05–1.40,  $p = 0.01$ ) and further adjusting for EAT volume (OR 1.26 95% CI 1.06–1.51,  $p < 0.01$ ). However, EAT attenuation was associated only with CAD presence (OR 1.32, 95% CI 1.02–1.69,  $p < 0.05$ ), CAC presence (OR 1.28, 95% CI 1.02–1.60,  $p < 0.05$ ), segment involvement score (OR 1.19, 95% CI 1.01–1.40,  $p < 0.05$ ) and segment stenosis score (OR 1.19, 95% CI 1.01–1.40,  $p < 0.05$ ) in the EAT volume- and multivariable-adjusted model. Additionally, EAT attenuation was not associated with significant coronary artery lesions and triple-vessel plaques.

**Conclusions**

Higher EAT attenuation is associated with a higher risk of CAD.

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