148. Association Between Plasma Free Fatty Acids Metabolism Profile and Cardiovascular Risk Based on the Framingham Risk Score: A Study in Northeastern China

Hui Shen, Yazhuo Liu, Cheng Han, Yingying Li, Yike Li, Dan Wang, Yazhuo Liu, Affiliated Zhongshan Hospital of Dalian University, Dalian, China

Body

Background: Cardiovascular disease (CVD) is not only the leading cause of both death and premature death in China, but also the main cause of global mortality and a major contributor to disability. Previous studies have associated plasma polyunsaturated fatty acid (PUFA) with reduced CV risk and mortality, based on that, it is possible to state that the nutritional status of PUFA may be useful in CVD prevention. Therefore, the main goal of this study was to investigate the association of plasma PUFA with different cardiovascular risk estimate classifications in Chinese individuals.

Methods: 782 individuals, aged 30-74 years, were classified as low (n=380, age:48.95±9.25), moderate (n=186, age:56.6±8.23) and high (n=216, age: 60.66±7.18) cardiovascular risk groups by Framingham Risk Score (FRS). Plasma biomarkers (lipids and C-reactive protein) were analyzed, and 23 kinds of plusma free fatty acids including Docosahexaenoic acid (DHA; 22:6ω-3), Linoleic acid (LA;18:2ω-6), Arachidonic acid (AA;20:4ω-6) were measured by LC-MS technology.

Results: The levels of DHA, AA and LA are significantly lower in high CVD risk and moderate CVD risk group when compared to low CVD risk group. Logistic regression analysis (0 = low CVD risk and 1 = moderate and high CVD risk) shows that DHA (OR 95% CI:0.730 (0.629 ~0.847), p<0.001), AA (OR 95% CI:0.730 (0.630~0.845), p<0.001), LA (OR 95% CI:0.680 (0.586~0.789), p<0.001) is associated with a lower risk of CVD. After adjusted by BMI and C-reactive protein, the results of DHA (OR 95% CI:0.781 (0.670 ~0.911), p=0.002), AA (OR 95% CI:0.794 (0.681~0.925), p=0.003), LA (OR 95% CI:0.743 (0.637~0.867), p<0.001) remained statistically significant.

Conclusion: The present findings add evidence of an inverse associations of PUFA with the predicted 10-year CVD risk in a general Chinese population. Hence, this study provides a new idea for potential clinical intervention and supplementation of exogenous FFAs for the prevention and treatment of CVD.

Clinical Implications: My study will help enable cardiovascular clinicians to better identify different cardiovascular risk estimate classifications through plasma free fatty acid metabolism profile and provide a new idea for potential clinical intervention and supplementation of exogenous FFAs for the prevention and treatment of CVD.