The correlation of the fatty acid ester of hydroxy fatty acids (fahfas) with cardiovascular related biomarkers in healthy human

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Fatty acid ester of hydroxy fatty acids (FAHFAs) are kinds of novelty long chain fatty acids and have been uncovered their anti-inflammatory effects in several diseases. However, the role of FAHFAs in cardiovascular diseases (CVDs) prevention still not investigated. Thence, we tried to clarify the correlation among the FAHFAs and several cardiovascular-related markers. The plasma samples were collected from totally 60 healthy volunteers and determined by using liquid chromatography-mass spectrometry (LC-MS) and the cytokine assay. We found two major types of FAHFAs (9-POHSA and 9-OAHSA) in human plasma. We also found the 9-POHSA revealed the positive correlation with *L*-carnitine (*L*-Car) ($r = 0.3809$, $P = 0.0032$). Moreover, both of the 9-POHSA and 9-OAHSA were shown the strong positive correlation with interleukin-9 (IL-9) ($r = 0.3588$, $P = 0.0071$; $r = 0.3977$, $P = 0.0026$). In addition, we also observed both of the 9-POHSA and 9-OAHSA were negative correlation with *S*-adenosyl-*L*-homocysteine (SAH), but not in *L*-homocysteine (*L*-Hcy). Interestingly, the 9-OAHSA also show the negative correlation with TMAO. Our results indicated that the reasons for the anti-inflammatory effect in FAHFAs may be related to the levels of the IL-9 and *L*-Car elevation, and the SAH and TMAO reduction. Therefore, we suggest that FAHFAs have the potential for CVDs protection.