Abstract

Background and aim: Low-fat meat (LM) has been considered adequate under a cardiovascular disease point of view. Meat enriched in walnut paste (WM) consumption produces beneficial antithrombogenic effects but with striking inter-individual variability that may be related to gene polymorphism. Variants in the APOA4 gene (APOA4) polymorphism are known to affect the cardiovascular risk. This study aimed to compare the effects of consumption of WM and LM on platelet aggregation, production of thromboxane A2 (TXA2) and prostacyclin I2 (PGI2), and the TXA2/PGI2 ratio in 22 volunteers with different APOA4 polymorphism.

Subjects and Methods: Six volunteers carried the Gln allele (APOA4-2) while 16 were homozygous for the His allele (APOA4-1). Platelet aggregation, TXA2 (measured as TXB2), PGI2 (measured as 6-keto-PGF1), and the thrombogenic ratio (TXB2/6-keto-PGF1) were determined at baseline and at weeks 3 and 5 for the WM and LM dietary periods.

Results: Platelet aggregation decreased significantly (P<0.05) more in APOA4-1 than in APOA4-2 volunteers at 3-wk WM period, while TXB2 levels dropped more in APOA4-2 than in APOA4-1 volunteers at 5-wk WM period. TXB2 levels and the TXB2/6-keto-PGF1 ratio decreased significantly more (P<0.05) after 5 wk treatment in APOA4-2 than in APOA4-1 carriers on the WM diet than on the LM counterpart. However, 6-keto-PGF1 levels increased more (P<0.05) in APOA4-1 than in APOA4-2 volunteers after the 5-wk WM period than after the 5-wk LM diet. Conclusions: Present results suggest that consumption of WM with respect to LM decrease the thrombogenic risk more in Gln carriers than in His/His.

Keywords

APOA4 polymorphism, Meat enriched in walnut paste, Low-fat meat, Platelet aggregation, Prostacyclin, Thromboxane, Thrombogenic ratio, Functional food.