

Abstract

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Some dietary factors can modulate the effect of the zinc transporters 8 polymorphism on the risk of metabolic syndrome.

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OBJECTIVE: There are conflicting data on the impact of zinc transporter 8 (ZNT8) gene variations on the metabolic syndrome (MetS). Hence, the effects of the interaction between rs13266634 and dietary factors on the risk of MetS were investigated in this study.

METHODS: Subjects of this nested case-control study were selected from the participants in Tehran Lipid and Glucose Study. Each of the cases ($n=817$) was individually matched with a control. Dietary patterns were determined using factor analysis. The ZNT8 rs13266634 were genotyped by the Tetra-refractory mutation system-polymerase chain reaction analysis. Two dietary patterns were extracted.

RESULTS: There were no significant interactions between the ZNT8 SNP and the dietary patterns on the risk of MetS or its components. An interaction was observed between rs13266634 and the omega-3 fatty acid intakes on the risk of MetS in subjects with the CC genotype (P interaction < 0.01). Zinc modified the association of the ZNT8 variant with high fasting blood sugar (P interaction = 0.05) in CC genotype carriers. An interaction was also observed between rs13266634 and salty snacks at the risk of abdominal obesity (P interaction < 0.05).

CONCLUSION: Our findings suggest an interaction between omega-3 fatty acids, zinc, salty snacks and rs13266634, which may affect the risk of MetS or its components.

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