



Association of the *FABP2* Ala54Thr polymorphism with type 2 diabetes, obesity, and metabolic syndrome: a population-based case-control study and a systematic meta-analysis

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ABSTRACT. Previous studies have reported associations between the functional *FABP2* Ala54Thr (rs1799883) polymorphism and type 2 diabetes mellitus (T2DM), obesity, and metabolic syndrome in different populations with conflicting results. We investigated the association between the *FABP2* Ala54Thr polymorphism and T2DM (235 cases, 431 controls), obesity (377 cases, 431 controls), and metabolic syndrome (315 cases, 323 controls) by logistic regression analysis in a Chinese study cohort recruited from Yichang, Hubei Province. We then comprehensively reviewed the association of the *FABP2* Ala54Thr polymorphism with T2DM, obesity, and metabolic syndrome via meta-analysis. The strength of association was assessed by odds ratios (ORs) with 95% confidence intervals (CIs). The *FABP2* Ala54Thr polymorphism was significantly associated with obesity (AT vs AA:

OR = 2.633, 95%CI = 1.065-6.663, P = 0.036; TT vs AA: OR = 4.160, 95%CI = 1.609-10.757, P = 0.003) and metabolic syndrome (TT vs AA: OR = 2.273, 95%CI = 1.242-4.156, P = 0.008) by logistic regression with adjustment for covariates. However, no significant association was found between T2DM and the *FABP2* Ala54Thr polymorphism. We identified 24 studies on T2DM (4517 cases, 5224 controls), 9 studies on obesity (949 cases, 2002 controls), and 6 studies on metabolic syndrome (2194 cases, 3282 controls) by literature search. The meta-analyses revealed significant associations for metabolic syndrome (T allele: OR = 1.179, 95%CI = 1.015-1.362, P = 0.031) and T2DM (T allele: OR = 1.160, 95%CI = 1.08-1.24, P < 0.001), but no association for obesity (T allele: OR = 1.069, 95%CI = 0.925-1.235, P = 0.367).

Key words: *FABP2*; Metabolic syndrome; Obesity; Meta-analysis; Type 2 diabetes mellitus