Relationship between a lipoprotein lipase gene polymorphism in placental tissue and insulin resistance in patients with gestational diabetes mellitus

D.D. Li*, D.Y. Su*, L. Xue, W. Gao and W.Y. Pang

Department of Endocrinology, Henan University Huaihe Hospital, Kaifeng, China

*These authors contributed equally to this study.
Corresponding author: W.Y. Pang
E-mail: wuyanpang@126.com

Received October 30, 2014
Accepted February 19, 2015
Published July 14, 2015
DOI http://dx.doi.org/10.4238/2015.July.14.1

ABSTRACT. The aim of this study was to investigate the relationship between a lipoprotein lipase (LPL) gene polymorphism in placental tissue and insulin resistance (IR) in patients with gestational diabetes mellitus. Using polymerase chain reaction-restriction enzyme fragment length polymorphism (PCR-RFLP) analysis, the LPL HindIII RFLP was examined in the placental tissue of 110 patients with gestational diabetes mellitus (observation group) and 110 women with normal gestation (control group). The relationships between fasting plasma glucose (FPG), postprandial plasma glucose (PPG), fasting insulin (FINS), cholesterol (TC), triglyceride (TG), high density lipoprotein (HDL), low density lipoprotein (LDL), body mass index (BMI), and IR indices and the LPL polymorphism in the two study groups and their offspring were determined. The frequency of the H+ allele was significantly higher in the observation group than in the controls (P < 0.05). There were statistically significant differences in the observation
group between the FPG, PPG, LDL, TC, TG, HDL, BMI, FINS, and IR indices of the H+H+ group and those of the non H+H+ type patients (P < 0.05). Correlation analysis showed that the LPL gene polymorphism was positively related to IR. There were statistically significant differences between HDL, BMI, and IR indices between the two study groups (P < 0.05). In conclusion, the LPL gene polymorphism was determined to be the main factor related to IR in women with gestational diabetes, and was also found to be related to the IR of their offspring.

**Key words:** Gestational diabetes mellitus; Insulin resistance; Lipoprotein lipase gene polymorphism