

## **Abstract**

**Background:** Glycosylphosphatidylinositol-anchored high-density lipoprotein binding protein 1 (GPIHBP1) plays a crucial role in lipolytic processing. Previous studies have shown that *GPIHBP1* mutations cause severe hypertriglyceridemia and that serum GPIHBP1 levels are marginally higher in patients with coronary heart disease; however, the role of GPIHBP1 in type 2 diabetes mellitus (T2DM) remains unknown.

**Objective:** We investigated the association between circulating GPIHBP1 levels and the prevalence of microvascular complications in T2DM.

**Methods:** A total of 237 subjects with T2DM and 235 non-diabetic control subjects were enrolled in this study. Their serum GPIHBP1 levels were evaluated using ELISA assays.

**Results:** Circulating GPIHBP1 levels were higher in patients with T2DM (952.7 pg/mL [761.3-1234.6],  $p < 0.0001$ ) than in non-diabetic subjects (700.6 [570.8-829.6]), but did not differ in T2DM patients with or without hypertriglyceridemia. Serum GPIHBP1 levels were significantly higher in patients with T2DM with diabetic retinopathy (DR), diabetic nephropathy (DN), and microvascular complications than in those without these complications. Multivariable logistic regression and receiver operating characteristic (ROC) curve analyses revealed that the presence of microvascular complications, but not macrovascular complications, was independently associated with serum GPIHBP1 levels,

which could predict the presence of diabetic microvascular complications.

**Conclusions:** Elevated GPIHBP1 levels are associated with microvascular complications in T2DM and may help to predict their progression.