Comparison of Adults with Insulin Resistance (IR) in Latent Autoimmune Diabetes Versus IR in Glutamic Acid Decarboxylase Antibody-negative Diabetes

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Abstract

Introduction: Insulin resistance in latent autoimmune diabetes in adults (LADA) patients is controversial. The aim of this study was to evaluate insulin resistance and its related factors (metabolic syndrome parameters) among subjects with LADA and glutamic acid decarboxylase antibodies (GADA) negative diabetes, as well as the impact of these factors on insulin resistance. Materials and Methods: GADA levels were investigated in 1140 diabetic patients aged between 30 and 70 years. Insulin resistance and metabolic syndrome parameters were assessed in LADA and GAD-negative diabetic patients by general linear model. In addition, the impact of metabolic syndrome factors on insulin resistance was assessed in LADA and glutamic acid decarboxylase (GAD)-negative diabetic patients. Results: LADA was diagnosed in 33 subjects from 1140 Malaysian diabetic patients (prevalence = 2.9%). The results showed that LADA patients had higher insulin resistance and high density lipoprotein cholesterol (HDLc) \( (P = 0.003 \text{ and } 0.00017 \text{ respectively}) \) and lower body mass index (BMI) \( (P = 0.007) \) compared to GAD-negative diabetic patients. The HDLc was associated with decreased insulin resistance in LADA patients \( (P = 0.041) \), whereas HbA1c, triacylglycerides (TG) and waist were associated with increased insulin resistance in GAD-negative diabetic patients \( (P = 3.6 \times 10^{-12}, 1.01 \times 10^{-5} \text{ and } 0.004 \text{ respectively}) \). HbA1c was highly associated with decreasing \( \beta \)-cell function in both LADA \( (P = 0.009) \) and GAD-negative diabetic subjects \( (P = 2.2 \times 10^{-28}) \). Conclusion: Insulin resistance is significantly higher in LADA than GAD-negative diabetic Malaysian subjects.

Key words: GAD-negative diabetes, Insulin resistance, LADA

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