

ABSTRAK

Penelitian ini bertujuan untuk mengidentifikasi polimorfisme rs3765467 pada gen *GLP1R* serta menganalisis pengaruhnya terhadap profil lipid pada pasien diabetes melitus tipe 2 (DMT2). DMT2 merupakan penyakit metabolik kronis yang sering disertai dislipidemia akibat gangguan metabolisme glukosa dan lipid. Polimorfisme rs3765467 berupa substitusi basa guanin (G) menjadi adenin (A) yang menyebabkan perubahan asam amino arginin menjadi glutamin pada posisi 131 (R131Q), sehingga berpotensi memengaruhi fungsi reseptor GLP-1R dalam regulasi metabolisme lipid. Penelitian observasional analitik dengan desain *cross-sectional* ini melibatkan 65 pasien DMT2 yang memenuhi kriteria inklusi dan eksklusi. Genotipe ditentukan menggunakan metode *tetra-primer amplification refractory mutation system polymerase chain reaction* (T-ARMS-PCR), sedangkan pengaruh polimorfisme terhadap profil lipid (kolesterol total, trigliserida, LDL, dan HDL) dianalisis menggunakan *Odds Ratio* (OR) dan uji *Fisher's Exact Test* berdasarkan data pemeriksaan laboratorium klinis. Hasil penelitian menunjukkan bahwa genotipe G/G ditemukan pada 4 subjek (6,15%), genotipe G/A pada 61 subjek (93,85%), sedangkan genotipe A/A tidak ditemukan. Analisis OR menunjukkan kecenderungan peningkatan risiko abnormalitas profil lipid pada genotipe G/A dibandingkan genotipe G/G, yaitu kolesterol total (OR=2,719; $p=0,367$), trigliserida (OR=1,680; $p=0,121$), LDL (OR=3,176; $p=0,771$), dan HDL (OR=2,382; $p=0,419$). Namun, seluruh hasil tidak menunjukkan signifikansi statistik ($p>0,05$). Penelitian ini menyimpulkan bahwa polimorfisme rs3765467 pada gen *GLP1R* berhasil diidentifikasi pada pasien DMT2, tetapi tidak berpengaruh signifikan terhadap profil lipid.

Kata kunci: Diabetes melitus tipe 2; gen *GLP1R*; rs3765467; profil lipid; polimorfisme genetik.

ABSTRACT

This study aimed to identify the rs3765467 polymorphism in the *GLP1R* gene and to analyze its effect on the lipid profile of patients with type 2 diabetes mellitus (T2DM). T2DM is a chronic metabolic disease that is frequently accompanied by dyslipidemia resulting from impaired glucose and lipid metabolism. The rs3765467 polymorphism involves a guanine (G) to adenine (A) base substitution, resulting in an arginine-to-glutamine amino acid substitution at position 131 (R131Q), which may affect the function of the GLP-1 receptor (GLP-1R) in the regulation of lipid metabolism. This analytical observational study with a cross-sectional design involved 65 patients with T2DM who met the inclusion and exclusion criteria. Genotypes were determined using the tetra-primer amplification refractory mutation system polymerase chain reaction (T-ARMS-PCR) method, while the effect of the polymorphism on the lipid profile (total cholesterol, triglycerides, LDL, and HDL) was analyzed using Odds Ratio (OR) and Fisher's Exact Test based on clinical laboratory data. The results showed that the G/G genotype was identified in 4 subjects (6,15%), the G/A genotype in 61 subjects (93,85%), whereas the A/A genotype was not detected. OR analysis indicated a tendency toward an increased risk of lipid profile abnormalities in subjects with the G/A genotype compared with those with the G/G genotype, including total cholesterol (OR=2,719; p=0,367), triglycerides (OR=1,680; p=0,121), LDL (OR=3,176; p=0,771), and HDL (OR=2,382; p=0,419). However, none of the results showed statistical significance (p>0,05). This study concludes that the rs3765467 polymorphism in the *GLP1R* gene was successfully identified in patients with T2DM but was not significantly associated with the lipid profile.

Keywords: Type 2 diabetes mellitus; *GLP1R* gene; rs3765467; lipid profile; genetic polymorphism.