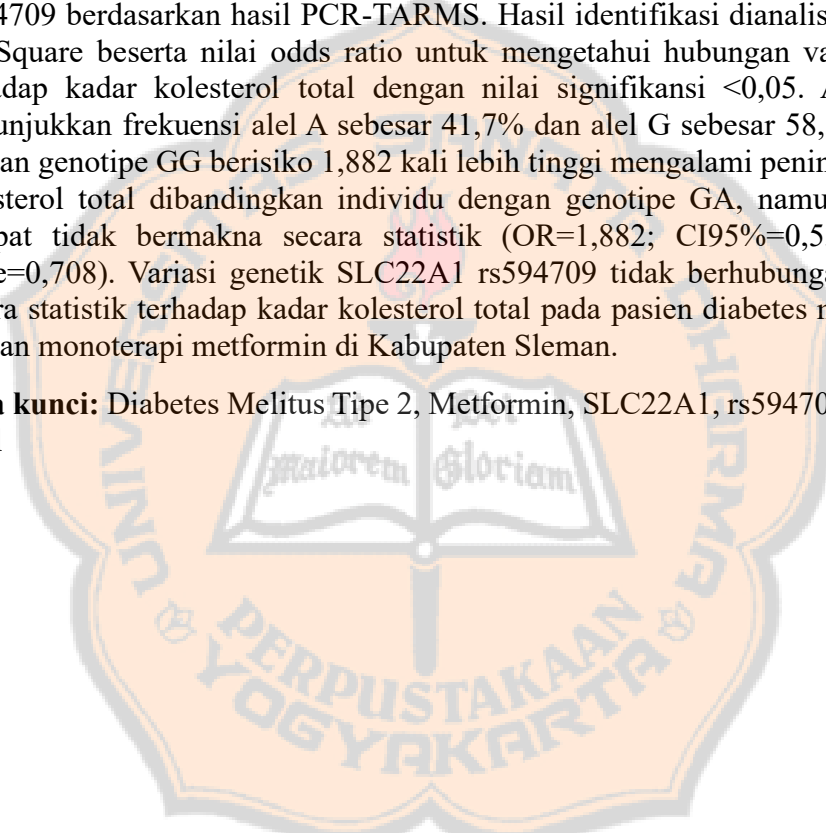


ABSTRAK

Metformin merupakan obat golongan biguanida yang sering digunakan sebagai terapi lini pertama untuk pasien DM tipe 2. Metformin dapat menurunkan kadar glukosa darah dengan bantuan transporter protein OCT1 yang dikode oleh gen SLC22A1. Polimorfisme gen SLC22A1 tergolong tinggi dan salah satunya adalah rs594709 yang menyebabkan perubahan 1 basa nitrogen dari guanin menjadi adenin (G>A). Penelitian ini bertujuan untuk menganalisis pengaruh variasi genetik SLC22A1 rs594709 terhadap kadar kolesterol total pada pasien DM tipe 2 dengan monoterapi metformin di Kabupaten Sleman. Penelitian ini menggunakan metode observasional analitik dengan pendekatan cross sectional yang melibatkan 60 subjek uji yang dipilih dari 10 puskesmas di Kabupaten Sleman, Yogyakarta. Data yang dikumpulkan meliputi karakteristik klinis dan variasi genetik SLC22A1 rs594709 berdasarkan hasil PCR-TARMS. Hasil identifikasi dianalisis dengan uji Chi-Square beserta nilai odds ratio untuk mengetahui hubungan variasi genetik terhadap kadar kolesterol total dengan nilai signifikansi $<0,05$. Analisis data menunjukkan frekuensi alel A sebesar 41,7% dan alel G sebesar 58,3%. Individu dengan genotipe GG berisiko 1,882 kali lebih tinggi mengalami peningkatan kadar kolesterol total dibandingkan individu dengan genotipe GA, namun hasil yang didapat tidak bermakna secara statistik (OR=1,882; CI95%=0,535-2,589; p-value=0,708). Variasi genetik SLC22A1 rs594709 tidak berhubungan signifikan secara statistik terhadap kadar kolesterol total pada pasien diabetes melitus tipe 2 dengan monoterapi metformin di Kabupaten Sleman.

Kata kunci: Diabetes Melitus Tipe 2, Metformin, SLC22A1, rs594709, Kolesterol Total



ABSTRACT

Metformin is a biguanide drug that is often used as a first-line therapy for type 2 diabetes mellitus patients. Metformin can lower blood glucose levels with the help of the OCT1 protein transporter encoded by the SLC22A1 gene. Polymorphism of the SLC22A1 gene itself is quite high and one of them is rs594709 which causes a change in 1 nitrogen base from guanine to adenine (G>A). This study aims to analyze the effect of genetic variation of SLC22A1 rs594709 on total cholesterol levels in type 2 diabetes mellitus patients with metformin monotherapy in Sleman Regency. This study used an observational analytical method with a cross-sectional approach involving 60 test subjects selected from 10 community health centers in Sleman Regency, Yogyakarta. Data collected included clinical characteristics and genetic variation of SLC22A1 rs594709 based on PCR-TARMS results. The identification results were analyzed using the Chi-Square test along with the odds ratio value to determine the relationship of genetic variations to Total Cholesterol levels with a significance value of <0.05 . Data analysis showed the frequency of the A allele was 41.7% and the G allele was 58.3%. Individuals with the GG genotype had a 1.882 times higher risk of experiencing increased total cholesterol levels compared to individuals with the GA genotype, but the results were not statistically significant (OR=1.882; 95% CI=0.535-2.589; p-value=0.708). The SLC22A1 rs594709 genetic variation was not statistically significantly associated with total cholesterol levels in type 2 diabetes mellitus patients with metformin monotherapy in Sleman Regency.

Keywords: Type 2 Diabetes Mellitus, Metformin, SLC22A1, rs594709, Total Cholesterol