TESIS

KORELASI ANTARA KADAR *PROPROTEIN CONVERTASE SUBTILISIN / KEXIN TYPE 9* DENGAN KOLESTEROL *LOW DENSITY LIPOPROTEIN* SERUM PADA PASIEN PENYAKIT GINJAL KRONIS

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ABSTRAK

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Pendahuluan: Pasien dengan Penyakit Ginjal Kronis (PGK) berisiko tinggi terjadinya dislipidemia. Dislipidemia, terutama karena kadar *Low Density Lipoprotein* (LDL) yang tinggi, dapat meningkatkan risiko stenosis arteri koronaria melalui pembentukan plak aterosklerosis sehingga terjadinya penyakit jantung koroner. Penyakit jantung koroner merupakan penyebab kematian utama di dunia. Salah satu hal yang berperan dalam tingginya kadar kolesterol LDL adalah *Proprotein Convertase Subtilisin/Kexin type 9* (PCSK9). PCSK9 merupakan protein asam amino 692 yang berperan dalam mendegradasi reseptor LDL.

Metode: Penelitian ini adalah suatu penelitian observasional analitik dengan pendekatan *cross-sectional* yang dilakukan di Departemen Penyakit Dalam RSUP Dr. M. Djamil Padang selama 6 bulan. Penelitian dilakukan pada 30 pasien PGK stadium 3-5 yang memenuhi kriteria inklusi dan eksklusi. Pada sampel dilakukan pemeriksaan kadar PCSK9 melalui pemeriksaan *Enzym Linked Immunosorbent Assay* dan kolesterol LDL serum. Dilakukan analisis statistik terhadap data yang telah ada.

Hasil: Pada penelitian ini didapatkan laki-laki lebih banyak dibandingkan perempuan, dengan rerata umur 50,03 (6,7) tahun. Rerata Indeks Massa Tubuh (IMT) pada penelitian 23,12 (5,1) kg/m^2. Rerata kolesterol total 169,3 (60,13) mg/dL, kolesterol HDL 29,03 (24,15) mg/dL, dan trigliserida 185,13 (82,4) mg/dL. Rerata laju filtrasi glomerulus (LFG) 9,55 (9,38) mL/menit/1,73^2 dengan LFG <15 mL/menit/1,73^2 (stadium 5) terbanyak, yaitu 25 (83,33%) pasien. Komorbiditas terbanyak, yaitu kombinasi komorbiditas DM tipe 2, hipertensi, dan anemia sebanyak 4 (13,33%) pasien. Median PCSK9 adalah 36,87 (12,08-94,45) ng/mL. Median kolesterol LDL adalah 94 (47-284) mg/dL, serta kadar kolesterol LDL <100 mg/dL lebih banyak dibandingkan ≥100 mg/dL, yaitu 17 (56,67%) pasien. Terdapat korelasi lemah antara kadar PCSK9 dan kolesterol LDL serum pada pasien PGK (r=0,098) dengan arah korelasi positif yang secara statistik tidak bermakna (p>0,05) dan r^2=0,011 yang artinya kadar PCSK9 memengaruhi kadar kolesterol LDL serum pada pasien PGK stadium 3-5 sebesar 1,1%.

Kesimpulan: Tidak terdapat korelasi yang bermakna antara kadar PCSK9 dengan kolesterol LDL serum pada pasien PGK stadium 3-5.

Kata kunci: PCSK9, LDL, PGK.

ABSTRACT

CORRELATION BETWEEN PROPROTEIN CONVERTASE SUBTILISIN / KEXIN TYPE 9 AND LOW DENSITY LIPOPROTEIN CHOLESTEROL SERUM LEVELS IN PATIENTS WITH CHRONIC KIDNEY DISEASE

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Introduction: Patients with Chronic Kidney Disease (CKD) are at high risk of developing dyslipidemia. Dyslipidemia, especially due to high levels of Low Density Lipoprotein (LDL), can increase the risk of coronary artery stenosis through the formation of atherosclerotic plaques resulting in coronary heart disease. Coronary heart disease is the main cause of death in the world. One of the things that play a role in high levels of LDL cholesterol is the Proprotein Convertase Subtilisin/Kexin type 9 (PCSK9). PCSK9 is a 692 amino acid protein that plays a role in degrading LDL receptors.

Methods: This study is an analytic observational study with a cross-sectional approach conducted at the Department of Internal Medicine at RSUP Dr. M. Djamil Padang for 6 months. The study was conducted on 30 patients with CKD stage 3-5 who met the inclusion and exclusion criteria. The samples were examined for PCSK9 levels by examining Enzym Linked Immunosorbent Assay (ELISA) and serum LDL cholesterol. Then a statistical analysis was carried out on the existing data.

Results: In this study, there were more men than women, with an mean age of 50.03 (6.7) years. The mean Body Mass Index (BMI) in the study was 23.12 (5.1) kg/m^2. The mean total cholesterol was 169.3 (60.13) mg/dL, HDL cholesterol was 29.03 (24.15) mg/dL, and triglycerides were 185.13 (82.4) mg/dL. The mean glomerular filtration rate (GFR) was 9.55 (9.38) mL/minute/1.732 with the highest GFR <15 mL/minute/1.732 (stage 5) 25 (83.33%) patients. Most of the comorbidities, namely the combination of type 2 DM comorbidities, hypertension, and anemia in 4 (13.33%) patients. The median PCSK9 was 36.87 (12.08-94.45) ng/mL. The median LDL cholesterol was 94 (47-284) mg/dL, and LDL cholesterol levels were <100 mg/dL more than ≥100 mg/dL, in 17 (56.67%) patients. There is a weak correlation between PCSK9 and LDL cholesterol serum levels in CKD patients (r=0.098) with a positive correlation which is not statistically significant (p>0.05) and r^2=0.011 which means that PCSK9 levels affect serum LDL cholesterol levels in CKD patients stage 3-5 of 1.1%.

Conclusion: There is no significant correlation between PCSK9 and LDL cholesterol serum levels in CKD stage 3-5 patients.

Keywords: PCSK9, LDL, CKD.