Analisis Malondialdehida serum dan hubungannya dengan estimasi laju Filtrasi Glomerulus (eLFG) pada pasien Diabetes Melitus tipe 2 = Analysis of serum Malondialdehyde and its correlation with estimated Glomerular Filtration Rate (eGFR) in type 2 Diabetes Mellitus patients

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Abstrak

Penyakit ginjal kronik (PGK) merupakan salah satu komplikasi serius yang sering terjadi pada pasien diabetes melitus tipe 2. Dibutuhkan sebuah penanda yang dapat mendeteksi PGK sejak awal untuk mencegah progresifitasnya. Penelitian ini bertujuan untuk menganalisis hubungan antara kadar malondialdehida (MDA) serum dengan estimasi laju filtrasi glomerulus (eLFG). MDA merupakan penanda stres oksidatif yang diprediksi berperan dalam tahap awal kerusakan ginjal.
Desain penelitian ini adalah potong lintang. Populasi yang digunakan adalah pasien DM tipe 2 rawat jalan di Puskesmas Pasar Minggu. Sampel yang dianalisis sejumlah 50 orang (14 laki-laki, dan 36 perempuan, rentang usia 39-74 tahun), diambil dengan tenik total sampling. Kadar MDA diukur secara spektrofotometri berdasarkan reaksi antara MDA dengan asam tiobarbiturat, dengan nilai koefisien korelasi (r) dari metode tersebut 0,9996 dan koefisien variasi (%KV) intra dan antar pengukuran berkisar 2,75-13,33%.
Nilai eLFG diukur berdasarkan metode kinetik Jaffe, dengan koefisien korelasi (r) 0,9994 dan %KV intra dan antar pengukuran berkisar 2,91 – 9,52%. Kadar MDA pasien DM tipe 2 diperoleh 0,82 ± 0,26 nmol/ml, dan nilai eLFG diperoleh 78,30 ± 26,77 (Cockroft-Gault); 76,08 ± 24,17 (MDRD study); dan 79,25 ± 21,04 (CKD-EPI). Terdapat hubungan yang bermakna antara kadar MDA dengan nilai eLFG berdasarkan persamaan Cockroft-Gault (p =0,039, r = -0,293), tetapi tidak terlihat hubungan yang bermakna dengan nilai eLFG berdasarkan persamaan MDRD study dan CKD-EPI (p = 0,051 dan p = 0,053; r = -0,277 dan r = -0,275).
<hr><i>Chronic kidney disease (CKD) is one of serious complication that most common in type 2 diabetes mellitus patients. It is important to find a marker that can detect it earlier to prevent its progression. The aim of this study was to analyze the correlation between malondialdehyde (MDA) concentration and estimated glomerular filtration rate (eGFR). MDA is an oxidative stress marker which was predicted allies in early stage of kidney damage.
The design of this study is cross sectional. The population was type 2 DM outpatients at Pasar Minggu Local Government Clinic. Total sampling method was used in sample selection. Samples being analyzed were as much as 50 patients (14 males, 36 females, age ranges : 39-74 years). MDA was measured by spectrophotometric based on its reaction with thiobarbituric acid. The coefficient correlation (r) of this method was 0.9996 and the coefficient of variation (%CV) within and between run were 2.75 - 13.33%. eGFR was measured based on kinetic Jaffe method. Its coefficient correlation (r) was 0.9994 and %CV within and between run were 2.91-9.52%. MDA concentration in type 2 DM patients in this research was 0.82 ± 0.26 nmol/mL and the eGFR values were 78.30 ± 26.77 (Cockroft-Gault); 76.08 ± 24.17 (MDRD study); and 79.25 ± 21.04 (CKD-EPI). There was a significant correlation between MDA concentration and eGFR based on Cockroft-Gault formula (p =0.039, r = -0.293), but there were no significant correlation between MDA concentration and eGFR based on MDRD study and CKD-EPI (p = 0.051 and p = 0.053; r =

-0.277 and r = -0.275).</i>