

Hubungan Asam Urat dengan Symmetric Dimethylarginine pada Pasien Penyakit Ginjal Kronik yang Menjalani Continuous Ambulatory Peritoneal Dialysis = The Association between Uric Acid and Symmetric Dimethylarginine Levels in Patients Undergoing Continuous Ambulatory Peritoneal Dialysis

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Abstrak

Latar Belakang: Kadar asam urat darah berhubungan dengan peningkatan risiko penyakit kardiovaskular (PKV) serta meningkatkan angka kematian terutama pada populasi hemodialisis (HD) dan dialisis peritoneal (CAPD). Symmetric Dimethylarginine (SDMA) sudah sering dipakai dan diperiksa sebagai penanda PKV pada studi epidemiologi terutama pada populasi HD maupun CAPD. Pada populasi umum dewasa sehat dan HD, telah didapatkan adanya hubungan peningkatan kadar asam urat darah dengan peningkatan kadar SDMA. Namun pada populasi CAPD, peningkatan kadar asam urat darah terhadap peningkatan risiko yang terjadi masih menjadi kontroversi.

Tujuan: Studi ini bertujuan untuk melihat hubungan antara kadar asam urat darah dengan kadar SDMA pada pasien penyakit ginjal kronik yang menjalani CAPD.

Metode: Penelitian dengan desain potong lintang yang dikerjakan pada bulan Juni 2021 sampai bulan Agustus 2021 pada pasien CAPD kronik > 3 bulan. Subjek dengan obat penurun asam urat, wanita hamil dan menyusui, dan pasien dengan riwayat keganasan tidak diikutsertakan pada penelitian ini. Kadar asam urat dan SDMA diambil saat pasien kontrol ke poli CAPD. Analisis bivariat dilakukan dengan analisis Mann – Whitney dan analisis multivariat dengan regresi logistik.

Hasil: Total 55 subjek diikutsertakan pada penelitian ini. Didapatkan rerata kadar asam urat 7.30 ± 1.59 mg/dl dan sebanyak 33 subjek (60%) dengan kadar asam urat > 7 mg/dl. Rerata kadar SDMA didapatkan sebesar 633.73 ± 231.54 ng/mL. Subjek dengan kadar asam urat > 7 mg/dl memiliki peningkatan kadar SDMA secara signifikan bila dibandingkan pada kelompok asam urat < 7 mg/dl (721.58 ± 220.57 vs 501.95 ± 182 ; $P < 0.001$). Didapatkan cut – off SDMA 536 ng/ml berdasarkan kurva ROC dengan Sensitivitas 81.8%, Spesifisitas 63.6%, PPV 77.78% dan NPV 73.68%. Setelah dilakukan adjustifikasi terhadap faktor perancu didapatkan bahwa DM (OR: 7.844; CI95%: 1.899 – 32.395; P value: 0.004) dan dyslipidemia (OR: 6.440; CI95%: 1.483 – 27.970; P value: 0.013) sebagai faktor risiko.

Simpulan: Terdapat hubungan kadar asam urat darah > 7 mg/dl dengan peningkatan kadar SDMA pada pasien yang menjalani CAPD. Diabetes melitus dan dyslipidemia merupakan faktor risiko yang berhubungan dengan peningkatan kadar asam urat dengan peningkatan kadar SDMA.

.....**Background and Objectives:** Uric Acid (UA) levels are associated with increased risk of cardiovascular events and mortality in hemodialysis (HD) and Continuous Ambulatory Peritoneal Dialysis (CAPD) patients. Symmetric dimethylarginine (SDMA) is a known marker of cardiovascular disease in a number of epidemiological studies, including in the HD and CAPD patient population. In a study with a population of healthy young adults and HD there was a correlation between high blood uric acid levels and blood SDMA level. However, in CAPD population, there are still conflicting data on the mechanism of increased risks related to uric acid levels. This study aimed to assess the association between uric acid levels and SDMA in

the subjects undergoing CAPD.

Materials and Methods: This was a cross – sectional study conducted in all the adults who underwent CAPD for at least three months in tertiary hospital in Jakarta, Indonesia. Subjects already on uric lowering therapy, pregnant or lactating women, and those with a history of malignancy were excluded. Uric acid and SDMA level were measured at the same time patients controlled to outpatient clinic. Bivariate analysis was performed using the Mann – Whitney test and multivariate analysis performed using logistic regression test.

Results: A total of 55 subjects were included. The median level of UA was 7.30 +1.59 mg/dl and 33 subjects (60%) had UA levels of 7 mg/dl or higher. The median SDMA level was 633.73 +231.54 ng/mL. Subjects with UA levels > 7 mg/dl had significantly higher SDMA levels compared to subjects with UA levels <7 mg/dl (721.58 +220.57 vs 501.95 +182; P < 0.001). The cut – off value of SDMA 536 ng/mL was obtained from the receiver operating characteristic (ROC) curve with sensitivity 81.8%, specificity 63.6%, PPV 77.78% and NPV 73.68%. After fully adjusted with the confounders, the determinant factors in this study were diabetes mellitus (OR: 7.844; CI95%: 1.899 – 32.395; P value: 0.004) and dyslipidemia (OR: 6.440; CI95%: 1.483 – 27.970; P value: 0.013) as risk factors.

Conclusion: In CAPD patients, UA levels above 7 mg/dl were associated with increased SDMA levels. This study demonstrates the determinant factors regarding association between UA level and SDMA in CAPD patients were diabetes mellitus and dyslipidemia. The cut – off value of SDMA above 536 ng/mL were significant to increased risk of cardiovascular events.