

Intisari

HUBUNGAN ANTARA RASIO NEUTROFIL LIMFOSIT (NLR) DENGAN MALNUTRITION INFLAMMATION SCORE (MIS) PADA PASIEN PENYAKIT GINJAL TAHAP AKHIR DALAM TERAPI DIALISIS PERITONEAL

Latar Belakang: Inflamasi kronis sangat umum terjadi pada pasien dengan penyakit ginjal kronik (PGK) dan berkaitan erat dengan prognosis yang buruk misalnya malnutrisi, kejadian kardiovaskuler dan kematian. Malnutrisi, terjadi pada 30-50% pasien yang menjalani dialisis peritoneal. Kondisi nutrisi yang buruk sangat berhubungan kuat dengan inflamasi pada pasien PGK. Inflamasi dan status nutrisi yang buruk merupakan hal yang sangat lazim terjadi dan saling berkaitan pada pasien penyakit ginjal tahap akhir (PGTA).

Tujuan: Mengetahui korelasi antara marka inflamasi Rasio Neutrofil Limfosit (NLR) dengan nutrisi yang dinilai dengan *Malnutrition Inflammation Score* (MIS) pada pasien PGTA yang menjalani dialisis peritoneal (DP).

Metode: Desain *cross sectional*. Populasi pasien PGTA yang sedang menjalani dialisis peritoneal di poli renal terpadu RSUP Dr. Sardjito Yogyakarta. Uji beda proporsi dianalisis dengan uji *Chi-Square* atau *Fisher exact test*. Perbedaan data numerik, dianalisis dengan *Independent T-test* atau Mann Whitney. Korelasi antara NLR dengan MIS dianalisis dengan menggunakan korelasi Spearman. *Multiple linier regression* digunakan untuk menganalisa variabel bebas dan variabel luar terhadap MIS.

Hasil: Jumlah subyek 48, laki-laki 29 (60%), perempuan 19 (40%). Rerata usia $38,19 \pm 10,62$ tahun, indeks massa tubuh (IMT) $23,06 \pm 3,84$ kg/m², lama dialisis 61 ± 37 bulan, NLR $4,09 \pm 2,13$, *Total Iron Binding Capacity* (TIBC) $242,48 \pm 50,45$ µg/dL, albumin $3,62 \pm 0,45$ g/dL, MIS $7,06 \pm 3,03$. Terdapat korelasi positif yang bermakna antara NLR dengan IMT ($r=0,468$; $p=0,001$) dan antara NLR dengan *Blood Urea Nitrogen* (BUN) ($r=0,304$; $p=0,036$). Terdapat perbedaan bermakna IMT antara kelompok nutrisi baik dibandingkan dengan kelompok nutrisi kurang ($p<0,001$). Tidak terdapat korelasi positif antara NLR dengan MIS ($r=-0,304$; $p=0,036$) pada pasien PGTA yang menjalani DP. Koefisien regresi NLR ($-0,394$), CHF ($-3,024$), TIBC ($-0,021$), albumin ($-0,044$).

Simpulan: Tidak terdapat korelasi positif antara NLR dengan MIS pada pasien penyakit ginjal tahap akhir yang menjalani terapi dialisis peritoneal.

Kata kunci: Rasio neutrofil limfosit, *Malnutrition Inflammation Score*, peritoneal dialisis.

Abstract

RELATIONSHIP BETWEEN NEUTROPHIL TO LYMPHOCYTES RATIO (NLR) AND MALNUTRITION INFLAMMATION SCORE (MIS) IN PATIENTS WITH END-STAGE RENAL DISEASE IN PERITONEAL DIALYSIS THERAPY

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Background: Chronic inflammation is prevalent in patients with chronic kidney disease (CKD), and it is correlated to poor outcomes like malnutrition, cardiovascular events, and death. Thirty to fifty percent of peritoneal dialysis patients suffer from malnutrition. In CKD patients, poor nutritional status is closely correlated to inflammation. Inflammation and poor nutritional status are very frequent and are often associated in patients with end-stage renal disease (ESRD). This study aimed to evaluate whether there was a relationship between inflammatory markers such Neutrophil Lymphocyte Ratio (NLR) and nutrition in ESRD patients on peritoneal dialysis (PD), as measured by the Malnutrition Inflammation Score (MIS)

Method: Patients ESRD who were having peritoneal dialysis at the integrated renal polyclinic RSUP Dr. Sardjito in Yogyakarta were included in the study. The proportional differences were evaluated using the Chi-Square test or Fisher exact test. Independent T-test or Mann Whitney were used to assess the numerical data. Spearman correlation was used to examine the relationship between NLR and MIS. The independent and external variables on MIS were analyzed using multiple linear regression.

Results: The total number of participants was 48, with 29 men (60%) and 19 women (40%) with a mean age of $38,19 \pm 10,62$ years, BMI of $23,06 \pm 3,84$ kg/m², mean dialysis duration of 61 ± 37 months, NLR of $4,09 \pm 2,13$, Total Iron Binding Capacity (TIBC) of $242,48 \pm 50,45$ g/dL, albumin of $3,62 \pm 0,45$ g/dL, MIS of $7,06 \pm 3,03$. There are a significant positive correlation between NLR and BMI ($r=0,468$; $p=0,001$), as well as NLR and Blood Urea Nitrogen (BUN) ($r=0,304$; $p=0,036$). There was a significant difference in BMI between the well-nourished and the poor-nourished groups ($p<0.001$). There is no positive correlation between NLR and MIS ($r= -0.304$; $p=0.036$). Regression coefficients of NLR, CHF, TIBC, and albumin were -0.394, -3.224, -0.021, and -0.044, respectively.

Conclusion: There is no positive correlation between NLR and MIS in end-stage renal disease patients undergoing peritoneal dialysis therapy.

Keywords: Neutrophil lymphocyte ratio, Malnutrition Inflammation Score, peritoneal dialysis.

