

KORELASI RASIO NEUTROFIL LIMFOSIT DENGAN BEBERAPA PARAMETER ELEKTRODIAGNOSTIK PADA NEUROPATI PERIFER DIABETIK

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Abstrak

Neuropati perifer diabetik (NPD) adalah komplikasi Diabetes Mellitus (DM) paling sering yang meningkatkan morbiditas dan mortalitas penderita DM. Beberapa penelitian terbaru menunjukkan proses inflamasi sistemik berperan penting pada patogenesis NPD. Karenanya diperlukan pemeriksaan indikator inflamasi sistemik yang mewakili proses inflamasi pada NPD dalam pertimbangan terapi. Rasio neutrofil limfosit (RNL) diketahui dapat menjadi biomarker inflamasi sistemik pada DM dan komplikasinya. Namun belum ada penelitian tentang korelasi RNL dengan beberapa parameter elektrofisiologi pada NPD.

Penelitian ini merupakan penelitian *cross sectional* menggunakan data sekunder pasien NPD di RSUP Dr. Sardjito Yogyakarta. Korelasi antara RNL, variabel demografi dan laboratorium dengan latensi distal, amplitudo dan kecepatan hantar saraf (KHS) diuji dengan korelasi Pearson/Spearman dan dilanjutkan uji regresi linier.

Didapatkan 97 pasien NPD dengan rerata RNL $3,35 \pm 2,37\%$, rerata latensi distal motorik tibialis $37,04 \pm 8,35$ ms, rerata amplitudo motorik tibialis $8,83 \pm 4,49$ uV, dan rerata KHS motorik tibialis $48,43 \pm 7,28$ m/s. Hasil uji korelasi bivariat yang signifikan adalah korelasi RNL dengan amplitudo motorik medianus ($r = -0,208$; $p = 0,041$), latensi distal motorik tibialis ($r = 0,229$; $p = 0,024$), amplitudo motorik tibialis ($r = -0,214$; $p = 0,035$), KHS motorik tibialis ($r = -0,329$; $p = 0,001$), latensi sensorik medianus ($r = 0,228$; $p = 0,025$), dan amplitudo sensorik medianus ($r = -0,226$; $p = 0,026$). Pada uji multivariat, RNL secara signifikan berkorelasi independen dengan latensi distal motorik tibialis ($r = 0,568$; $p = 0,000$), amplitudo motorik tibialis ($r = -0,486$; $p = 0,000$), dan KHS motorik tibialis ($r = -0,25$; $p = 0,012$).

Kesimpulan penelitian ini, RNL secara independen berkorelasi positif dengan latensi distal dan berkorelasi negatif dengan amplitudo dan KHS.

Kata kunci: RNL, neuropati perifer diabetik, elektrofisiologi

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CORRELATION OF NEUTROPHYL LYMPHOCYTE RATIO AND SEVERAL ELECTRODIAGNOSTIC PARAMETERS OF DIABETIC PERIPHERAL NEUROPATHY

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Abstract

Diabetic peripheral neuropathy (DPN) is the most common complication of Diabetes Mellitus (DM) which increases the morbidity and mortality of DM patients. Several recent studies have shown that the systemic inflammatory process plays an important role in the pathogenesis of DPN. Therefore, an examination of biomarker which represents the inflammatory process in DPN is needed in an attempt to consider therapy. The neutrophil lymphocyte ratio (NLR) is known to be a biomarker of systemic inflammation in DM and its complications. However, there is no research on the correlation of NLR with some electrodiagnostic parameters in DPN.

This study was a cross sectional study using secondary data on DPN patients at Sardjito Hospital, Yogyakarta. Correlation between NLR, demographic and laboratory variables with distal latency, amplitude and nerve conduction velocity (NCV) were tested by Pearson/Spearman correlation test and followed by linear regression test.

There were 97 DPN patients with a mean NLR $3.35 \pm 2.37\%$, mean tibial motoric distal latency 37.04 ± 8.35 ms, mean tibial motoric amplitude 8.83 ± 4.49 uV, and mean tibial motoric NCV 48.43 ± 7.28 m/s. Significant bivariate correlation test results were correlation of NLR with median motoric amplitude ($r = -0.208$; $p = 0.041$), tibial motoric distal latency ($r = 0.229$; $p = 0.024$), tibial motoric amplitude ($r = -0.214$; $p = 0.035$), Tibial motoric NCV ($r = -0.329$; $p = 0.001$), median sensory latency ($r = 0.228$; $p = 0.025$), and median sensory amplitude ($r = -0.226$; $p = 0.026$). In the multivariate test, NLR was independently correlated with tibial motoric distal latency ($r = 0.568$; $p = 0.000$), tibial motoric amplitude ($r = -0.448$; $p = 0.000$), and tibial motoric NCV ($r = -0.25$; $p = 0.012$).

Conclusion of this study is that RNL is positively correlated with distal latency and negatively correlated with amplitude and NCV.

Keyword: NLR, diabetic peripheral neuropathy, electrodiagnostik

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