

ABSTRACT

PROGNOSTIC VALUE OF COMBINATION OF HEMOGLOBIN, LYMPHOCYTE, ALBUMIN, AND NEUTROPHIL IN PREDICTING OVERALL SURVIVAL IN PATIENTS WITH METASTATIC COLORECTAL CANCER AT RSUP DR. SARDJITO YOGYAKARTA

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Background: Colorectal cancer (CRC) is a major public health issue in Indonesia, including in Daerah Istimewa Yogyakarta (DIY). Most of CRC patient will develop recurrence or metastasis. Accumulated evidence supports that systemic inflammatory response and nutritional status have important role in progression and development of metastatic colorectal cancer (m-CRC). Combination of several hematological indexes, which include systemic and nutritional status, is predicted has a significant prognostic value for m-CRC. Therefore, prognostic value of the combination of hemoglobin, lymphocyte, albumin, and neutrophil (HLAN) in patients with m-CRC can be investigated.

Objective: To evaluate prognostic value of HLAN in predicting *Overall Survival* (OS) in patients with m-CRC at RSUP Dr. Sardjito.

Method: A retrospective analysis is performed in secondary data of 85 patients with m-CRC. Secondary data was obtained from prospective cohort research that had conducted in RSUP Dr. Sardjito. The value of HLAN is defined as Hemoglobin (g/L) x Lymphocyte (/L) x Albumin (g/L) / Neutrophil (/L) / 100. Cut-off point HLAN is determined using ROC curve. Kaplan-Meier and log rank test was used to investigate patient survival with different HLAN score, so the role of this parameter can be evaluated. Prognostic value of HLAN for OS was evaluated using *Cox Regression*.

Results: The cut-off point of HLAN was set at 7,23. Compared with the high-HLAN group, the low-HLAN group had a 4,37 fold increased risk of death (CI 95% 0,065 – 0,809; p=0,037) and a significantly lower OS rate (P=0,027).

Conclusion: HLAN is prognostic factor for patients with m-CRC.

INTISARI

NILAI PROGNOSTIK KOMBINASI HEMOGLOBIN, LIMFOSIT, ALBUMIN, NEUTROFIL (HLAN) DALAM MENENTUKAN OVERALL SURVIVAL (OS) PADA PASIEN KANKER KOLOREKTAL METASTASIS DI RSUP DR. SARDJITO YOGYAKARTA

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Latar Belakang: Kanker Kolorektal (KKR) merupakan masalah kesehatan dengan angka kejadian dan angka kematian tinggi di Indonesia, termasuk Yogyakarta. Sebagian besar KKR berangsur-angsur menjadi metastasis. Beberapa bukti sebelumnya menunjukkan bahwa status nutrisi dan respon inflamasi sistemik berkaitan erat dengan perkembangan dan progresivitas KKR metastasis. Berdasarkan hal tersebut, parameter HLAN (Hemoglobin, Albumin, Limfosit, dan Neutrofil) dapat diteliti nilai prognostiknya terhadap KKR metastasis.

Tujuan: Untuk mengetahui nilai prognostik HLAN dalam memprediksi Overall Survival (OS) pasien KKR metastasis di RSUP Dr. Sardjito Yogyakarta.

Metode: Analisis retrospektif dilakukan terhadap 85 data sekunder pasien KKR metastasis yang diperoleh dari suatu panel data penelitian kohort prospektif di RSUP Dr Sardjito. Nilai HLAN didefinisikan sebagai $\text{Hemoglobin (g/L)} \times \text{Limfosit (/L)} \times \text{Albumin (g/L)} / \text{Neutrofil (/L)} / 100$. *Cut-off point* HLAN ditentukan menggunakan kurva ROC. Analisis *Chi-square* digunakan untuk menilai perbedaan proporsi antara kelompok HLAN rendah dengan HLAN tinggi di setiap karakteristik dasar subjek, sementara uji Mann Withney digunakan untuk menilai perbedaan median HLAN. Kaplan-Meier dan uji log rank digunakan untuk melihat angka ketahanan hidup penderita dengan skor HLAN yang berbeda, sehingga peran prognostik parameter ini dapat dinilai. Nilai prognostik HLAN terhadap OS kemudian dianalisis menggunakan *Cox Regression*.

Hasil: Ditetapkan *cut-off point* HLAN senilai 7,23. Dibanding kelompok HLAN tinggi, HLAN rendah dapat meningkatkan 4,37 kali risiko kematian (interval kepercayaan 95% CI 95% 0,065 – 0,809; $p=0,037$) dan memiliki OS yang signifikan lebih rendah ($p=0,022$).

Kesimpulan: HLAN merupakan faktor prognosis OS pasien KKR metastasis.