

ABSTRAK

PERBANDINGAN *CARCINOEMBRYONIC ANTIGEN* (CEA) DAN RASIO NEUTROFIL-LIMFOSIT (NLR) TERHADAP *GRADING* HISTOPATOLOGI PADA PASIEN KANKER KOLOREKTAL DI RSUP DR. SARDJITO

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Latar Belakang: Insidensi kanker kolorektal berada di urutan keempat sebesar 12.4% dengan persentase mortalitas 6.7% di Indonesia. Tingkat keparahan kanker kolorektal dapat dilihat dari *grading* histopatologi. Kanker kolorektal dengan *grading* histopatologi yang buruk berasosiasi dengan kemungkinan kematian yang tinggi atau prognosis yang buruk. Selain itu, biomarker kanker kolorektal seperti kadar Carcinoembryonic Antigen (CEA) dalam serum dapat digunakan untuk memperkirakan keparahan kanker meskipun cukup mahal dan tidak selalu ada di fasilitas kesehatan. Oleh sebab itu, biomarker inflamasi sistemik lain melalui pemeriksaan darah rutin seperti rasio Neutrophil-Lymphocyte (NLR) diharapkan dapat dikembangkan dalam memprediksi keparahan kanker kolorektal melalui *grading* histopatologi.

Tujuan: Untuk mengetahui perbandingan CEA dan rasio NLR terhadap *grading* histopatologi pasien kanker kolorektal di RSUP Dr. Sardjito.

Metode: Penelitian ini menggunakan desain *cross-sectional* dan metode konsekutif dalam pengambilan subyek. Data didapatkan dari *Clinical Registry* Kanker Kolorektal di RSUP Dr. Sardjito yang memuat nilai CEA pre-operatif, NLR pre-operatif dan *grading* histopatologi pasien kanker kolorektal tanpa keganasan lain periode 2016-2019. Nilai CEA dan NLR pre-operatif dianalisis batasnya dengan kurva ROC. Selanjutnya data dianalisis dengan uji *chi-square* untuk mengetahui hubungan CEA, NLR pre-operatif, dan faktor lain dengan *grading* histopatologi, serta analisis multivariat dengan regresi logistik untuk mengetahui faktor manakah yang paling berpengaruh terhadap *grading* histopatologi.

Hasil: Dari 233 subjek penelitian, pasien mayoritas berusia >50 tahun dan ditemukan tumor di sebelah kiri. Mayoritas subjek memiliki tumor dengan *well-* dan *moderate-differentiated*. CEA pre-operatif menunjukkan hubungan yang tidak signifikan dengan *grading* histopatologi pada nilai batas 11.2ng/mL ($p>0.05$). Sedangkan NLR pre-operatif menunjukkan hubungan yang signifikan dengan *grading* histopatologi pada nilai batas 4.91 ($p=0.008$). Faktor lain seperti usia juga menunjukkan hubungan yang signifikan dengan *grading* histopatologi ($p=0.009$). Meskipun NLR pre-operatif menunjukkan hubungan yang lebih bermakna terhadap *grading* histopatologi dibandingkan dengan usia (OR=2.9). Namun NLR pre-operatif menunjukkan nilai sensitivitas yang cukup rendah yakni sebesar 41.6%.

Kesimpulan: Hubungan NLR pre-operatif dibandingkan dengan CEA pre-operatif terhadap *grading* histopatologi lebih kuat atau bermakna secara statistik dari hasil analisis bivariat.

Kata Kunci: *Carcinoembryonic Antigen* (CEA); Rasio Neutrofil-Limfosit (NLR); Pre-operatif; *Grading* histopatologi.

COMPARISON OF *CARCINOEMBRYONIC ANTIGEN* (CEA) AND NEUTROPHIL-LIMPHOCYTE RATIO (NLR) TO HISTOPATHOLOGICAL GRADING OF COLORECTAL CANCER PATIENTS AT RSUP DR. SARDJITO

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Background: The incidence of colorectal cancer is in fourth place at 12.4% with a mortality percentage of 6.7% in Indonesia. The severity of colorectal cancer can be seen from the histopathological grading. Colorectal cancer with a poor histopathological grading is associated with a high probability of death or a poor prognosis. In addition, colorectal cancer biomarkers such as serum Carcinoembryonic Antigen (CEA) levels can be used to estimate cancer severity, although they are quite expensive and not always available in health facilities. Therefore, other systemic inflammatory biomarkers through routine blood tests such as the Neutrophil-Lymphocyte ratio (NLR) are expected to be developed in predicting the severity of colorectal cancer through histopathological grading.

Objective: To compare the CEA and NLR ratio to the histopathological grading of colorectal cancer patients at Dr. RSUP. Sardjito.

Methods: This study used a cross-sectional design and a consecutive method in sampling subjects. The data were obtained from the Colorectal Cancer Clinical Registry at RSUP Dr. Sardjito which contains pre-operative CEA values, pre-operative NLR and histopathological grading of colorectal cancer patients without other malignancies for the period 2016-2019. Preoperative CEA and NLR values were analyzed for limits using the ROC curve. Furthermore, the data were analyzed by chi-square test to determine the relationship between CEA, pre-operative NLR, and other factors with histopathological grading, as well as multivariate analysis with logistic regression to determine which factors had the most influence on histopathological grading.

Results: From the 233 study subjects, the majority of patients were >50 years old and found a tumor on the left. The majority of subjects had well- and moderately-differentiated tumors. Pre-operative CEA showed no significant association with histopathological grading at the cut-off value of 11.2ng/mL ($p > 0.05$). While the pre-operative NLR showed a significant association with histopathological grading at the limit value of 4.91 ($p = 0.008$). Other factors such as age also showed a significant association with histopathological grading ($p = 0.009$). Although pre-operative NLR showed more significant association with histopathological grading compared to age (OR=2.9). However, the pre-operative NLR showed a fairly low sensitivity value of 41.6%.

Conclusion: The association between preoperative NLR compared to preoperative CEA on histopathological grading was stronger or more statistically significant based on the results of bivariate analysis.

Keywords: Carcinoembryonic Antigen (CEA); Neutrophil-Lymphocyte Ratio (NLR); Pre-operative; Histopathological grading.