



HUBUNGAN PROGNOSTIC NUTRITIONAL INDEX (PNI) DENGAN KESINTASAN PASIEN GLIOMA

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INTISARI

Latar Belakang: Glioma adalah tumor sistem saraf pusat primer yang berasal dari sel progenitor glial dan tumor otak paling banyak dengan angka kejadian 60,9%. Insidensi glioma mengalami peningkatan signifikan. Kesintasan glioma dipengaruhi oleh beberapa hal, salah satunya adalah nutrisi. Penapisan nutrisi pasien glioma dapat menggunakan PNI. Skor PNI dihitung berdasarkan kadar albumin serum dan jumlah limfosit, yang menggambarkan status nutrisi dan imunitas. Namun, peran PNI terhadap kesintasan glioma di Indonesia belum banyak diteliti.

Tujuan: Penelitian ini bertujuan untuk mengetahui hubungan PNI dengan kesintasan pasien glioma.

Metode: Penelitian ini merupakan studi kohort retrospektif. Sebanyak 98 pasien didapat dari *Cancer Registry Form* (CRF) onkologi periode Januari 2022-Januari 2025. PNI dihitung dengan rumus $10 \times$ serum albumin (g/dL) + $0,005 \times$ total lymphocyte count (per mm³) kemudian ditentukan nilai *cut off* dengan kurva *Receiver Operating Characteristic* (ROC). Analisis kesintasan menggunakan Kaplan-Meier dan uji log rank. Analisis multivariat dilakukan dengan regresi Cox untuk menentukan faktor prognostik independen terhadap kesintasan.

Hasil: *Cut off* optimal PNI pada penelitian membagi PNI menjadi 2 yaitu PNI rendah (<38,2) dan PNI tinggi ($\geq 38,2$). Analisis multivariat dengan regresi Cox, didapatkan PNI dan jenis kelamin merupakan faktor prognostik independen terhadap kesintasan glioma setelah dikontrol dengan variabel lain. Pasien dengan jenis kelamin laki-laki memiliki kesintasan lebih baik dibanding perempuan (HR 0,51; 95% CI 0,28-0,92; $p = 0,024$). Pasien dengan PNI rendah memiliki peluang kematian 2,53x lebih besar dibanding pasien dengan PNI tinggi (HR 2,53; 95% CI 1,33 – 4,83, $p=0,005$).

Simpulan: Pasien dengan PNI rendah (<38,2) berhubungan dengan kesintasan buruk pada pasien glioma.

Kata Kunci: PNI, kesintasan, glioma

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ASSOCIATION BETWEEN PROGNOSTIC NUTRITIONAL INDEX (PNI) AND OVERALL SURVIVAL IN GLIOMA PATIENTS

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ABSTRACT

Background: Glioma is a primary central nervous system tumor arising from glial progenitor cells and represents the most common type of brain tumor, accounting for approximately 60.9% of cases. The incidence of glioma continues to increase, and patient survival is influenced by multiple factors, including nutritional status. The Prognostic Nutritional Index (PNI), calculated from serum albumin levels and total lymphocyte count, reflects both nutritional and immune status. However, evidence regarding the role of PNI in glioma survival in Indonesia remains limited.

Objective: To evaluate the association between the Prognostic Nutritional Index (PNI) and survival in patients with glioma.

Methods: This retrospective cohort study included 98 patients with glioma obtained from the oncology Cancer Registry Form (CRF) between January 2022 and January 2025. PNI was calculated using the formula: $10 \times \text{serum albumin (g/dL)} + 0.005 \times \text{total lymphocyte count (per mm}^3\text{)}$. The optimal cut-off value was determined using receiver operating characteristic (ROC) curve analysis. Survival analysis was performed using the Kaplan–Meier method and log-rank test. Multivariate analysis was conducted using Cox proportional hazards regression to identify independent prognostic factors for survival.

Results: The optimal PNI cut-off value was 38.2, categorizing patients into low PNI (<38.2) and high PNI (≥ 38.2) groups. Multivariate Cox regression analysis demonstrated that PNI and sex were independent prognostic factors for survival. Male patients showed better survival compared with female patients (HR 0.51; 95% CI 0.28–0.92; $p=0.024$). Patients with low PNI had a 2.53-fold higher risk of mortality than those with high PNI (HR 2.53; 95% CI 1.33–4.83; $p=0.005$).

Conclusion: Low Prognostic Nutritional Index (<38.2) is associated with poorer survival in patients with glioma.

Keywords: PNI, survival, glioma

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