

# Asam amino serum pada pasien kanker paru dengan kaheksia dan hubungannya dengan status nutrisi, sitokin pro dan anti-inflamasi = Serum amino acid in lung cancer cachexia patients and its relation with nutritional status, pro and anti-inflammatory cytokines

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## Abstrak

### **ABSTRAK**

Pasien kanker umumnya mengalami penurunan berat badan terkait kaheksia. Patofisiologi kaheksia kanker multifaktorial, termasuk efek sitokin pro inflamasi dan inflamasi sistemik. Profil asam amino plasma pada pasien kanker mengalami perubahan. Depleksi protein dapat terjadi akibat asupan yang menurun atau efek langsung dari tumor. Penelitian ini bertujuan untuk mengetahui profil dan hubungan antara asam amino serum, status nutrisi dan sitokin-sitokin pro-anti inflamasi, serta sel T helper 17 pada pasien kaheksia kanker paru. Penelitian potong lintang dengan consecutive sampling pada pasien kanker paru dengan kaheksia ini mengambil subjek berusia lebih dari 18 tahun dan belum diterapi atau sudah selesai terapi lebih dari 2 bulan di Rumah Sakit Kanker Dharmais. Analisis asupan dilakukan dengan food frequency questionnaire semikuantitatif dan 24-hours food recall. Pemeriksaan asam amino serum dengan metode spektrofotometri, Sel T helper-17 dengan metode flowcytometry, dan C-reactive protein dengan metode latex agglutination, serta kadar IL 17, IL 6 dan TNF- $\alpha$ ; dengan metode ELISA. Data yg didapat kemudian di analisis dengan uji T atau Mann Whitney untuk melihat hubungan dan untuk menganalisis hubungan dalam tabel digunakan uji Chi-Square atau Fischer Exact, sedangkan untuk korelasi digunakan uji Pearson atau Spearman. Asam amino triptofan, asparagin, glutamin, valin, lisin dan sistein berkorelasi positif dengan sitokin anti-inflamasi dan status nutrisi, sebaliknya negatif dengan sitokin pro inflamasi. Asam amino fenilalanin, treonin, dan glutamat berkorelasi positif dengan sitokin pro-inflamasi dan berkorelasi negatif dengan status nutrisi dan sitokin anti inflamasi. Khusus aspartat, selain berkorelasi positif dengan sitokin pro inflamasi, juga berkorelasi positif dengan indeks massa tubuh, tetapi menunjukkan korelasi negatif dengan penurunan berat badan. Beberapa asam amino serum terbukti berhubungan dengan status sitokin dan status nutrisi pada subjek kanker paru dengan kaheksia, sehingga perlu menjadi perhatian dalam terapi nutrisi pasien kanker

Kata kunci: asam amino serum, status nutrisi, sitokin, kaheksia kanker

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Cancer patients generally experience weight loss associated with cancer cachexia. The pathophysiology of cancer cachexia is multifactorial, including the effects of pro inflammatory cytokines and systemic inflammation.. The plasma amino acid profile was found to significantly undergo changes in cancer patients. Protein depletion can occur due to decreased intake or direct effects of tumors on protein metabolism. This study aimed to determine the profile and relationship between serum amino acids, nutritional status and pro-anti-inflammatory cytokines, and T helper 17 cells in lung cancer cachexia patients. This cross-sectional study with consecutive sampling in lung cancer patients with cachexia took subjects over the age of 18 years and who had not been treated or who had finished therapy for more than 2 months at the Dharmais Cancer

Hospital. Dietary intake analyses were carried out with semiquantitative food frequency questionnaire and 24-hour food recalls. Blood tests were carried out in the form of serum amino acids, cytokines, C-reactive protein and T helper 17 cells. Data obtained were then analyzed by the T or Mann Whitney test to see the relationship and to analyze relationships in the table used chi-square or Fischer Exact, while for correlation used Pearson or Spearman test. The amino acids tryptophan, asparagine, glutamine, valine, lysine and cysteine were positively correlated with anti-inflammatory cytokines and nutritional status, and negatively correlated with pro-inflammatory cytokines. Phenylalanine, threonine and glutamate amino acids were positively correlated with pro-inflammatory cytokines and negatively correlated with nutritional status and anti-inflammatory cytokines. Aspartate showed a positive correlation pro inflammatory cytokines and body mass index, but a negative correlation with weight loss. Some serum amino acids have been shown to be related to cytokines and nutritional status in lung cancer cachexia patients, so it should be a concern in nutritional therapy for cancer patients