

ABSTRAK

KECUKUPAN ENERGI PROTEIN SEBAGAI PREDIKTOR PERUBAHAN KADAR INFLAMASI PADA PASIEN DI *INTENSIVE CARE UNIT* (ICU) NON ISOLASI RSUP DR KARIADI

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Latar belakang: Pasien kritis di *Intensive Care Unit* (ICU) berisiko tinggi mengalami malnutrisi dan inflamasi sistemik. C-reactive protein (CRP) merupakan biomarker inflamasi yang banyak digunakan untuk mendeteksi sepsis, memantau respons terapi, serta memprediksi prognosis. Penurunan kadar CRP ≥ 20 –50% pada fase awal terapi berhubungan dengan perbaikan klinis dan peningkatan survival, sedangkan kadar tinggi persisten atau non-respons berkaitan dengan mortalitas. Kecukupan asupan energi-protein berperan dalam modulasi respon inflamasi sehingga CRP dapat menjadi indikator efektivitas intervensi nutrisi. Penelitian ini bertujuan menilai apakah kecukupan energi-protein menurunkan risiko inflamasi serta mengidentifikasi faktor yang memengaruhi kadar CRP pada pasien kritis.

Metode penelitian: Studi kohort prospektif dilakukan di ICU RSUP Dr. Kariadi Semarang. Subjek adalah pasien kritis yang memenuhi kriteria inklusi dan eksklusi. Variabel yang diteliti meliputi usia, komorbid, indeks massa tubuh (IMT), jenis kelamin, dan trombosit. Kadar CRP diukur pada hari ke-1 dan ke-7. Analisis data menggunakan uji bivariat dan multivariat, dengan $p < 0,05$ dianggap bermakna.

Hasil penelitian: Sebanyak 84 pasien diikutsertakan. Pasien dengan asupan energi protein adekuat menunjukkan penurunan CRP signifikan ($p=0,044$; RR 4,06; CI 95% 1,01–25,17). Peluang penurunan CRP bermakna 4,06 kali lebih tinggi pada kelompok adekuat. Hanya faktor kecukupan energi-protein yang berpengaruh signifikan terhadap penurunan inflamasi ($p=0,043$; OR 12,73). Faktor lain seperti usia, IMT, jenis kelamin, komorbid, tindakan pembedahan, dan trombosit tidak bermakna.

Simpulan: Kecukupan energi dan protein merupakan prediktor perubahan kadar inflamasi pada pasien ICU.

Kata kunci: kecukupan energi-protein, *C-reactive protein*, *intensive care unit*

ABSTRACT

PROTEIN-ENERGY ADEQUACY AS A PREDICTOR OF INFLAMMATORY MARKER CHANGES IN PATIENTS ADMITTED TO THE NON-ISOLATION INTENSIVE CARE UNIT (ICU) OF DR.KARIADI GENERAL HOSPITAL

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Background: Critically ill patients in the Intensive Care Unit (ICU) are highly susceptible to malnutrition and systemic inflammation. C-reactive protein (CRP) is a widely used biomarker for detecting sepsis, monitoring treatment response, and predicting prognosis. Early CRP reduction of ≥ 20 –50% correlates with improved survival, whereas persistently high levels are linked to mortality. Adequate protein–energy intake may modulate inflammatory responses, positioning CRP as a potential indicator of nutritional intervention effectiveness. This study examined whether protein–energy adequacy reduces inflammatory risk and identified factors influencing CRP in critically ill patients.

Methods: A prospective cohort study was conducted in the non-isolation ICU of Dr. Kariadi General Hospital, Semarang, from May to August 2024. Subjects were critically ill adults meeting inclusion and exclusion criteria. Variables included age, comorbidities, body mass index (BMI), sex, surgical intervention, and platelet count. CRP levels were measured on day 1 and day 7. Data were analyzed with bivariate and multivariate tests; $p < 0.05$ was considered significant.

Results: Eighty-four patients were enrolled. Adequate protein–energy intake was significantly associated with CRP reduction compared with inadequate intake ($p = 0.044$; RR 4.06; 95% CI 1.01–25.17). Protein–energy adequacy as an independent predictor of reduced inflammation ($p = 0.043$; OR 12.73). Age, BMI, sex, comorbidities, surgery, and platelet count were not significant.

Conclusion:

Keywords: protein–energy adequacy, C-reactive protein, intensive care unit