Korelasi Asupan Protein terhadap Perubahan Imbang Nitrogen Pasien Sakit Kritis Late Acute Phase di Rumah Sakit Universitas Indonesia = Correlation of Protein Intake with Nitrogen Balance Changes in Late Acute Phase Critically Ill Patients at University of Indonesia Hospital

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Abstrak

Sakit kritis merupakan suatu kondisi terjadinya gangguan fungsi multiorgan yang menyebabkan homeostasis tubuh tidak dapat dipertahankan tanpa adanya intervensi medis di unit perawatan intensif. Proses hiperkatabolik akibat stres metabolik pada pasien sakit kritis terutama di fase akut sangat tinggi sehingga menyebabkan degradasi protein. Tingkat degradasi ini dapat dilihat salah satunya dengan pemeriksaan kehilangan nitrogen melalui urin 24 jam. Asupan energi dan protein berperan penting dalam memelihara proses metabolisme yang terjadi. Asupan yang tidak adekuat diiringi kehilangan protein yang tinggi akan menghasilkan nilai imbang nitrogen yang negatif. Tujuan penelitian ini untuk melihat korelasi asupan protein selama fase akut terhadap perubahan imbang nitrogen yang dinilai pada hari ke-3 dan ke-7 perawatan. Metode penelitian ini menggunakan desain potong lintang yang dilakukan di Intensive Care Unit Rumah Sakit Universitas Indonesia (ICU RSUI) dengan pengambilan sampel secara consecutive sampling. Kriteria penerimaan adalah berusia 18-60 tahun, mendapatkan asupan protein pertama dalam 48 jam, dan bersedia mengikuti penelitian. Kriteria penolakan adalah produksi urin <0.5 ml/kgBB/jam, gangguan fungsi ginjal dan hati kronis, IMT <18.5 atau 30 kg/m², skor APACHE II>30, hamil, dan mendapat norepinefrin >0.3 mcg. Kriteria pengeluaran adalah mendapatkan rerata asupan protein hari ke-3 hingga ke-7 <0.5gr/kgBB/hari, dan meninggal sebelum hari ke-7. Pemeriksaan kadar nitrogen urea urin 24 jam dan perhitungan imbang nitrogen dinilai pada hari ke-3 dan ke-7 perawatan. Hasil penelitian menunjukkan rerata asupan protein dan energi pada 21 subyek adalah 0.8 gr/kgBB/hari dan 78% dari EE pada hari ke-3, lalu rerata asupan pada hari ke-7 adalah 1.1 gr/kgBB/hari dan 110% dari EE. Rerata kadar NUU dan imbang nitrogen hari ke-3 adalah 8.1 gr dan -5.3 gr. Rerata kadar NUU dan imbang nitrogen hari ke-7 adalah 7.2 gr dan -1.5 gr. Rerata perubahan imbang nitrogen bernilai positif yaitu 3.8 gr. Terdapat korelasi positif antara asupan energi maupun protein terhadap imbang nitrogen hari ke-3 (r=0.5, p=0.01; r=0.6, p=0.003). Walaupun terdapat perbaikan imbang nitrogen yang signifikan pada subyek penelitian namun tidak didapatkan korelasi bermakna antara asupan protein terhadap perubahan imbang nitrogen (p=0.1). Kesimpulan penelitian ini adalah asupan energi dan protein berkorelasi positif dengan imbang nitrogen pada early acute phase. Asupan protein pada late acute phase tidak berhubungan dengan perubahan imbang nitrogen pada penelitian ini

.....Critical illness is a condition where multiorgan dysfunction occurs which causes body homeostasis that cannot be maintained without medical intervention in the intensive care unit. The hypercatabolic process due to metabolic stress in critically ill patients, especially in the acute phase, is very high, causing protein degradation. This level of degradation can be evaluated by examining nitrogen loss through 24-hour urine. Energy and protein intake plays an important role in maintaining the metabolic processes. Inadequate intake accompanied by high protein losses will result in negative nitrogen balance values. The aim of this study was to analyze the correlation of protein intake during the acute phase with nitrogen balance changes on

days 3 and 7 of treatment. The method of this study was cross-sectional with consecutive sampling, conducted in the Intensive Care Unit of the University of Indonesia Hospital (ICU RSUI). Inclusion criteria were 18-60 years old, getting their first protein intake within 48 hours, and willing to take part in the research. Exclusion criteria were urine output <0.5 ml/kgBW/hour, chronic kidney and liver function disorders, BMI <18.5 or 30 kg/m2, APACHE II score>30, pregnancy, and receiving norepinephrine >0.3 mcg. Drop out criteria were patients having an average protein intake on days 3 to 7 <0.5 gr/kgBW/day, or dying before the 7th day. Examination of 24-hour urine urea nitrogen (UUN) levels and calculation of nitrogen balance were assessed on days 3 and 7 of treatment. The results of the study showed that the mean of protein and energy intake in the 21 subjects was 0.8 gr/kgBW/day and 78% of EE on day 3, then the mean intake on day 7 was 1.1 gr/kgBW/day and 110% of EE. The mean ââof UUN levels and nitrogen balance on day 3 were 8.1 gr and -5.3 gr. The mean of UUN levels and nitrogen balance on day 7 were 7.2 gr and -1.5 gr. Mean of nitrogen balance changes was positive, namely 3.8 gr. There was a positive correlation between energy and protein intake with nitrogen balance on day 3 (r=0.5, p=0.01; r=0.6, p=0.003). Although there was a significant improvement in nitrogen balance in the research subjects, there was no significant correlation between protein intake with nitrogen balance changes (p=0.1). The conclusion of this study is that energy and protein intake were positively correlated with nitrogen balance in the early acute phase. Protein intake in the late acute phase was not associated with nitrogen balance changes in this study.