

Pengaruh intervensi nutrisi tinggi protein selama 3 hari dan peran polimorfisme gen tumor necrosis factor (TNF)-@ terhadap prognosis sepsis dengan pediatric logistic organ dysfunction pelod score = The effect of high protein nutrients intervention in 3 days and role of gene tumor necrosis factor (TNF) genes tumor genes against prognosis sepsis with pediatric logistic organ dysfunction pelod score

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Abstrak

Anak sakit kritis terutama sepsis mengalami degradasi protein yang tinggi, yang memperburuk luaran bila masukan nutrisi tidak adekuat. Kiraan jumlah kebutuhan protein yang ada saat ini ternyata dalam praktiknya kurang dari 90 memenuhi target kebutuhan. Di lain sisi, variasi genetik individu juga memengaruhi luaran. Polimorfisme gen TNF α -308 berhubungan dengan luaran yang buruk berbagai penyakit infeksi dan inflamasi, walaupun hasil yang diperoleh berbeda-beda. Penelitian ini bertujuan mengetahui hubungan nutrisi tinggi protein terhadap prognosis pasien sepsis skor PELOD, lama rawat dan lama pemakaian ventilator, serta menganalisis peran pelbagai faktor yang berperan terhadap skor PELOD, termasuk polimorfisme gen TNF α -308. Penelitian ini merupakan uji klinis randomisasi pada 80 anak sepsis di 4 rumah sakit. Intervensi diberikan asam amino parenteral, yaitu Aminosteril infant 6 untuk usia < 1 tahun dan Aminofusin pediatric 5 untuk usia ge; 1 tahun. Kelompok eksperimental diberikan asam amino 4 g/KgBB/hari, sedangkan kelompok kontrol menerima 2 g/KgBB/hari selama tiga hari, kemudian dilakukan pencatatan skor PELOD pada hari ke-1,2 dan 3, lama hari rawat dan lama pemakaian ventilator. Dilakukan pemeriksaan keseimbangan nitrogen selama tiga hari, pemeriksaan kadar prealbumin hari ke-1 dan ke-3, pemeriksaan kadar TNF- α dan IL-10. Pemeriksaan polimorfisme dengan metode PCR polymerase chain reaction ndash; RFLP restriction fragment length polymorphism. Pada kelompok kontrol, diperoleh rerata skor PELOD pada hari ke-1 20,5 10,6, hari ke-2 19,8 13,8 dan hari ke-3 19,8 15,4; median lama rawat 7 hari 3 ndash;19 dan median lama pemakaian ventilator 5 hari 1 ndash;14. Pada kelompok eksperimental, diperoleh rerata skor PELOD berturut-turut 22,4 10,8; 20,5 13,9; 18,8 14,5; median lama rawat 7 hari 4 ndash;27 dan median lama pemakaian ventilator 4 hari 1 ndash;27. Tidak ditemukan perbedaan bermakna skor PELOD, lama rawat dan lama pemakaian ventilator antara 2 kelompok. Diperoleh perbedaan bermakna secara statistik pada keseimbangan nitrogen baik hari ke-1,2, dan 3 p = 0,003; p = 0,016; p = 0,046. Dari 80 subjek, 6 subjek 7,5 dengan polimorfisme gen TNF α -308 G/A atau heterozigot dan tidak ditemukan homozigot. Tidak ditemukan peran usia, jenis kelamin, status gizi, pemberian nutrisi tinggi protein dan polimorfisme gen TNF α -308 terhadap skor PELOD. Kata kunci: polimorfisme gen TNF α -308, protein tinggi, sepsis

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Critically ill children, particularly with sepsis, have high protein degradation which worsens outcome if nutritional intake are inadequate. Currently, the estimated protein requirement is less than 90 target requirement. In addition, individual genetic variation also affects the outcome of these population. Tumor necrosis factor TNF 308 gene polymorphism is associated with poorer outcome of several infectious disease and inflammation, although the results are conflicting. This study aimed to determine the association

between high protein nutrition intervention with prognosis of sepsis which is measured by PELOD score, length of stay, and duration of mechanical ventilation use. We also analyze the role of TNF 308 gene polymorphism which contribute to PELOD score. This was a randomized clinical trial in 80 children with sepsis in four hospitals. The interventions were parenteral amino acid, which includes Aminosteril infant 6 for subjects aged below one year and Aminofusin pediatric 5 for subjects aged above one year. Subjects in the experimental group were provided with amino acid 4 g KgBW day while those in the control group were provided with amino acid 2 g KgBW day for three consecutive days. PELOD scores in day 1, 2, 3, length of stay, and duration of mechanical ventilation use, were recorded. Nitrogen balance was measured for three days and prealbumin levels were measured in day 1 and 3. TNF and IL 10 levels were also measured. Polymorphism was measured using polymerase chain reaction PCR ndash restriction fragment length polymorphism RFLP .In the control group, the mean PELOD score on day 1, 2, 3 were 20.5 10.6 , 19.8 13.8 , and 19.8 15.4 , respectively. Median length of stay was 7 3 ndash 19 days and median duration of mechanical ventilation was 5 1 ndash 14 days. In the experimental group, obtained mean PELOD score was 22.4 10.8 20.5 13.9 18.8 14.5 consecutively median length of stay was 7 days 4 ndash 27 and median duration of ventilator use was 4 days 1 ndash 27 . There was no significant difference in PELOD score, length of stay, and duration of mechanical ventilation use between both groups. There was a significant difference in nitrogen balance on day 1, 2, and 3 p 0.003, p 0.016, and p 0.046, respectively . Of the 80 subjects, 6 7.5 subjects with TNF 308 G A gene polymorphism or heterozygotes, and no homozygote was found. Age, gender, nutritional status, provision of high protein nutrients, and TNF 308 gene polymorphism have no significant role in PELOD score. Keywords high protein, sepsis, TNF 308 gene polymorphism.