The role of 6, 12, and 24 hour lactate clearance in the mortality of severe sepsis and septic shock patients = The role of 6, 12, and 24 hour lactate clearance in the mortality of severe sepsis and septic shock patients

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Abstrak

Latar Belakang: Laktat merupakan penanda pada sepsis untuk stratifikasi risiko, target resusitasi, dan prediktor kematian. Interpretasi bersihan laktat dinilai lebih baik dibanding laktat tunggal untuk menilai kecukupan resusitasi dan menentukan prognosis. Studi ini dimaksudkan untuk mengetahui apakah pada pasien sepsis berat dan syok sepsis ada beda rerata bersihan laktat 6, 12, dan 24 jam antara yang mengalami mortalitas fase akut dengan yang tidak, serta mencari titik potongnya.
Metode: Disain studi adalah kohort prospektif. Subyek dikumpulkan dengan metode konsekutif dari Unit Gawat Darurat, Ruang Rawat Inap, dan Unit Perawatan Intensif Rumah Sakit Cipto Mangunkusumo. Pemeriksaan laktat dilakukan pada jam ke-0, 6, 12, dan 24, kemudian subyek diikuti untuk diketahui kematian 3 harinya.
Hasil: Terinklusi 81 subyek pada studi ini, 80 subyek diikuti sampai jam ke-12, dan 72 subyek diikuti sampai jam ke-24. Dua puluh lima subyek meninggal dalam 3 hari (31%). Beda median hanya didapatkan pada bersihan laktat 24 jam (median -17,0% vs. 15,2% pada yang meninggal dan hidup; p 0,034). Titik potong bersihan laktat 24 jam terbaik adalah -6,0% (AUC 0,744, sensitivitas 62,5% dan spesifisitas 87,5%, nilai duga positif 58,8% dan nilai duga negatif 89,1%, risiko relatif 5,39). Dalam analisis multivariat, APACHE II bermakna sebagai perancu.
Simpulan: Median bersihan laktat 24 jam lebih rendah pada pasien sepsis berat dan syok sepsis yang mengalami mortalitas fase akut. Titik potong dari bersihan laktat tersebut adalah -6,0%.
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Background: Lactate is one of biomarkers in sepsis, used for risk stratification, resuscitation target, and death prediction. Interpretation of lactate clearance was proven to be better than single lactate measurement to evaluate resuscitation adequacy and to determine prognosis. This study was aimed to find out if in severe sepsis and septic shock patients there are mean differences of 6, 12, and 24 hour lactate clearance between patients with and without acute phase mortality, and also to find its cut off.
Methods: Study design was prospective cohort. Subjects were collected by consecutive sampling from Emergency Department, hospital ward, and Intensive Care Unit of Cipto Mangunkusumo Hospital. Lactate levels were measured on 6, 12, and 24 hour, then subjects were followed to evaluate their 3-day mortality.
Results: Eighty one subjects were incuded in this study, 80 subjects were followed until 12 hours, and 72 subjects were followed until 24 hours. Twenty five subjects were died within 3 days (31%). Only 24-hour lactate clearance had median difference (median -17.0% vs. 15.2% in mortal and survive group; p 0.034). The best cut off for 24 hour lactate clearance was -6.0% (AUC 0.744, sensitivity 62.5% and specificity 87.5%, positive predictive value 58.8% and negative predicitive value 89.1%, relative risk 5.39). In multivariate analysis, APACHE II was proven to be a confounder.
Conclusions: Median of 24-hour lactate clearance was lower in severe sepsis and septic shock patients who

were died within three days. Its cut off was -6.0%.