

Status alaktatemia dan hiperlaktatemia sebagai penentu keberhasilan terapi pada renjatan anak: kajian pada aktivitas isoenzim laktat dehidrogenase-1 dan 5 serta kaitannya dengan hantaran oksigen = Alactatemia and hyperlactatemia state as a goal of therapy in pediatric shock study of isoenzyme lactate dehydrogenase 1 and 5 activities related to delivery oxygen do2

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Abstrak

Renjatan merupakan kegawat-daruratan tersering pada anak. Laktat sering digunakan sebagai target keberhasilan resusitasi pada renjatan sepsis, namun sepertiga kasus renjatan pada anak tidak mengalami peningkatan kadar laktat alaktatemia. Penilaian laktat sebagai target keberhasilan resusitasi masih menjadi perdebatan. Penelitian sebelumnya menyimpulkan nilai bersihan laktat berkaitan dengan luaran pasien renjatan sepsis. Laktat dehidrogenase LDH -1, LDH-5 dan delivery oxygen DO2 berperan dalam metabolisme laktat dan menyebabkan kondisi alaktatemia dan hiperlaktatemia pada pasien renjatan anak. Penelitian ini bertujuan untuk mencari etiologi alaktatemia pada renjatan anak melalui pemeriksaan isoenzim LDH-1, LDH-5 dan DO2 selama proses resusitasi 6 jam. Penelitian ini adalah penelitian potong lintang pada 56 renjatan sepsis dan 44 hipovolemik berusia 1 bulan sampai 18 tahun di 4 rumah sakit umum. Pemeriksaan tekanan darah mean arterial pressure/ MAP, indeks jantung cardiac index, CI dan indeks tahanan vaskular sistemik systemic vascular resistance index, SVRI, DO2 dan pengambilan darah untuk pemeriksaan LDH-1 dan 5 dilakukan sebelum dan setelah resusitasi.

Pada penelitian ini didapatkan usia terbanyak berada dalam rentang 1 ndash;59 bulan 56, dengan pasien yang datang dengan kondisi berat skor pediatric logistic organ dysfunction/PELOD-2 ge; 10 31, median kadar laktat jam ke-0 adalah 2,5 mmol/L. Angka kematian 20. Proporsi hiperlaktatemia lebih tinggi secara bermakna $p = 0,028$ pada pasien renjatan dengan skor PELOD-2 ge; 10 71,9. Tidak ada perbedaan bermakna isoenzim LDH-1, LDH-5 dan DO2 antara kelompok alaktatemia dan hiperlaktatemia. Tidak ada perbedaan bermakna MAP, CI, SVRI antar kelompok alaktatemia dan hiperlaktatemia. Tidak ada perbedaan bermakna luaran pasien berdasarkan nilai bersihan laktat.

Simpulan: Pasien yang mengalami alaktatemia tidak terbukti aktivitas LDH-1 meningkat sedangkan pada hiperlaktatemia aktivitas LDH-5 meningkat. Kadar DO2 lebih tinggi pada kelompok alaktatemia dan lebih rendah pada hiperlaktatemia.

Shock is the most common emergency condition in pediatric patients. Lactate levels have been used widely as resuscitation target in septic condition. Meanwhile, one third cases did not showed elevated lactate levels alactatemia. Lactate levels as a target for successful resuscitation is still being considered. Previous studies concluded lactate clearance has correlated with the septic shock patients outcome. Lactate dehydrogenase LDH 1, LDH 5 and delivery oxygen DO2 have an important role in lactate metabolism and causing alactatemia and hyperlactatemia in pediatric shock.

The objectives of this study were to determine the alactatemia etiology in pediatric shock using isoenzyme LDH 1, LDH 5 and DO2 examination during 6 hours resuscitation. This was a cross sectional study done in 56 patients with septic shock and 44 patients with hypovolemia, within aged 1 month until 18 years old in 4

general hospitals. Mean arterial pressure MAP , cardiac index CI , and systemic vascular resistance index SVRI , DO₂, LDH 1 and LDH 5 were done before and after resuscitation.

This study found the most common age is in average 1 ndash 59 months 56 , proportion of patients who came with severe condition pediatric logistic organ dysfunction PELOD 2 score ge 10 was 31 , median of lactate levels in 0 hours was 2.5 mmol L. Death rate was 20 . Hyperlactatemia proportion was higher significantly p 0.028 in shock patients with PELOD 2 score ge 10 71.9. There was no differences in MAP, CI, SVRI values between alactatemia and hyperlactatemia groups. There was no differences in outcome based on lactate clearance.

Conclusion Patients with alactatemia do not prove that their LDH 1 activity is increased while in hyperlactatemia, the activity of LDH 5 is increased. DO₂ levels were higher in the alactatemia group and lower in hyperlactatemia group.</i>