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LETTER TO THE EDITOR OPEN ACCESS

Lactic Acidosis with Broad-Anion Gap

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Dear Editor,

Lactic acidosis is a life-threating metabolic acidosis with a broad-anion gap. In this study we aimed to present a case of broad-anion gap lactic acidosis and delirium.

A 36-year-old male admitted to emergency with impaired consciousness and agitations. Blood pressure was 90/60 mmHg, heart rate was 115 beats per minute and sinus tachycardia rhythm was observed in the electrocardiography (ECG) examination. Clinical examination revealed a confused patient who has a moderate clinical condition and Glasgow Coma Scale score of 9 in admission.

Medical history revealed that the patient had tree epileptic seizures during last three-year period and has been medicated with anti-epileptics (levatiracetam 750 mg, 2x1 and carbamazepine 400 mg, 2x1). According to statement of parents there was no past medical history included diabetic mellitus, hypertension and any addiction of alcohol and medication. He was given intravenous diazepam 10 mg, midazolame 5 mg, haloperidol 5 mg and chlorpromazine 5 mg for sedation but agitations had not been controlled. Therefore, continuous infusion of propofol administered and intubation was performed.

Initial laboratory investigation results included a serum glucose level of 186 mg/dL; pH: 6.9; HCO_3: 6.5mEq/L; PCO_2: 33.4 mmHg; PO_2, 104.6 mmHg; Lactate:24.66mmol/L; WBC:21,76 x10^3 /uL; NEUT, 13,09 x10^3/µL and serum CRP level of 31.1 mg/L. Calculated anion gap was 32 mmol/L. Other serum chemistry and hematological results were within normal limits and showed in Table-1.

Patient was diagnosed with broad-anion gap lactic acidosis. Intravenous fluid (SF, 0.9%) and bicarbonate therapy (5 flacon within 100 cc dextrose, 5%) were started immediately and the patient was transported to the intensive care unit for monitoring. During hospitalization,

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proper fluid and bicarbonate treatment was continued. Consecutive blood gas analyses results were also shown in Table-1. No significant abnormalities were seen in cranial computerized tomography (CT) but the signs of lobar pneumonia were observed in chest radiography. Patient was considered to be lactic acidosis seconder to pneumonia. The patient was discharged after being treated with proper antibiotherapy for three days.

Table 1. Blood gas analaysis and other laboratory results

Time	pH	$Pa0_2$ (mmHg)	$PaCO_2$ (mmHg)	HCO_3 (mEq/L)	SO_2 (%)	Lactate (mmol/L)
Initial	6,9	104,6	33,4	6,5	93,3	24,66
2. hour	7,26	98,3	41,5	18,2	96,6	7,34
2. day	7,38	215,2	33,4,	22,4	98,7	0,97

Lactic acidosis is a life-threatening metabolic acidosis and can be improved by appropriate medical treatment. It is generally defined as a serum lactate concentration above 4 mmol/L.

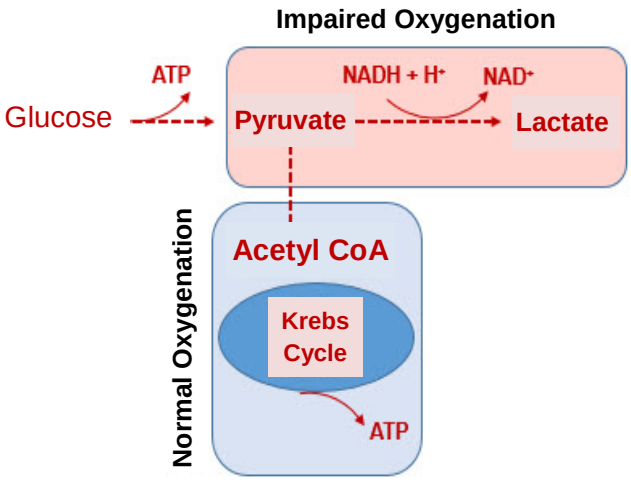

Figure-1. Glucose metabolism in different stage of oxygenation

It is associated with increased anaerobic metabolism due to several condition such as decreased blood flow, drugs, toxins and septic shock. Impaired tissue oxygenation and decreased lactate clearance primarily by the liver can lead to increased lactate levels (Figure 1). Arterial blood gas analysis is very important to evaluate a patient's lactate levels and oxygenation. Early diagnosis of these patients would help to prevent morbidity and mortality.

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