

Hemoperfusion removes negative alactic base excess in sepsis



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Introduction

Hemoperfusion (HPF) involves the passage of blood (or plasma) through an adsorption cartridge which removes solutes by binding them. Gattinoni et al. have described a new parameter: the “alactic base excess” (ABE). This variable is obtained by applying the following equation: $ABE \text{ mmol/L} = \text{standard base excess (SBE) mmol/L} + \text{lactate mmol/L}$, being standard base excess $\text{mmol/L} = [\text{bicarbonate mmol/L} - 24.8 \text{ mmol/L}] + 16.2 \text{ mmol/L} \times (\text{pH} - 7.4)$. A negative ABE value reflects acid retention, which is associated with an increased mortality in septic patients. In the present study, we decided to evaluate if HPF could remove negative ABE value in septic patients. .

Material & Methods

Basal values of ABE, SBE and lactate (mean, SD) were obtained. The difference between these parameters values before and after 4 HPF (HA330) sessions (delta value) was evaluated. Student and Wilcoxon tests were applied for data analyses.

Results

From 32 patients (age: 57 ± 13 , male 69%) suffering from respiratory insufficiency secondary to COVID-19 (RIC) who were treated with HPF (HA330) in the critical care unit of Clínica de la Mujer, Bogotá (Colombia), 6 presented metabolic acidosis ($\text{pH}: 7.37 \pm 0.1$, $\text{pCO}_2: 36 \pm 14 \text{ mmHg}$, bicarbonate: $20.5 \pm 3 \text{ mmol/L}$) with negative ABE value (-2.7 ± 1) composed by negative SBE (-4.7 ± 1) and high lactate serum value ($2 \pm 0.7 \text{ mmol/L}$). Delta ABE, SBE and lactate were: 7.7 ($p: 0.005$), 6.1 ($p: 0.003$) and 1.6 ($p: \text{NS}$), respectively. Thus, negative ABE was significantly removed by HPF, without lactate change.

Conclusion

HPF significantly removed negative alactic base excess in sepsis.