

Severe metabolic acidosis on CWHD or CVHDF with Citrate Anticoagulation in critically ill patients with COVID-19 : A case-series

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Objective:

During the first pandemic wave, we observed severe metabolic acidosis in COVID-19 patients receiving continuous hemodialysis (CVHD) and hemodiafiltration (CVHDF) with citrate anticoagulation.

Hypothesis:

hypoperfused patients facing a reduced metabolic and hepatic activity are unable to metabolize the citrate, worsening their acidosis.

Method:

- retrospective observational study;
- 11th of March - 26th of April 2020;
- 10 COVID-19 ICU patients;
- 28 CRRT treatments overall

2 groups of analysis:

- 1) Hypotensive (MAP<70 mmHg);
- 2) Non-Hypotensive (MAP>70 mmHg).

Results:

- 9 (50%) hypotensive patients corrected their acidotic status;
- 7 (70%) normotensive patients were able to improve their pH.

The number of patients and treatments is too low to calculate p-value.

- 18 patients (64%) were hypotensive;
- 10 (36%) were normotensive.

In hypotensive patients, mean pre-CRRT pH value was 7,31 ($\pm 0,07$) with BE mean value -3,4 ($\pm 2,7$);

in non-hypotensive group the pre-CRRT mean pH value was 7,33 ($\pm 0,01$) with BE mean value -2,67 ($\pm 4,7$).

Conclusion:

- in COVID19 patients, the impairment of organ perfusion might reduce the ability of the liver to metabolise citrate, worsening metabolic acidosis;
- the use of CRRT with lactate-buffered fluids can lead to further increase in lactate levels;
- why this happens with stronger evidence during dialysis has to be investigated.

