

COMBINED EXTRACORPOREAL BLOOD PURIFICATION IN A PATIENT WITH SEVERE COVID-19 AND SEPTIC SHOCK

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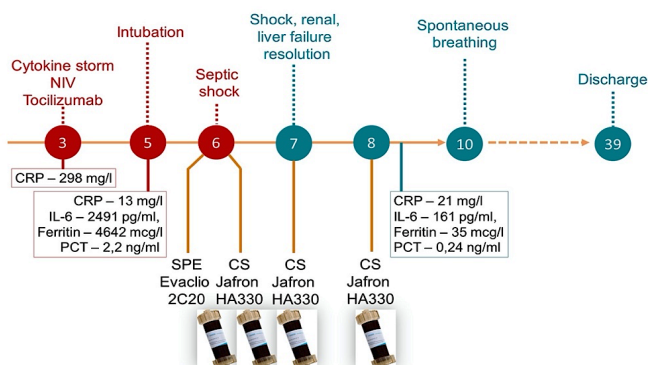
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Background:

The effective lowering of proinflammatory cytokines' concentration by cytokine sorption (CS) and selective plasma exchange (SPE) was demonstrated in sepsis¹. Taking into account the different mechanism of cytokine hyperproduction in COVID-19 compared to sepsis, EBP may have additional benefits and even improve outcomes. A combination of CS and SPE in patients with severe COVID-19 may be more effective than each method when used separately. Our experience of successful treating severe COVID-19 with cytokine storm, complicated by sepsis and septic shock is demonstrated in this case.

Method/Case Presentation:

A 69-year-old lady admitted with COVID-19 and deteriorated on day 3 of hospital stay. Cytokine storm with respiratory and circulatory failure was diagnosed with CRP level of 298 mg/l and COVID-19 pneumonia with 90% lung tissue involvement on CT. She was transferred to an ICU where NIV, infusion therapy and tocilizumab were started. After 2 days she was intubated because of the respiratory failure progression and cerebral dysfunction. Septic shock was diagnosed soon with PCT level of 2.2 ng/ml, hypercytokinemia with IL-6 of 2491 pg/ml, ferritin of 4642 mcg/l and acute renal, liver and circulatory failure. SPE with Evaclio 2C20 was followed by three consecutive CS's with two Jafron HA330 cartridges attached simultaneously during the first procedure and one cartridge for the each next session. There were circulatory, renal and liver failure resolution, complete **weaning from vasopressors** after the first CS procedure. She was switched to spontaneous breathing in 2 days after the last CS and **decrease of IL-6 level** to 161 pg/ml, ferritin of 35 mcg/l, **PCT of 0.24 ng/ml** was seen. She was rehabilitated and discharged on day 39 of hospital stay.



Conclusion:

CS in combination with SPE can be effective in treating patients with severe COVID-19, complicated by bacterial co-infection with sepsis and septic shock.

References:

1) Putzu A et al. Blood Purification and Mortality in Sepsis and Septic Shock: A Systematic Review and Meta-analysis of Randomized Trials. *Anesthesiology*. 2019;131(3):580-593.

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