

CRRT IMPACT ON OUTCOMES OF PATIENTS TREATED WITH ECMO AND FLUID OVERLOAD: A CASE REPORT.

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Object : ECMO is an extracorporeal circulation used as a short-term life-saving support in patients with refractory cardiac and respiratory failure. Fluid overload (FO) in patient with this support, sometimes due to the onset of AKI, is associated with an increased morbidity and mortality rate and with prolonged duration of mechanical ventilation and ECMO. Maintaining a negative fluid balance is an essential goal to improve gas exchanges in patients with respiratory failure who have undergone ECMO support. Diuretic therapy at the maximal dosage can be insufficient to reach a negative water balance and it can also lead to metabolic disorders. Initiating RRT may help to obtain this goal.

Methods: A 32-years-old man, without any comorbidity, was admitted to the intensive care unite (ICU) with severe acute respiratory distress syndrome (ARDS) due to SARS Cov-2 infection and refractory hypoxemia. After intubation and mechanical ventilation, he was treated with VV-ECMO. In order to maintain a negative fluid balance, diuretic therapy at maximum dosage was started. Despite this therapy, the patient continued to show fluid overload clinical and radiological signs, with a little improvement in gas exchanges. For that reason and in order to avoid metabolic alterations due to the diuretic therapy, it was decided to start CVVHF treatment. Thus, the patient was submitted to 3 sessions of CVVHF with a total ultrafiltration of 12 liters. He never lost spontaneous diuresis (his hourly diuresis was about of 150 ml). Diuretic therapy was restarted at the end of CRRT sessions.

Results: There was an improvement in patient's gas exchanges already during the first treatment which led to the stop of ECMO after 14 days, FGF (fresh gas flow) has been progressively decreased to the oxygenator. At the same time lung ventilation has been increased to maintain adequate CO₂ clearance. The patient remained stable at a FGF of 0 L/min for a period of 24 hours, so only mechanical ventilation was left. A negative fluid balance has let a significant patient's clinical conditions improvement to permit VV-ECMO weaning.

Conclusions: Fluid overload removal is an essential goal to improve gas exchanges and, so, outcomes in patients treated with ECMO and its duration can improve. This goal requires continuous renal replacement therapy (CRRT) because of hemodynamic instability.

However, the approach combining CRRT and ECMO is facilitated by several ways to link the different circuits without the necessity of positioning a bilumen CVC and, also, using the same anticoagulation regimen.



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