



One-year single-center experience of Extracorporeal Blood Purification Therapies in critically ill patients: selection criteria, timing and predictors of outcome.



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Introduction

Septic shock is one of the leading causes of mortality in critically ill patients and is often associated with multiorgan dysfunction. Extracorporeal blood purification therapies (EBPT), such as Continuous Renal Replacement Therapy (CRRT) combined with CytoSorb®, enable the removal of cytokines, bilirubin, myoglobin, and toxins, with potential clinical benefits.

This single-center study describes the use of CytoSorb® in critically ill patients with septic shock (predominantly), acute liver failure, rhabdomyolysis, and various intoxications, analyzing timing of initiation, patient selection criteria, and clinical impact, with the aim of optimizing EBPT use in intensive care.

Methods

A retrospective analysis was conducted on 38 patients treated in 2024 with hemoadsorption using CytoSorb® combined with CRRT. In patients with septic shock, inclusion criteria were AKI stage KDIGO 2–3, norepinephrine requirement >0.5 mcg/kg/min, lactate >2 mmol/L, and SOFA score >8, with therapy initiated within 48 hours from the start of resuscitation.

In cases of rhabdomyolysis, acute liver failure, or intoxications, treatment was started early after diagnosis. In selected cases, oXiris® filters were also used.

Results

Patients' distribution was as follows: 31 with septic shock, 3 with acute liver failure, 2 with rhabdomyolysis, and 2 with intoxications. Overall mortality was 43%, mainly among septic patients with inadequate or delayed source control. Survivors were generally younger (58 vs. 70 years) and had significantly lower SAPS II and CCI scores.

In survivors, treatment was initiated earlier (13.7 h vs. 18 h, $p < 0.05$), with shorter vasopressor duration and lower lactate levels. No deaths occurred among patients with rhabdomyolysis or acute liver failure.

Conclusion

Hemoadsorption with CytoSorb® appears to be a promising therapeutic option in critically ill patients, especially when initiated early in the course of multiorgan dysfunction.

The benefit is more evident in clinical contexts with high toxic burden, such as rhabdomyolysis, acute liver failure, or severe intoxications. In septic shock, timely infection source control remains essential, but extracorporeal support may facilitate hemodynamic stabilization and reversal of shock.