

Successful Treatment with CytoSorb in two patients with Septic Shock: a single centre experience.

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Background

Septic shock, a life-threatening organ dysfunction caused by a dysregulated host response to infection, is a lethal condition that causes mortality among critically ill patients. The excessive release of inflammatory mediators typically occurs in septic shock and cytokine reduction by hemadsorption represents a strategy for blood purification, developed to attenuate the overwhelming systemic levels of inflammatory mediators. The CytoSorb whole blood adsorber is a device largely used in clinical situations in which inflammatory markers are elevated. In these case series, we evaluated the impact of CytoSorb, used as adjunctive therapy, on hemodynamic and clinical conditions in two patients with septic shock in need of renal replacement therapy.

Methods

Case 1. A 75-years-old woman, with an history of recurrent cystitis, was admitted to our ICU with septic shock, resulted from a Urinary Tract Infection. At the arrival, mechanical ventilation and antibiotic (Zerbaxa and Gentamicin) and vasopressor therapy were immediately started. Later, the decision was made to install CytoSorb adsorber into the CRRT circuit (Prismaflex, Baxter) to control the progressive shooting of the inflammatory response within 24h from septic shock diagnosis. The patient received two consecutive CytoSorb treatments: they lasted respectively 8h and 11h, because of early coagulation of the extracorporeal circuit. During the treatment, we observed progressive hemodynamic and metabolic stabilization, as a result of increasing control in cytokines storm. There was a reduction in norepinephrine dosage (from $>> 0.2$ to $0.15 \mu\text{g}/\text{kg}/\text{min}$), a marked decrease of PCT (from 51.1 to 12.9 ng/ml), PCR (from 43.8 to 30 mg/dl), lactate levels (3.74 to 1.79 mmol/l) and an improvement in renal function, supported by CRRT also. After CytoSorb therapy, we performed two Toraymyxin treatments (2hours-long each one, for 2 consecutive days).

Case 2. Here is the case of a female patient aged 79-years, who was admitted to our ICU with septic shock due to infected cellulitis on the left leg (Fournier's gangrene). CytoSorb adsorber was installed into the CRRT circuit (Prismaflex, Baxter) within 24h from septic shock diagnosis. We performed two consecutive CytoSorb treatments, 24hours-long both, and we continued drug therapy with tigecycline, daptomycin, levofloxacin and norepinephrine. During CytoSorb treatment we observed hemodynamic and metabolic stabilization, associated with an important decrease in PCT (from 87.5 to 12.1 ng/dl) and PCR (from 46.45 to 30.71 mg/dl) concentrations and an improvement in renal function (creatinine values from 2.9 to 0.83 mg/dl).

Discussion

In this work, two patients with septic shock from different causes were effectively treated within 24h since the diagnosis and achieved hemodynamic and metabolic stabilization. In our opinion, the use of CytoSorb in combination with other supportive therapies (CRRT, Toraymyxin) was beneficial for patients suffering from an overshooting inflammatory response, thanks to its ability to attenuate inflammatory mediators' production. Cytosorb application in both patients affected by septic shock with different types of infection, allowed a restoration of hemodynamic and metabolic equilibrium.