CytoSorb® on the Septic Shock

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Background

Septic shock, defined as organ dysfunction caused by a dysregulated host response to infection, is a condition associated with high morbidity and mortality. One of the hallmarks of sepsis is the excessive release of cytokines and other inflammatory mediators that cause septic shock and multi-organ failure (MOF). New adsorbents are now available as adjuvant therapy aimed at modulating the cytokine "storm" in sepsis. They are thought to be useful if adopted early (within 8-24 hours of the diagnosis of septic shock) in patients who are unresponsive to standard therapy. Here we report our experience with CytoSorb®.

Methods

From January 2021 to May 2022, 46 patients with septic shock were treated with continuous renal replacement therapy (CRRT) associated with hemadsorption with CytoSorb®. All cases presented organ failure including AKI. Surgical patients (n = 13) were treated with surgery, COVID patients (n = 15) and medical patients (n = 16) with medical therapy; all surgery cases were operated on before starting the hemadsorption and in some cases reoperation with the need to suspend the adsorption. The mean age was 69 ± 17 years (SD). On admission the mean SAPSII score was 50 ± 11 (SD). CRRT as hemodiafiltration (CVVHDF) was performed. All patients received at least one CytoSorb® treatment and additional treatments (up to 21 filters in a Covid patient) according to our indication. The CytoSorb cartridge was installed in series to the high cut-off filter; blood flow rates were maintained between 120 and 150 mL/min while dialysis doses from 18 to 45 mL/kg/hour. CytoSorb was renewed every 24 hours. We evaluated the impact of CytoSorb on 30-day survival, hemodynamics and relevant outcomes.

Results

The 30-day survival was 30%. During treatment with CytoSorb®, patients had a hemodynamic stabilization with a significant improvement in MAP, a reduction in amines and a decrease in PCR and PCT (Figure 1). Mortality at 30 days among medical patients was almost comparable to that of COVID patients and higher than that of surgical patients (70%, 69% and 61%, respectively). It should be noted that almost half of the deceased patients arrived late in the hospital, thus leading to a late start of treatment.

Conclusion

We confirm the efficacy and usefulness of the CytoSorb® if adopted early in patients who do not respond to standard therapy. CytoSorb® treatment was safe and well tolerated with no device-related adverse events during or after treatment sessions.

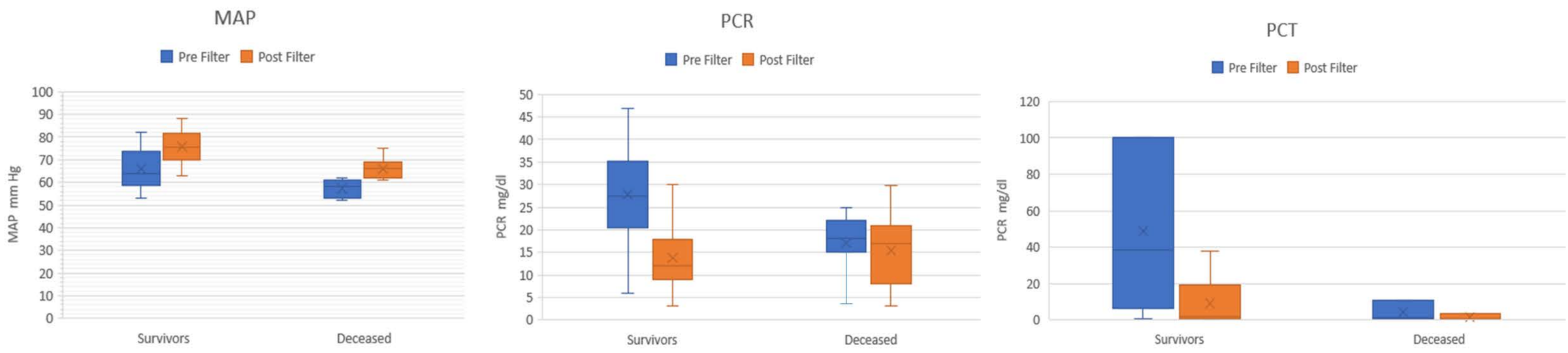

Figure 1: Parameters before and after CytoSorb treatment