

Septic Shock and IL-6: Impact of Cytosorb® Therapy in a High-Complexity Case

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Introduction

Interleukin-6 (IL-6) is a key cytokine involved in the regulation of inflammation and immune response. Its overproduction has been implicated in various pathological conditions, including sepsis, autoimmune diseases, and hyperinflammatory syndromes.

Early adoption of extracorporeal support therapies such as Continuous Renal Replacement Therapy (CRRT) combined with Cytosorb®—the only certified adsorber cartridge for whole blood removal of cytokines, bilirubin, myoglobin, Ticagrelor, and Rivaroxaban—can lead to significant clinical improvement by counteracting the progression toward septic shock and improving outcomes in critically ill patients.

Methods

A 71-year-old male on thrice-weekly hemodialysis presented with multiple comorbidities, including obesity, rheumatoid arthritis, hypertension, type 2 diabetes mellitus, and a history of COVID-19 pneumonia. He was admitted to the ICU for severe CVC-related sepsis and underwent Continuous Renal Replacement Therapy (CRRT) in CVVHDF modality with **Cytosorb®** for 48 hours from the diagnosis of septic shock. The following parameters were monitored during treatment:

- Plasma IL-6 levels
- Inflammatory markers (CRP)
- Vital signs and vasopressor support requirements
- Progressive reduction in norepinephrine dosage

Results

Within the first 24 hours, a marked clinical improvement was observed, including stabilization of vital signs, adequate blood pressure control, and reduced need for vasopressor support. Inflammatory markers decreased rapidly, and IL-6 plasma levels dropped from 452 pg/mL at the start of therapy to 78 pg/mL at the end of treatment with Cytosorb® (see Figure 1a and 1b).

Conclusion

The use of Cytosorb® played a pivotal role in the rapid resolution of septic shock, contributing to both hemodynamic stabilization and attenuation of the systemic inflammatory response. This clinical case supports the rationale for early implementation of hemoabsorption techniques in critically ill patients, highlighting the potential benefits of prompt intervention for rapid clinical and inflammatory improvement.

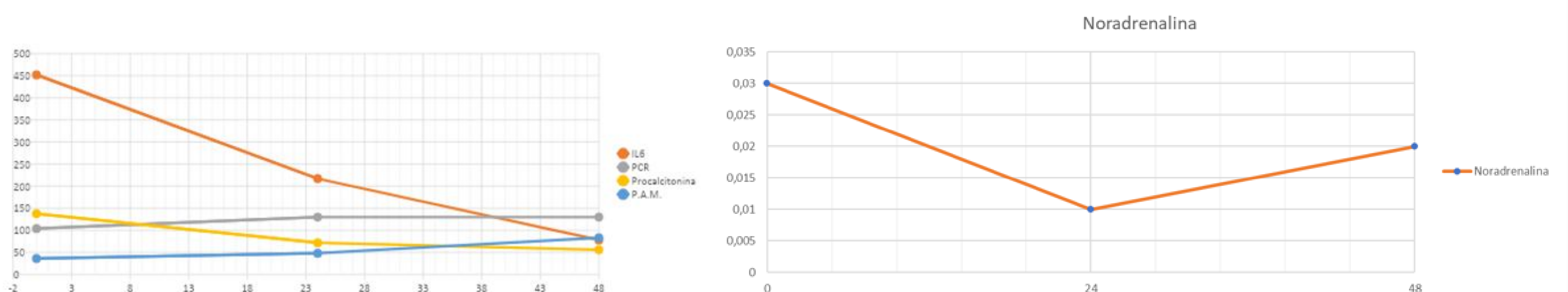


Figure 1a and 1b