

Use of CytoSorb® Hemoadsorption for Rhabdomyolysis and Inflammatory Modulation Following Trauma and Acute Appendicitis: A Case Report

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Introduction

CytoSorb® hemoadsorption has emerged as an adjunctive therapy in critical care for the removal of middle molecular weight substances such as myoglobin and cytokines. Its dual action makes it particularly valuable in complex cases involving multiple aetiologies.

Rhabdomyolysis, often due to traumatic muscle injury, may lead to acute kidney injury (AKI) via direct nephrotoxicity of circulating myoglobin. In parallel, conditions such as sepsis or severe infection—like acute appendicitis—can trigger a systemic inflammatory response, contributing to hemodynamic instability and multi-organ dysfunction.

Although unrelated in etiology, trauma-induced rhabdomyolysis and appendicitis-related sepsis may coexist and synergistically worsen the clinical picture. In such settings, extracorporeal blood purification with CytoSorb® integrated into continuous renal replacement therapy (CRRT) may help control both muscle breakdown products and systemic inflammation.

Methods

A 54-year-old male was admitted to the ICU, for clinical deterioration after a pelvic fracture sustained in an accidental fall. During hospitalization, he developed acute abdominal pain; CT revealed appendicitis, and urgent laparoscopic appendectomy was performed.

Due to rising serum myoglobin and worsening inflammatory markers, CRRT was initiated with an Oxiris® filter and three sequential CytoSorb® cartridges over 72 hours. Laboratory parameters (IL-6, PCT, CPK, myoglobin) were monitored throughout.

Results

Following initiation of hemoadsorption, serum myoglobin decreased from 1058 ng/mL to 163 ng/mL, IL-6 peaked at 803.3 pg/mL and dropped to 14.3 pg/mL, while PCT fell from 66.8 to 37.31 ng/mL. CPK decreased from 662 U/L to 99 U/L (figure 1). Clinical improvement included resumption of spontaneous diuresis and progressive reduction in vasopressor requirements. No further CRRT sessions were needed.

Conclusion

This case highlights the utility of CytoSorb® hemoadsorption in managing two distinct but coexisting pathophysiological processes: rhabdomyolysis-induced AKI and sepsis-driven inflammation. The combined biochemical and clinical response supports the integration of CytoSorb® into CRRT for patients with multifactorial critical illness.

Figure 1: labs trend during hemoadsorption therapy

