

Cytosorb® - A case report Hemoadsorption in Crush Syndrome-Related Rhabdomyolysis and AKI: A Case of Rapid Clinical Stabilization with CytoSorb® and CRRT

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Introduction

Severe rhabdomyolysis, characterized by massive release of myoglobin into the bloodstream following muscle injury, represents a potentially life-threatening condition associated with acute kidney injury (AKI), metabolic disturbances, and multiorgan dysfunction. In this context, CytoSorb®, the only cartridge certified for the removal of cytokines, bilirubin, myoglobin, ticagrelor, and rivaroxaban, has proven useful in reducing the myoglobin burden, thereby mitigating renal tubular damage.

Methods

A 64-year-old male was admitted to the emergency department following a road traffic accident, presenting in a coma (GCS: 6) with massive rhabdomyolysis complicated by severe metabolic acidosis, diabetic ketoacidosis, acute respiratory failure, heart failure, and AKI.

Initial laboratory values revealed: pH: 7.30, pCO₂: 13 mmHg, pO₂: 105 mmHg, HCO₃⁻: 6.4 mmol/L, Base excess: -20 mmol/L, K⁺: 1.9 mmol/L, Na⁺: 150 mmol/L, Blood glucose: > 300 mg/dL, Myoglobin: > 3976 ng/mL (exceeding measurement device limit).

The patient underwent orotracheal intubation and mechanical ventilation. Fluid resuscitation was initiated with 8.4% sodium bicarbonate, potassium chloride, and free water via nasogastric tube, alongside hemodynamic support with vasoactive amines.

On the following day, continuous renal replacement therapy (CRRT) was started, and a first cycle of CytoSorb® hemoadsorption was applied. After a 48-hour suspension, two additional treatment cycles were performed (total of three cartridges used).

Results

Myoglobin levels decreased from >3976 ng/mL to 1046.8 ng/mL. Creatine phosphokinase (CPK) levels dropped from 15,192 ng/mL to 2,499 ng/mL. Serum albumin remained stable throughout the treatment period (Figure 1). The day after completing CytoSorb® therapy, sedation was discontinued. The patient was extubated and resumed spontaneous diuresis.

Conclusion

In this complex case of crush syndrome with massive rhabdomyolysis, diabetic ketoacidosis, and multiorgan failure, the use of CytoSorb® in combination with CRRT proved effective in removing myoglobin. Early initiation of treatment helped reduce the systemic toxic burden, supporting organ recovery and the clinical stabilization of the patient.

