

A Novel Approach to Myoglobin Clearance and Organ Preservation in Severe Rhabdomyolysis: Dual concomitant CytoSorb Hemoadsorption Therapy

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Introduction

Severe rhabdomyolysis, characterized by extensive muscle breakdown and release of myoglobin and creatine kinase (CK), is a life-threatening condition often complicated by acute kidney injury (AKI) and multi-organ failure (MOF). Even when conventional treatments such as fluid resuscitation and renal replacement therapy (RRT) are timely applied, severe cases remain challenging to manage. Among therapies available in this setting, hemadsorption with CytoSorb has the potential not only to treat rhabdomyolysis through removal of circulating molecules but also to limit or even prevent rhabdomyolysis-related renal failure and MOF. We present preliminary data of a novel use CytoSorb hemoadsorption therapy, which encompassed the use of two CytoSorb cartridges running in parallel, to enhance myoglobin and cytokine clearance.

Methods

Retrospective case series of adult patients with massive rhabdomyolysis of heterogeneous origin treated with dual concomitant CytoSorb circuits running in parallel at our institution.

Results

Clinical data from three patients with severe rhabdomyolysis were reviewed: a 26-y woman with acute ischemia and to compartment syndrome of the left leg, necessitating fasciotomy, in the context of multiple embolization from intracardiac myxoma (fig 1A); a 54-y woman with cardio-septic shock requiring intraaortic balloon pump support and with diffuse muscular injury (fig 1B); a 41-y male with massive rhabdomyolysis due to prolonged leg ischemia in the context of type A aortic dissection who underwent emergent cardiac surgery (fig 1C). In all patients, dual concomitant CytoSorb treatments was associated with marked improvements in CK, renal, hepatic, and inflammatory marker. Potential impact on CRRT reduction could not be assessed due to the very limited sample size.

Conclusion

Dual CytoSorb therapy offers a transformative approach to severe rhabdomyolysis, with potential for organ preservation and recovery in critically ill patients. Future studies are warranted to further evaluate its efficacy and refine its application in acute multi-organ failure contexts.

Figure 1: Temporal trend of laboratory parameters. Figures illustrate the evolution of various laboratory biomarkers over several days of monitoring. The Y-axis represents laboratory values plotted on a logarithmic scale to better visualize differences in magnitude. The X-axis indicates the days of observation

