

Intermittent cytosorb in active rhabdomyolysis: convenient or non-convenient?



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Introduction

Rhabdomyolysis is a condition characterized by the breakdown of muscle cells, releasing myoglobin, which can lead to renal damage.

Last rhabdomyolysis consensus¹ showed how hemadsorption with CytoSorb should be used as effective therapy to remove myoglobin, preventing or reducing renal damage.

Methods

An 11-year-old girl with hypokinetic dilated cardiomyopathy and homozygous mutation in the TNNI3 gene, underwent orthotopic heart transplantation following LVAD support complicated by a driveline infection. Post-transplant, she developed severe rhabdomyolysis (myoglobin 31,800 ng/ml; and CPK >28,000 U/l), along with spastic tetraparesis with areflexia. This necessitated the initiation of continuous venovenous hemodiafiltration (CVVHDF) and CytoSorb hemadsorption therapy applied on alternate days, with blood samples taken every 6 hours to monitor the severity of rhabdomyolysis.

Results

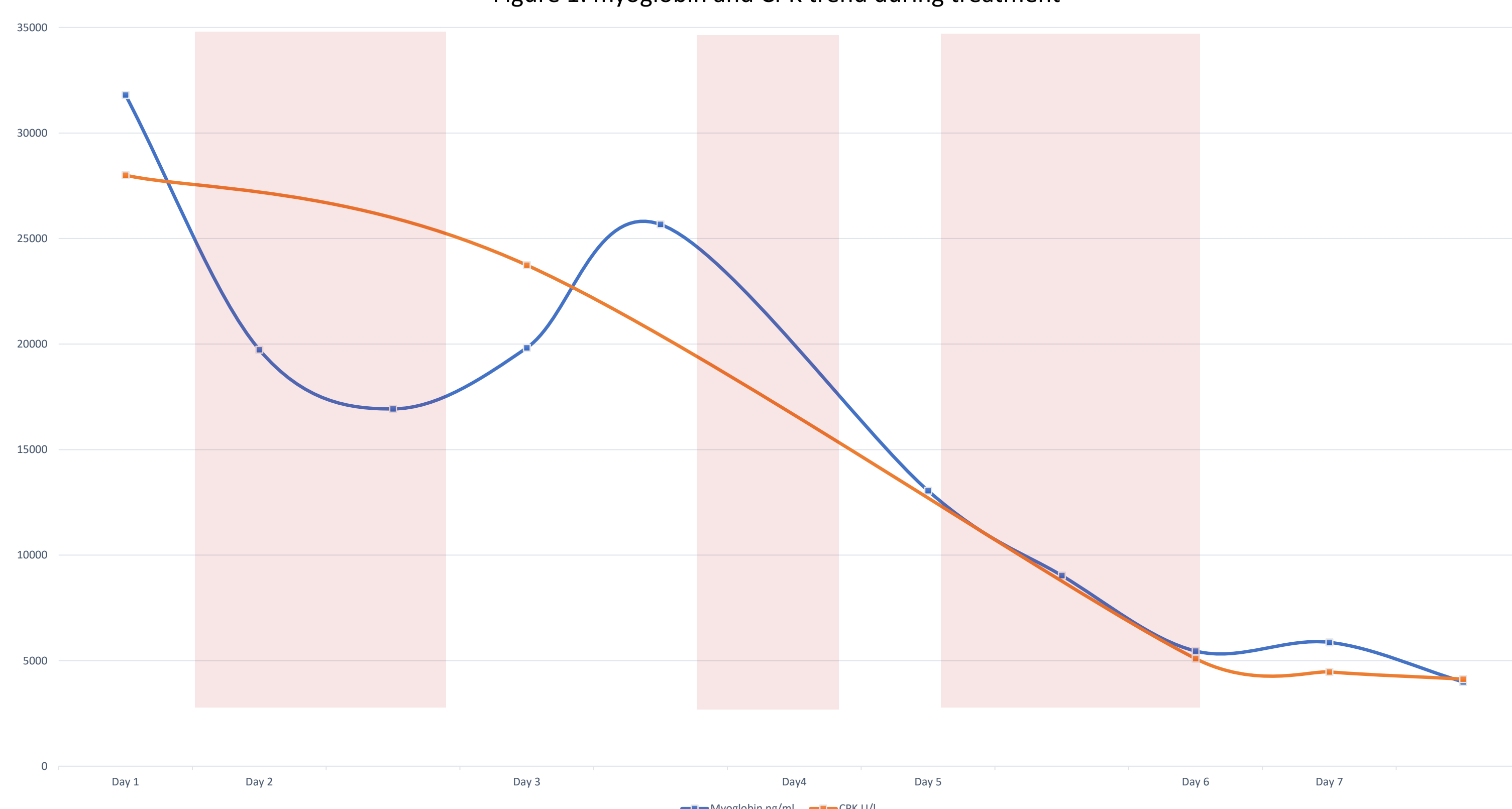
After 24 hours of hemadsorption, myoglobin levels decreased to 16,928 ng/ml and CytoSorb was stopped (Day 2). Myoglobin rose again to 25,655 ng/ml (CPK 23,739 U/l) within 24 hours, prompting a second cycle (Day 3). On day 5, persistent high myoglobin levels (13,052–9,032 ng/ml) led to the application of a third CytoSorb, reducing myoglobin to 5,456 ng/ml and CPK to 5,097 U/l. By day 7, lower CPK and myoglobin levels (4,467–4,128 U/l, 5,869–3,997 ng/ml) allowed the definitive discontinuation of CytoSorb therapy, with only CVVHDF to clear excess molecules (figure 1).

On day 11, CVVHDF was stopped, and the patient's kidney returned to normal function, with laboratory results within normal limits.

Conclusion

CytoSorb proved its effectiveness in reducing elevated levels of myoglobin and CPK; however, we observed that in cases of ongoing and active rhabdomyolysis, applying hemadsorption on alternate days may result in the accumulation of molecules, as seen in other reported experiences². We conclude, in line with the latest consensus¹, that CytoSorb therapy should not be discontinued until myoglobin levels fall below 5,000 ng/ml.

Figure 1: myoglobin and CPK trend during treatment



References:

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2. Rauch S, Borgato A, Gruber E, Leggeri C, Bock M, Seraglio PME. Case Report: Prevention of Rhabdomyolysis-Associated Acute Kidney Injury by Extracorporeal Blood Purification With Cytosorb®. *Front Pediatr*. 2022 Jan 24;9:801807. doi: 10.3389/fped.2021.801807. PMID: 35141180; PMCID: PMC8819180.