

Successful use of CytoSorb hemoadsorption in a patient with rhabdomyolysis with acute renal failure due to neuroleptic malignant syndrome



Mario Grassi Bertazzi¹, Bruno Lanzafame², Valeria La Rosa³, Giorgio Scrofani¹, Danilo Grasso¹, Daniela Lauretta¹, Antonio Spampinato¹, Ornella Sciuto¹, Mauro Gennaro¹, Savino Borraccino¹

¹ Department of Anaesthesia and Intensive Care, Cannizzaro Hospital, Catania, Italy

² Department of Anaesthesia and Intensive Care, Umberto I Hospital, Siracusa, Italy

³ Department of Anaesthesia and Intensive Care, Humanitas Hospital, Catania, Italy

BACKGROUND

Neuroleptic malignant syndrome (NMS) represents a rare but sometimes life-threatening reaction to neuroleptic drugs which can progress to renal failure secondary to rhabdomyolysis. Although extracorporeal therapies appear capable in this setting, positive results remain sparse. Extracorporeal hemoadsorption could represent a promising treatment alternative, as it has been successfully applied in indications sharing similar features with NMS.

CASE PRESENTATION

A 39-year-old woman was admitted to the Emergency Department following development of NMS due to the administration of multiple neuroleptics. Following development of multiple organ dysfunction including acute renal failure due to rhabdomyolysis, hemodiafiltration was started and then combined with plasmapheresis later on. Both therapies proved ineffective so the decision was made to install a CytoSorb hemoadsorption cartridge into the CVVHDF circuit in a pre-dialyzer position in order to reduce myoglobin plasma concentrations and to support standard therapy. Two consecutive CytoSorb treatments (48 hours per treatment) were run at a blood flow rate of 100 ml/min, dialysate 2000 ml/h, reinfusion 1000 ml/h, using citrate anticoagulation.

RESULTS

The combination of continuous renal replacement therapy (CRRT) and CytoSorb resulted in a continued decrease in serum myoglobin levels from 34,236 µg/l to 8,607 µg/l after the first cycle, reaching 567 µg/l at the end of the treatment. Spontaneous diuresis recurred on day 20 with gradual increasing volumes thereafter. Respiratory gas exchange gradually improved during CytoSorb treatment as did renal function as evidenced by a gradual decrease in creatinine (3 to 1.28 mg/dl) and blood urea nitrogen (93 to 25 mg/dl) levels throughout the treatment. The hemodynamic condition also improved, followed by reduction and complete discontinuation of vasopressor support on day 23 of ICU admission. She could be extubated successfully one day later and was finally discharged to the rehabilitation ward making a full renal recovery.

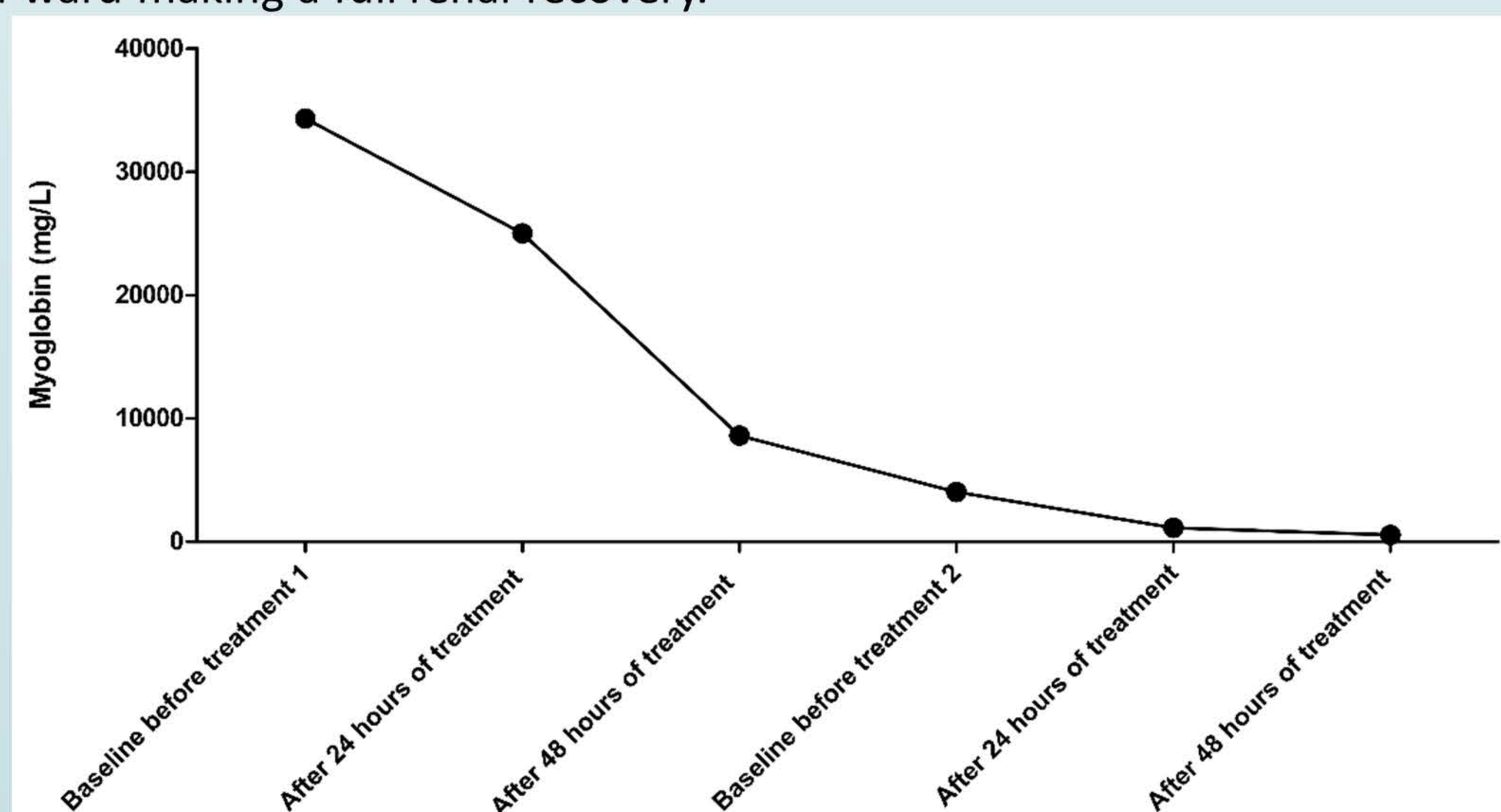


Fig.1. Timeline of treatment during ICU stay

CONCLUSION

To our knowledge this is the first case describing the use of CytoSorb hemoadsorption in combination with hemodiafiltration and standard therapeutic measures to treat a patient with rhabdomyolysis, acute renal failure and neuroleptic malignant syndrome. Combined therapy was both safe and easy to perform. This case emphasizes the use of CytoSorb hemoadsorption in rhabdomyolysis, in which other extracorporeal treatments such as plasmapheresis may be ineffective.