Use of CytoSorb® in rhabdomyolysis, heart failure and AKI after cocaine abuse in a cardiopathic patient: a case report

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Background and aims

Both rhabdomyolysis and myocardial toxicity (ischemia/infarction, heart failure) due to cocaine abuse are a known occurring condition in critically ill patients, resulting in a high risk of acute kidney injury (AKI) and potentially permanent kidney damage. Early renal replacement therapy (RRT) might be an approach to prevent AKI, but conventional dialysis membranes may fail in eliminating high molecular weight products. The use of additional filters in high flux RRT has been shown to be an efficient way to eliminate myoglobin, proinflammatory and toxic agents.

Methods

We describe the case of a former drug addict 31 year old female, with a history of two previous aortic valve replacement due to endocarditis, perivalvular pseudoaneurysm and recurrent sepsis. After a drug relapse she developed cardiogenic and septic shock, rhabdomyolysis with severe hypocalcemia and AKI, and was admitted in emergency room. She rapidly developed multiorgan dysfunction with severe cardiac, hepatic and renal failure, and entered our ICU, where she was intubated. Patient underwent RRT via CVVHDF with regional citrate anticoagulation and specific filters starting with Oxiris® (Baxter) then, because of worsening of her clinical conditions, we switched to Cytosorb® (Aferetica): two treatments were performed. After Cytosorb® treatment we assisted to a rapid improvement in lab values and a progressive stability in clinical and hemodynamic parameters. Initial severe heart failure (EF 20%) slowly recovered after levosimendan infusion to range values. CRRT was discontinued after 23 days, a few intermittent dialysis sessions were needed but eventually we achieved recovery of renal function. We monitored creatine phosphokinase (CPK), lactate dehydrogenase, hepatic and cardiac enzymes levels during ICU stay.

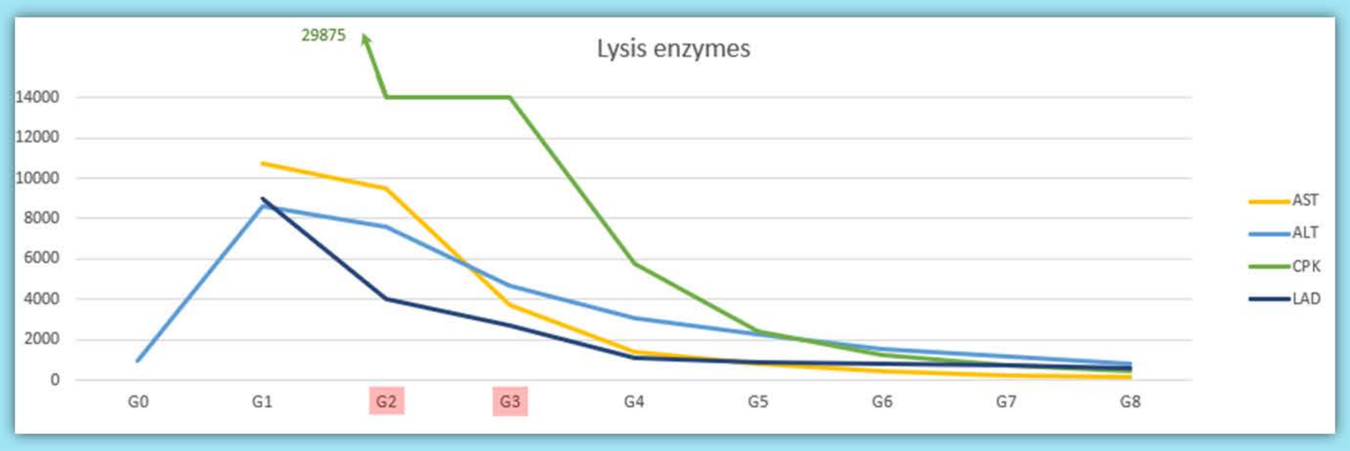

Fig.1 Graphic shows the trend of lysis enzymes during days of treatment. Cytosorb® was used on G2 and G3. *(Please note 14000 U/l is lab cap for CPK in routine exams)*

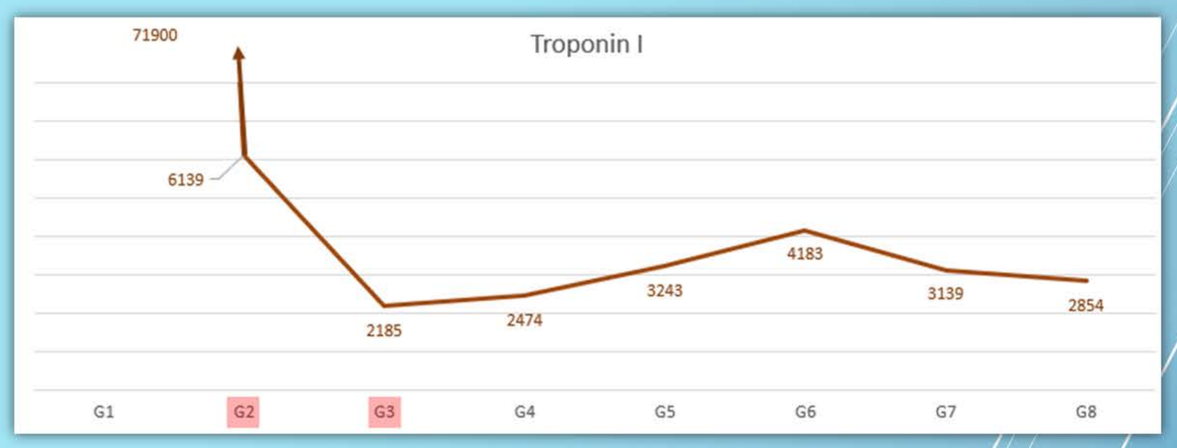

Fig.2 Graphic shows the trend of Troponin I during days of treatment. Cytosorb® was used on G2 and G3 . *(Normal range value 3 – 53,7 ng/L)*

Results and Conclusion

Literature shows that cocaine induced rhabdomyolysis is associated with poor renal function outcome, often leading to end-stage kidney disease and chronic hemodialysis. Severe heart failure may also interfere with normalization of renal function due to kidney hypoperfusion. Rhabdomyolysis is also often associated with severe hypocalcemia, as in our patient; nevertheless regional citrate anticoagulation treatment had proven itself safe.

This case shows that performing early RRT with specific filters (cytokine adsorber) could be a safe and efficient treatment for AKI in rhabdomyolysis, even in severe heart failure, with good hemodynamic stability.

Bibliography

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