

SUCCESSFUL TREATMENT OF BILIRUBIN NEPHROPATHY BY CYTOSORB HEMODIALYSIS

Guarneri Marco^{1*}, Calandra Leonardo¹, Di Bella Rosalia¹, Riccobene Raffaella¹, Vccaro Francesco¹, Mulè Giuseppe¹, Vicari Eliana¹, Vella Davide¹, Montalbano Katia¹, Tranchida Valeria¹, Sinatra Nicola¹, Giambrone Marta¹, Di Marco Vito², Craxì Antonio², Cottone Santina¹

¹ Unit of Nephrology and Hypertension, Dipartimento Biomedico di Medicina Interna e Specialistica (DIBIMIS), European Society of Hypertension Excellence Centre, Università degli studi di Palermo, Palermo, Italy.

² Gastroenterology and Hepatology Unit, Dipartimento Biomedico di Medicina Interna e Specialistica, University of Palermo, Palermo, Italy.

Background

Anabolic steroids abuse is frequent, as purchasing became easier through online stores. (1)

We present the case of a 52-year-old man who took steroids for anabolic use, causing acute liver failure, with development of bilirubin nephropathy. (1) We used CytoSorb cartridge (2), with standard hemodialysis, with satisfying results.

Case Report

A 52-year-old man, with overall good health, was hospitalized for general discomfort and jaundice. The clinical history was irrelevant. However, he reported he had taken trenbolone, stanazole and metandrosterone (unspecified dosage) for anabolic purposes, for approximately two months prior the hospitalization. The baseline bloodtestes showed:

bilirubin up to 50 mg/dl, AST/ALT twice the norm, normal GGT and ALP, serum creatinine 3,34 g/dl. Viral, autoimmune and tumor markers were negative.

Abdominal CT and MRCP revealed empty gallbladder, nondilated bile duct. The liver biopsy did not detect cholestatic. The first-line treatment with plasma-perfusion (three sessions with dedicated filters) was unsuccessful. Renal replacement therapy with hemoadsorption was started in order to reduce bilirubin levels, to prevent encephalopathy and to take time so that the liver starts to flow the bilirubin correctly or initiate the patient for a liver-kidney transplant.

For this purpose, we used three cycles of CVVHD with hemoadsorption using CytoSorb®. The first cycle of therapy was scheduled for 72 hours with the use of three absorbent CytoSorb. Meanwhile, bilirubin levels were checked frequently, pre and post sorbent, to verify the absorption gradient. The patient developed progressive hypoalbuminemia and hypophosphatemia, which were corrected. However, the second part of the first cycle was interrupted after 13 hours (instead of 24h), as the patient was complaining of general discomfort. The first therapeutic cycle was completed within the last 24 hours of dialysis with absorbent. In the following days, three hemodialysis sessions were performed. We then observed the kinetics of bilirubin levels during a three-day interval before the second cycle. The constant raise of bilirubin levels forced to complete the other two additional hemodialysis cycles with sorbent (72h for cycle, 24 hours between cycles, 7 CytoSorb). (fig.1.)

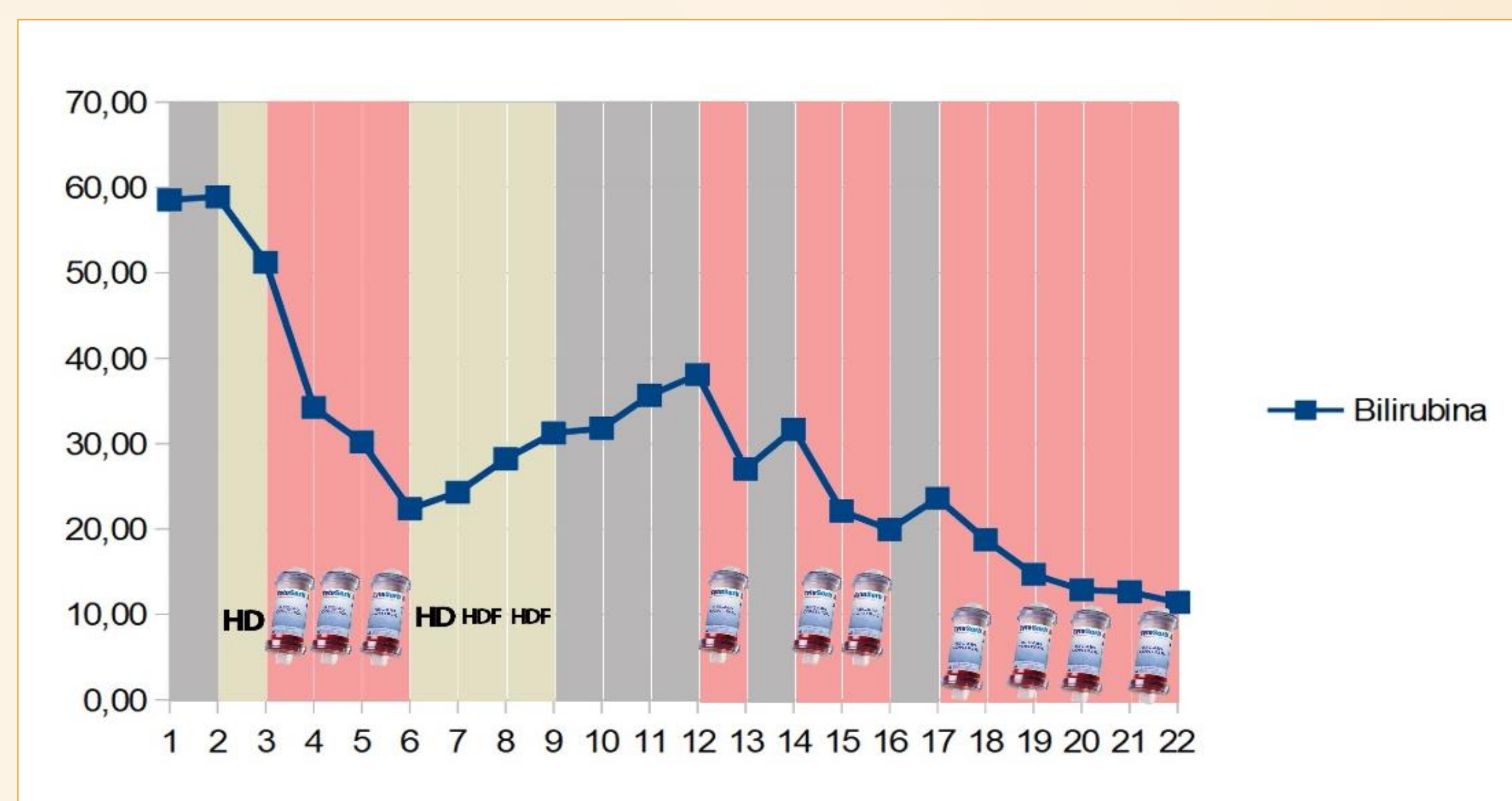


Fig 1. Total statement of bilirubin values in relation to the received treatments

Results

At the end of the three cycles, the bilirubin levels were 11.39 mg/dl, (tab.1) the onset of encephalopathy was avoided, and the patient was correctly initiated to the liver-kidney transplantation procedure.

During the controls to be included in the transplants list, the blood values of bilirubinemia and creatinenemia started to go down autonomously, a sign that the liver had correctly resumed secreting bilirubin, thus making transplantation and dialysis unnecessary.

Serum value:	Starting value	After first cycle of treatment	After second cycle of treatment	After third cycle of treatment
Total bilirubin	51,24	22,82	19,94	11,39
Creatinine	11,78	2,6	1,69	2,21
Na+	134	136	137	139
K+	4,45	4,22	3,85	3,62
Mg+	2,58	1,82	1,67	1,67
Phosphorus	4,14	2,97	1,39	1,73
Calcium	9,21	8,32	8,8	8,52
albumin	33	27,7	30,1	26,3
Urea	102	36	9	14

Table 1: Bloodtests values after treatment.

Conclusion

Based on this experience, we recommend the use of CytoSorb with CVVHD in patients with hyperbilirubinemia, in order to prevent complications and to address them to specific therapy or transplantation.

For further observations, we recommend to monitor serum electrolytes and albumine in order to reintegrate them.

References

- (1) Fislser A, Breidhardt T, Schmidlin N, Hopfer H, Dickenmann M, König K, Hirt-Minkowski P: Bile Cast Nephropathy: The Unknown Dangers of Online Shopping. *Case Rep Nephrol Dial* 2018;8:98-102. doi: 10.1159/000489771 (Journal names should be abbreviated according to the Index Medicus.)
- (2) Gemelli C, Cuoghi A, Magnani S, Atti M, Ricci D, Siniscalchi A, Mancini E, Faenza S: Removal of Bilirubin with a New Adsorbent System: In Vitro Kinetics. *Blood Purif* 2018. doi: 10.1159/00049237