

The use of extracorporeal hemadsorption with CytoSorb® in liver failure: a case report.

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Introduction

During liver failure, various potentially toxic molecules are released into the patient's bloodstream.

These molecules mainly include bilirubin, ammonia and bile acids.

Extracorporeal treatment with Cytosorb® allows the direct removal of these hydrophobic molecules, up to 55 kDa, from whole blood, potentially preventing organ dysfunction.

Methods

A 44-year-old patient presented with jaundice for about 10 days, without abdominal pain, acholic stools, pruritus, nausea, weight loss and with no ongoing treatment for chronic diseases.

One month prior to hospitalization, the patient was evaluated in ER for chest pain, which was negative for cardiovascular diseases. Concurrently, elevated transaminase and bilirubin levels were noted.

Nine days before hospitalization, the patient returned to the ER due to persistent symptoms, with a bilirubin level of 16.12 mg/dL. An abdominal ultrasound showed a heterogeneous liver with marked dilation of intrahepatic bile ducts, a contracted gallbladder, and a suspicion of neoplasm.

During hospitalization, the patient's liver condition gradually worsened, with the development of hyperammonemia (132 µMol/L) and hyperbilirubinemia (23.19 mg/dL).

Endoscopic Retrograde Cholangio Pancreatography therapy was unsuccessful and the INR significantly increased.

Consequently, a treatment with Cytosorb® and CRRT was initiated (blood flow at 100 ml/min).

Results

After 4.5 hours of treatment with Cytosorb®, the total bilirubin level decreased from 23.23 mg/dL to 17.16 mg/dL.

After 11 hours, it decreased further to 14.59 mg/dL, and the ammonia level dropped from 132 µMol/L to 37.3 µMol/L. Cytosorb® therapy was continued with a second sorbent (19 hours after the first).

10 hours after the second sorbent, the bilirubin level dropped to 9.61 mg/dL.

After 24 hours, the total bilirubin level was 9 mg/dL, and the ammonia level was 36 µMol/L and Cytosorb therapy was stopped (Figure 1).

Conclusion

Cytosorb® is effective in removal of bilirubin and ammonia in liver failure and therefore can be a valuable liver support.

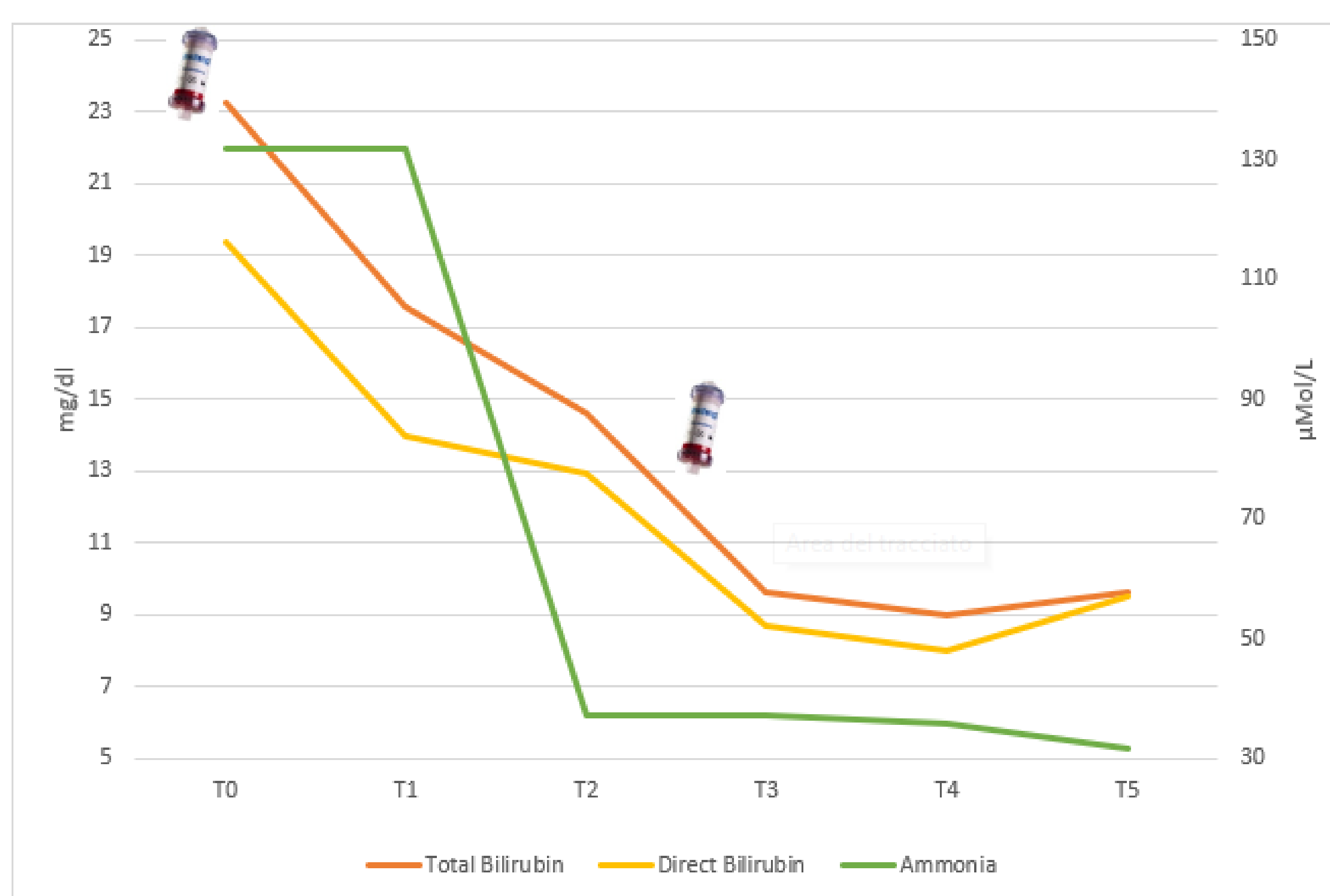


Figure 1

Timing:

- T0: First CytoSorb
- T1: After 4.5 hours of CytoSorb
- T2: After 11 hours of CytoSorb
- T3: After 10 hours from the second CytoSorb
- T4: After 12 hours from the second CytoSorb
- T5: After 24 hours from the second CytoSorb

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