

Cytosorb® hemoadsorption as metabolic prehabilitation in hepato-biliary sepsis: a Case of post-ERCP pancreatitis with severe hyperbilirubinemia

C. Gasperini ¹, G. Michelagnoli ¹, G. Bracciotti ¹, M. Bendinelli ¹, P. Rastrelli ¹, M. Fedi ²

1. USL Toscana Centro, SOC Anestesia e Rianimazione, Ospedale S. Jacopo, Pistoia

2. USL Toscana Centro, SOC Chirurgia Generale, Ospedale S. Jacopo, Pistoia

Introduction

CytoSorb® is an extracorporeal hemoadsorption device designed to reduce circulating cytokines and endogenous toxins such as bilirubin. While its role in septic shock is increasingly recognized, emerging applications include organ support in patients with hepatic dysfunction, potentially serving as a metabolic bridge to surgery.

Methods

We report the case of a critically ill patient admitted to the ICU with severe post-ERCP pancreatitis complicated by septic shock and multi-organ failure. The ERCP was performed for biliary decompression in the setting of a malignant biliary obstruction. The patient presented with extreme hyperbilirubinemia (>20 mg/dL), which constituted a major contraindication for curative surgical intervention due to the high perioperative risk.

Intervention

CytoSorb® therapy was initiated in combination with continuous renal replacement therapy (CRRT), with the dual objective of modulating the systemic inflammatory response and reducing bilirubin levels. Within 48 hours, bilirubin levels declined significantly and inflammatory markers improved, indicating a favorable metabolic response.

Results

Regardless of patient outcome, the biochemical and hemodynamic improvement and the rapid decline in bilirubin suggests that CytoSorb® may offer a viable strategy for metabolic prehabilitation in selected patients with hepatic impairment, potentially increasing surgical eligibility and improving outcomes.

Conclusions

This case illustrates the potential role of CytoSorb® hemoadsorption as an adjunctive therapy for metabolic optimization in critically ill patients with hepatic dysfunction. As a bridge-to-surgery or component of a prehabilitation strategy, it may enhance the feasibility of curative procedures in otherwise inoperable patients.

This case supports the need for further investigation into the role of extracorporeal therapies as tools for metabolic optimization and preoperative conditioning in high-risk hepatobiliary patients.