Combined Use of Oxiris and HA-330 in an Elderly Patient With Biliary Sepsis: A Case of Successful Cytokine Storm Control

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Background

Controlling excessive systemic inflammation during septic shock, which can lead to multiple organ dysfunction, remains a major therapeutic challenge. Currently, there are only limited reports demonstrating the potential role of combining two hemoadsorptive cartridges to enhance adsorption capacity and improve clinical outcomes.

Objectives

To describe the clinical course of an 80-year-old patient with cytokine storm due to septic shock, successfully treated with combined hemoadsorption therapy using oXiris and HA-330 during continuous kidney replacement therapy (CKRT).

Methods

An 80-year-old Thai male presented with fever and right upper quadrant pain, accompanied by septic shock (BP 70/40 mmHg, HR 110 bpm). He was lethargic and oliguric, requiring vasopressor support.

Laboratory tests revealed WBC 11,100/µL (neutrophil predominant), BUN 28 mg/dL, creatinine 1.58 mg/dL, and lipase 2,647 U/L. He developed clinical anuria and severe metabolic acidosis (bicarbonate 13.6 mmol/L, base excess –12.8, lactate 10.1 mmol/L). Liver function tests showed a cholestatic pattern with total bilirubin 5.95 mg/dL. IL-6 was markedly elevated at >50,000 pg/mL. Imaging confirmed toxic cholangitis and severe gallstone pancreatitis (BISAP score = 2). Blood and bile cultures grew E. coli resistant to penicillin, prompting escalation to meropenem.

After family discussion, percutaneous transhepatic biliary drainage (PTBD) was performed. CKRT with oXiris and HA-330 was initiated for cytokine removal.

Conclusion

This case highlights the potential benefit and safety of prolonged combined hemoadsorption therapy in mitigation cytokine storm during septic shock. Sustained IL-6 clearance might associated with improvement of clinical outcome.

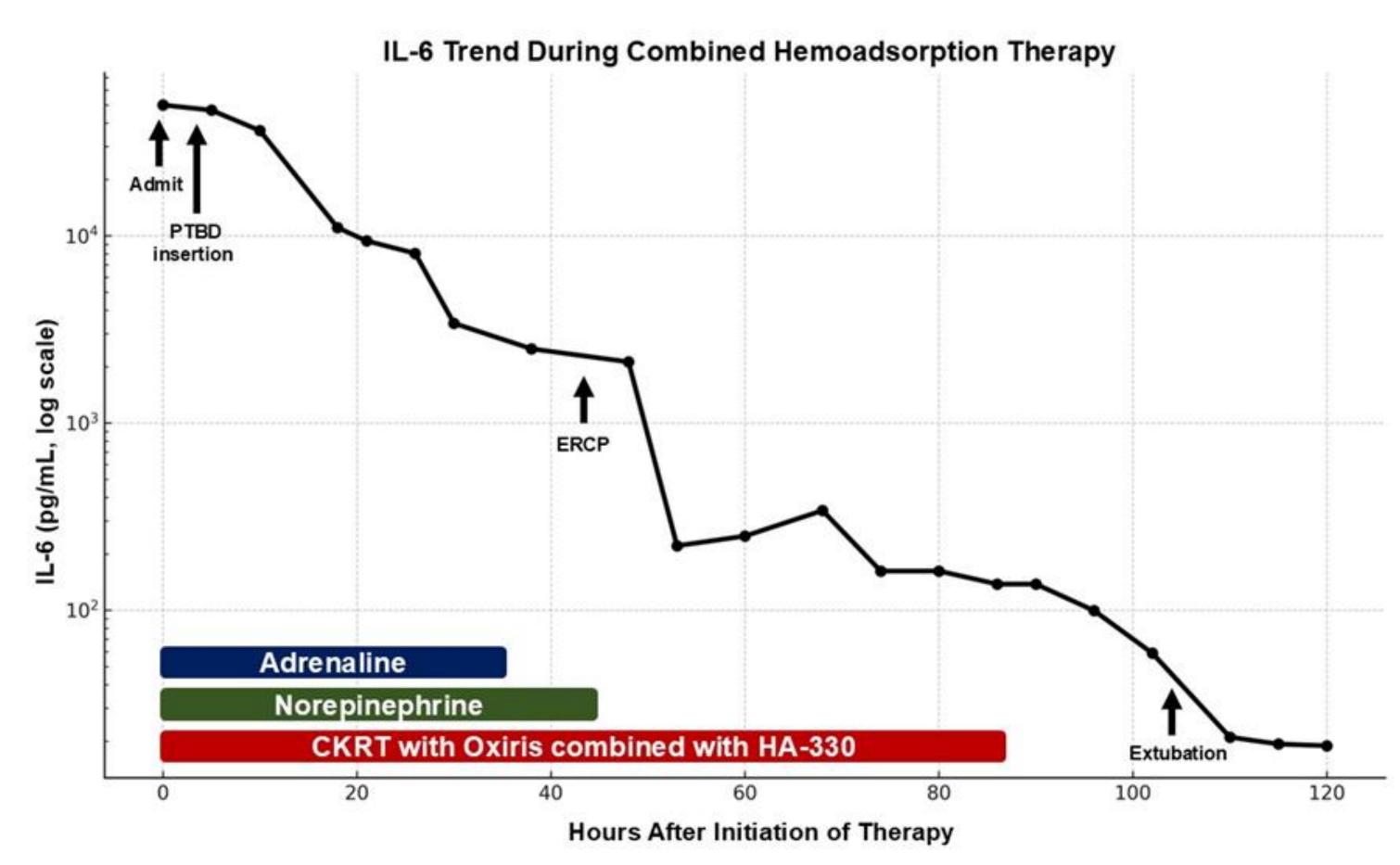


Figure 1. Trend of serum IL-6 levels during combined hemoadsorption therapy with Oxiris and HA-330 in an 80-year-old patient with septic shock due to toxic cholangitis and severe gallstone pancreatitis.

Results

Following initiation of combined hemoadsorption therapy, the patient's fever resolved and vasopressors were weaned. IL-6 levels declined from 46,890 pg/mL at 5 hours to 36,480 at 10 hours, 11,060 at 24 hours, 3,411 at 36 hours, and 2,121 at 68 hours (Figure 1). Although the HA-330 cartridge is typically recommended for 24-hour use, no rebound in IL-6 levels or clinical signs of saturation were observed, allowing safe continuation until circuit expiration on day 5. The patient was extubated on ICU day 5. Renal function recovered, CKRT was discontinued, and he was transferred to the general ward for rehabilitation.