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# Place of Hemoadsorption in Sepsis-Associated AKI: Pros

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Sepsis-associated acute kidney injury (SA-AKI) is one of the most frequent and clinically important organ dysfunctions in septic shock and is strongly associated with mortality. Although current management remains focused on source control, appropriate antibiotics, hemodynamic optimization, and organ support, these strategies do not directly target circulating injurious mediators such as endotoxin and inflammatory cytokines. Hemoadsorption is an extracorporeal blood purification strategy that removes circulating molecules through adsorption rather than diffusion or convection. Among available platforms, polymyxin B hemoperfusion targets Gram-negative endotoxin, whereas oXiris combines cytokine and endotoxin adsorption with continuous kidney replacement therapy. The rationale for hemoadsorption in SA-AKI is biologically plausible because endotoxin and inflammatory mediators contribute to vasoplegia, endothelial injury, increased vascular permeability, microcirculatory dysfunction, and renal tubular injury. Recent evidence from the TIGRIS trial suggests that endotoxin-guided polymyxin B hemoadsorption may improve survival in selected patients with endotoxic septic shock, particularly when endotoxin activity is within a therapeutically relevant range. However, direct evidence demonstrating improved kidney-specific outcomes in SA-AKI remains limited, and studies of oXiris and other adsorptive membranes have mainly shown improvements in hemodynamic or inflammatory parameters rather than definitive renal recovery. Importantly, kidney outcomes in SA-AKI must be interpreted in the context of death as a competing risk. Renal recovery cannot occur after death, and survivor-only renal endpoints may underestimate the value of therapies that improve shock reversal and survival. Therefore, future studies should evaluate patient-centered composite endpoints such as major adverse kidney events, incorporating death, dialysis dependence, and persistent kidney dysfunction. Hemoadsorption should not be regarded as a universal renal recovery therapy, but as a

phenotype-guided adjunctive strategy for selected patients with endotoxic or hyperinflammatory septic shock, applied at the right timing after adequate source control and antimicrobial therapy.

**Keywords:** Sepsis, AKI, Hemoadsorption, Polymyxin, oXiris