

Abstract Submission No.: A-0408

Real-time monitoring of hemodynamic stability in septic shock patients undergoing continuous renal replacement therapy: propensity score-matched comparison between oXiris and polysulfone membranes (HISTORIX trial)

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Objectives : The oXiris membrane represents a significant advancement in continuous renal replacement therapy (CRRT) technology, offering enhanced capabilities for endotoxin adsorption and cytokine removal, crucial in managing sepsis-induced acute kidney injury (AKI). Despite its global adoption and reported benefits in improving patient outcomes, there is a notable absence of data regarding its impact on hemodynamic stability after use.

Methods : This ongoing prospective observational cohort study is designed to target adult patients with septic shock-induced AKI requiring CRRT. Enrollment will comprise 98 patients, evenly split into two groups: one receiving CRRT with the oXiris membranes and the other with standard polysulfone membranes. These groups will be matched based on a propensity score model accounting for various clinical and demographic variables. We will monitor a range of parameters, including changes in hemodynamic indicators (e.g., blood pressure, heart rate, and electrocardiogram), sepsis-related markers (e.g., C-reactive protein, lactate, and cystatin C), and patient outcomes (e.g., frequency of CRRT-related complications and death). Data collection will occur at multiple time points: at the initiation of CRRT, daily during CRRT, and at the end of the treatment. The linear mixed model will be employed for continuous data, while survival and complication rates will be assessed using Cox proportional hazards models.

Results : Patient enrollment and data collection are ongoing.

Conclusions : This study aims to provide critical insights into the hemodynamic efficacy and safety of oXiris and polysulfone membranes in a septic shock cohort through a comprehensive comparative analysis. The findings are anticipated to significantly contribute to the optimization of strategies related to oXiris in the management of septic shock.