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HEMADSORBPTION WITH THE OXIRIS® AS A TREATMENT MODALITY FOR CRITICALLY ILL SEPTIC PATIENTS: AN OVERVIEW OF CLINICAL EXPERIENCE IN A TERTIARY CARE HOSPITAL IN RIGA, LATVIA.

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Background: although several studies have reported improvement in hemodynamic and lactate clearance with the new adsorptive oXiris® hemofilter, its effects on mortality remain controversial, hindering its use in clinical practice. Therefore, potential risk factors for poor outcomes need to be analysed to identify strategies for individual case management and reduce mortality.

Methods: to determine risk factors related to the patient's 28-day mortality, 35 consecutive cases of septic shock treated with the oXiris® hemofilter in continuous hemofiltration mode for at least 24 hours during 2022 were retrospectively analysed. The demographic, laboratory, continuous renal replacement therapy (CRRT) parameters data, Sequential Organ Failure Assessment (SOFA) were collected from patient's files prior and 24 hours after treatment with oXiris® hemofilter. In addition, the Dynamic Score System (DSS) was collected for all study participants at hospital admission.

Results: a mean age was 65 [IQR 47-73] years. Besides standard septic shock therapy, all enrolled patients received CRRT with oXiris®, mostly due to hemodynamic instability (median dose of norepinephrine (NE) was 0.27μg/kg/min (IQR: 0.13 – 0.39)) or high inflammatory markers (Procalcitonin (PCT; median 26; IQR: 11-71); C-reactive protein (CRP; median 268; IQR: 153 - 299). Twenty-one (60%) patients had at least one comorbidity upon hospitalization, predominated by cardiovascular disease in 13 (37.1%) patients and diabetes in 11 (31.4%) patients. Gram-negative sepsis was found in 25 (71.4 %) patients. The median pre-treatment SOFA score was 12 (IQR: 10– 33) and the DSS score was 8 (IQR: 6-10). The median treatment initiation time was 19 hours (IQR: 14-48) and one hemofilter duration time was 69.5 hours (IQR: 44.5–72). After 24 hours of CRRT with oXiris®, median NE dose, blood lactate and PCT levels decreased by 0.06 μg/kg/min (25%), 0.5 mmol/l (21%) and 9.7ng/ml (37,3%) respectively. The SOFA score decreased by 1 point (8.3%) after 24 hours of treatment. No adverse events during oXiris-CVVH treatment were documented. Only decreasing of blood platelet count by 47.3% after 24 h of oXiris-CVVH treatment was noticed. Among the total patients, 28-day mortality was 45.7% [n=16]. In logistic regression analysis only SOFA scale, DSS score and time before treatment (patients were clustered in two group - who received oXiris® ≤ 24 h or >24 h upon ICU admission) were considered as independent risk factors for 28-day mortality ($p<0.05$).

Conclusion: Hemadsorption with oXiris® reduce the use of vasoactive drugs, lactate level and SOFA score in septic shock patients. Only SOFA scale, DSS, and time before treatment were found to be risk factors for high mortality in septic patients treated with oXiris® hemofilter. Identification of these risk factors may be helpful for healthcare professionals in timely intervention in patients at high risk of mortality. In addition, this study was the first to compare two scoring systems (DSS and SOFA), which may facilitate the validation of this new DSS score in the future.