CytoSorb®

Clinical Evidence in **ECMO**

Name	Title	Aim	Number of patients	Type of study	Outcome
Kreutz et al., Biomed 2025; 13(2):324	CytoSorb® Hemadsorption in Cardiogenic Shock: A Real-World Analysis of Hemodynamics, Organ Function, and Clinical Outcomes During Mechanical Circulatory Support	Pts grouped depending on level of mechanical circulator support (MCS) (1) Impella - 33 pts, (2) VA-ECMO – 34 pts, and (3) ECMELLA – 36 pts, (4) Non MCS – 26 pts. Hemodynamic parameters and laboratory and ventilation parameters assessed 24 h before (T1) and 24 h after completion of CytoSorb® therapy (T2).	129	Retrospective cohort study	Use of CytoSorb® therapy resulted in a significant reduction in VIS, and improved organ perfusion. The results underline that CytoSorb® therapy can be considered a useful “component” in the complex management of cardiogenic shock, especially when combined with MCS
Lovric et al., Ther Apher Dial 2024; 28(1):103-111	The addition of Cytosorb® in patients on VA-ECMO improves urinary output and ICU survival	Analyze the efficiency of CytoSorb® in patients presenting with cardiogenic shock and treated with venoarterial extracorporeal membrane oxygenation (VA-ECMO)	16 (9v7)	Retrospective cohort study	Results showed significantly lower vasopressor doses were required among patients treated with CytoSorb® at initiation and before weaning from VA-ECMO. These patients showed significantly higher urine output before weaning and lower lactate levels during the extracorporeal support. Mortality rate was lower among the CytoSorb® therapy group (22.2% vs 57.1%).
Hayanga et al., Crit Care 2023; 27(1):243	Extracorporeal hemoadsorption in critically ill COVID-19 patients in VV ECMO: The CytoSorb® Therapy in COVID-19 (CTC) Registry	Final report from CTC Registry from 5 US centres in patients on veno-venous extracorporeal membrane oxygenation (VV ECMO) and CytoSorb® for COVID-19 related acute respiratory distress syndrome (ARDS)	100	Registry	This multicentre registry is the largest systematically collected dataset looking at use of CytoSorb® in VV ECMO patients. Results confirm that the approach is easy-to-implement, safe, and associated with high survival rates (74% at 90 days compared to ELSO registry data 52%). Early start may improve outcomes by reducing organ support requirements and length of ICU stay.

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Akil et al., J Clin Med 2022; 11(20):5990	Use of CytoSorb® Hemoadsorption in Patients on Veno-Venous ECMO Support for Severe Acute Respiratory Distress Syndrome: A Systematic Review	Systematic review of all published data reporting on the use of CytoSorb® in patients with acute respiratory distress syndrome (ARDS) and veno-venous extracorporeal membrane oxygenation (vvECMO)	N/A	Systematic Review	Despite low patient numbers, there was a trend towards effective inflammatory biomarker reduction, decreased vasopressor dosage and improved lung function. Exploratory analyses suggest that these clinical benefits may also translate into lower mortality. Early initiation of CytoSorb® in the ECMO circuit might offer a new approach to enhance lung rest and promote recovery in these difficult to treat patients.
Soltesz et al., J Clin Med 2022; 11(21):6517	Influence of Venoarterial Extracorporeal Membrane Oxygenation Integrated Hemoadsorption on the Early Reversal of Multiorgan and Microcirculatory Dysfunction and Outcome of Refractory Cardiogenic Shock.	Patients with refractory cardiogenic shock on vaECMO with or without integrated CytoSorb® were propensity matched to compare rates of reversal of multiorgan and microcirculatory dysfunction, and early mortality.	58 (29 versus 29)	Retrospective Propensity Matched Pairs	There was a lower mean sequential organ failure assessment (SOFA) score (p = 0.04), lactate (p = 0.015), P(v–a)CO2 gap (p < 0.001), vasoactive inotropic score (p = 0.007), and reduced delta C–reactive protein level (p = 0.005) in the CytoSorb® group after 72 hrs of therapy. In–hospital mortality was much lower than predicted in the CytoSorb® group (44.8%) with less ECMO-associated bleeding complications (p = 0.049). Overall, 90-day survival was better in the hemoadsorption group.
Akil et al., Thorac Cardiovasc Surg 2021; 69(3):246 - 251	Combined use of CytoSorb® and ECMO in patients with severe pneumogenic sepsis.	Patients with pneumogenic sepsis on high flow veno-venous extracorporeal membrane oxygenation (vv-ECMO) plus CytoSorb® compared to patients treated with ECMO alone.	20 (13 versus 7)	Prospective case series	Use of CytoSorb® resulted in a rapid and significant reduction in inflammatory markers and quicker weaning off high dose catecholamine therapy within 48 hrs.

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