



| Name                                                                                                                                                   | Title                                                                                                                                                            | Aim                                                                                                                                                                                                                                                                                                                    | Number of patients | Type of study              | Outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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|  <b>Kreutz et al.,<br/>Biomed 2025;<br/>13(2):324</b>                  | CytoSorb® Hemadsorption in Cardiogenic Shock: A Real-World Analysis of Hemodynamics, Organ Function, and Clinical Outcomes During Mechanical Circulatory Support | Patients 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                                                                                                                                                                                            |
|  <b>Nemeth et al.,<br/>ESC Heart Failure<br/>2024; 11(2):772-782</b> | Use of intraoperative haemoadsorption in patients undergoing heart transplantation: A proof-of-concept randomized trial                                          | Patients with end stage heart failure requiring orthotopic heart transplantation (OHT) randomized to receive intraoperative CytoSorb® or standard care alone                                                                                                                                                           | 55<br>(30 v 25)    | RCT                        | Intraoperative hemoadsorption with CytoSorb® was associated with better haemodynamic stability, mitigated PCT response, lower rates of post-operative AKI and RRT, more stable hepatic bilirubin excretion, and shorter durations of MV and ICU stay. Intraoperative haemoadsorption did not show any relevant adsorption effect on MPA. There was no increase in the frequency of early cardiac allograft rejection related to intraoperative haemoadsorption use. |
|  <b>Lovric et al.,<br/>Ther Apher Dial 2024;<br/>28(1):103-111</b>   | 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<br>(9 v 7)      | 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%).                                                                                             |

CytoSorb<sup>®</sup>

Clinical Evidence in **Heart Failure**



| Name                                                                                                                                       | Title                                                                                                                                                                                                     | Aim                                                                                                                                                                                                                                                        | Number of patients | Type of study                          | Outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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|  <b>Soltesz et al., J Clin Med 2022; 11(21):6517</b>       | 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 <sup>®</sup> were propensity matched to compare rates of reversal of multiorgan and microcirculatory dysfunction, and early mortality.                            | 58<br>(29 v 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 <sup>®</sup> group after 72 hrs of therapy. In-hospital mortality was much lower than predicted in the CytoSorb <sup>®</sup> group (44.8%) with less ECMO-associated bleeding complications (p = 0.049). Overall, 90-day survival was better in the hemoadsorption group. |
|  <b>Pieri et al., Blood Purif 2023; 52(9-10):759-767</b> | Extracorporeal Blood Purification with CytoSorb <sup>®</sup> in 359 Critically Ill Patients                                                                                                               | Case series included consecutive high risk intensive care patients (refractory cardiac arrest, profound cardiogenic shock, post cardiotomy shock, respiratory failure and other) who were treated with CytoSorb <sup>®</sup> at the physicians discretion. | 359                | Consecutive case series                | Parameters of shock and organ failure, and in particular the vasoactive inotropic score reduced during CytoSorb <sup>®</sup> treatment. Mortality in ICU, hospital and day 30 all significantly lower than predicted by the SAPS II and SOFA scores suggesting a mortality benefit with the use of CytoSorb <sup>®</sup> .                                                                                                                                                                                                   |
|  <b>Calabro et al., Artif Organs 2019; 43(2):189-194</b> | Blood Purification with CytoSorb <sup>®</sup> in Critically Ill Patients: Single-Center Preliminary Experience                                                                                            | Describe effect of use of CytoSorb <sup>®</sup> 40 patients (19 on ECMO, 21 in CVVH). 28 patients had cardiogenic shock, 2 septic shock, 9 ARDS and 1 liver failure                                                                                        | 40                 | Retrospective case series              | CytoSorb <sup>®</sup> treatment is effective in reducing bilirubin, lactate, CPK and LDH in critically ill patients. Actual mortality was 52.2% vs predicted mortality of 80%                                                                                                                                                                                                                                                                                                                                                |