Table S1. Glossary of Abbreviations

Abbreviation	Full term	Context in manuscript
ALL	Acute Lymphoblastic Leukemia	Patient populations and comorbid conditions reported in pediatric oncology cohorts
ALT	Alanine Aminotransferase	Laboratory parameters in safety and organ function monitoring
AML	Acute Myeloid Leukemia	Patient populations and comorbid conditions in pediatric oncology settings
AST	Aspartate Aminotransferase	Laboratory monitoring of hepatic involvement
CPB	Cardiopulmonary Bypass	Case report of hemoadsorption with HA380 during heart transplantation
CRP	C-Reactive Protein	Inflammatory biomarker outcomes across studies
CRRT	Continuous Renal Replacement Therapy	Extracorporeal circuit modality used for hemoadsorption in pediatric sepsis
CVVHDF	Continuous Venovenous Hemodiafiltration	Specific CRRT modality used in included studies
CytoSorb		Trade name of a porous polymer bead hemoadsorption cartridge (adult experience; limited pediatric data)
ECMO	Extracorporeal Membrane Oxygenation	Context of extracorporeal support in critically ill children
FFP	Fresh Frozen Plasma	Priming or transfusion products in small-volume circuits
GGT	Gamma-Glutamyl Transferase	Laboratory biomarker mentioned in liver function monitoring
HIT	Heparin-Induced Thrombocytopenia	Anticoagulation risks discussed in safety considerations
IL-1	Interleukin-1	Proinflammatory cytokine mentioned in background rationale
IL-6	Interleukin-6	Primary biomarker outcome across included studies
IQR	Interquartile Range	Statistical reporting of nonparametric outcome data
LOS	Length of Stay	General reporting of hospital course
MV-LOS	Mechanical Ventilation – Length of Stay	Duration of respiratory support outcomes
NSS	Normal Saline Solution	Priming fluid in extracorporeal circuits
PCT	Procalcitonin	Biomarker outcome used to assess inflammatory response
PELOD-2	Pediatric Logistic Organ Dysfunction-2	Severity scoring system applied in patient evaluation
PICU	Pediatric Intensive Care Unit	Clinical setting of included patients

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PICU-LOS	Pediatric Intensive Care Unit – Length of Stay	Outcome measure of intensive care stay
PRISM-3	Pediatric Risk of Mortality-3	Severity scoring system for risk stratification
pSOFA	Pediatric Sequential Organ Failure Assessment	Severity score tracked during treatment response
PSS	Phoenix Sepsis Score	Tool for sepsis severity assessment
RBC	Red Blood Cell	Used in priming solutions for pediatric circuits
RCTs	Randomized Controlled Trials	Referenced in discussion of broader evidence
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus 2	Context of cytokine storm pathophysiology
SD	Standard Deviation	Statistical reporting of normally distributed data
SIRS	Systemic Inflammatory Response Syndrome	Clinical context of hyperinflammation
TNF-α	Tumor Necrosis Factor-alpha	Proinflammatory mediator discussed in background
TDM	Therapeutic Drug Monitoring	Recommended safety practice due to possible drug adsorption
VIS	Vasoactive Inotropic Score	Clinical index of cardiovascular support requirements

Table S2. Risk of bias

Study	Design	Tool used	Main limitations	Overall risk
Prospective cohort (12 pts, septic shock, HA330)	Prospective observational	NOS / ROBINS-I	No control group; small sample; multiple co-interventions	Moderate–serious
Retrospective oncology cohort (10 pts, HA330 vs CytoSorb)	Retrospective comparative	NOS / ROBINS-I	Non-randomized; small sample; dose/exposure not equivalent	Moderate–serious
CPB heart transplant case (HA380)	Case report	JBI / CARE checklist	Single patient; no comparator; anecdotal	High