

Italo Calamai, Rosario Spina

Anesthesia and Intensive Care, San Giuseppe Hospital, Empoli, Italy

Introduction

The evolution of sepsis and septic shock treatment over recent years emphasizes a shift in focus from solely targeting the pathogen to also addressing the host's immune-inflammatory response. One of the proposed treatments involves using adsorptive devices or therapies that reduce circulating cytokines to prevent or mitigate systemic inflammation.

Methods

We retrospectively evaluated the use of CytoSorb® in the treatment of septic shock and compared it to a historical cohort of patients treated with Standard of Care (SoC) therapy as per the Surviving Sepsis Campaign guidelines. The study reviewed 29 patients treated with CytoSorb®. These patients received: Day 1: Two 12-hour sessions of CytoSorb®; Day 2: One 24-hour session of CytoSorb®. The outcomes of the CytoSorb® group were compared to those of a historical Control Group of 130 septic shock patients. To ensure that the two groups (CytoSorb® and SoC) were comparable, a propensity score matching was performed. After matching, a final comparison was made between: CytoSorb® group: 25 patients; Control group: 25 patients from the historical cohort.

Results

ICU Mortality: The CytoSorb® group had a lower ICU mortality (40%) compared to the control group (64%), though this result did not reach statistical significance ($p=0.089$), suggesting a trend toward improved survival with CytoSorb®. Observed vs Expected Mortality: The observed mortality in the CytoSorb® group (40%) was much lower than the expected mortality based on SAPS II (72%), indicating a favorable impact of CytoSorb® on survival. Hospital Mortality: there was a significant reduction in hospital mortality in the CytoSorb® group (44% vs. 72%, $p=0.043$), providing compelling evidence that CytoSorb® treatment can improve short-term survival in septic shock (Figure 1).

Conclusion

CytoSorb® in septic shock patients may have a positive impact on mortality rates, particularly in terms of both ICU mortality and hospital mortality.

Figure 1: hospital mortality and Survival analysis by Kaplan-Meier curves

