



Amount of Blood Purified (ABP): effects of CytoSorb® on the Outcome of Septic Shock Patients



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Introduction

Hemoadsorption has gained attention as a therapeutic approach in conditions like septic shock for removal of circulating inflammatory mediators from the bloodstream. Sepsis is characterized by a systemic inflammatory response, leading to the massive release of cytokines and other mediators that can cause organ dysfunction and tissue damage. By removing these harmful substances, hemoadsorption can help to mitigate the pathophysiological effects of sepsis.

Methods

We retrospectively evaluated 175 patients treated with CytoSorb®. The cause of septic shock was medical in 55%, surgical in 47% and undetermined in 5% of cases. Each sorbent was changed every 24 hours or less in case of clotting. The overall duration of the CytoSorb and the amount of blood purified (ABP) (Liters/kg of body weight) were considered as proxy of the intensity of treatment; this latter variable was calculated according to the formula: $ABP = (D \times BF)/BW$, where D is the duration of treatment in minutes, BF is the blood flow in milliliters per minute, and BW is the actual body weight in kilograms.

Results

In the whole population, the distribution of ABP ranged from 0,39 to 50,40 l/kg BW; the ABP was significantly higher in Survivors than in Non Survivors (11,16 l/kg and 6,56 l/kg, respectively, $p < 0,05$). After plotting ABP against observed mortality, three different clusters were identified, including: Cluster A: Low ABP (<4 l/kg), $n = 30$; Cluster B: Intermediate ABP (4–9 l/kg), $n = 56$; Cluster C: High ABP (>9 l/kg), $n = 86$. For cluster C the mortality rate was significantly lower than the others (figure 1)

Conclusion

Our data indicates that CytoSorb® may be a valuable adjunctive therapy in the management of septic shock. We demonstrated a dose-effect relationship between the total amount of blood processed by CytoSorb® and mortality.

