

Hemoadsorption by CytoSorb in septic no-Covid and Covid patients: a case series



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Background

Septic shock is a life-threatening organ dysfunction caused by a dysregulated host response to infection. The reduction of pro-inflammatory and anti-inflammatory mediators by hemoadsorption represents a new tool in the treatment of sepsis. In the present case series, we evaluated the impact of CytoSorb on adult patients with septic shock.

Methods

Patients with septic shock, admitted to Intensive Care Unit (ICU) from March 1, 2021 to February 28, 2022 who received CytoSorb therapy within 72 hours of admission were enrolled in the study. The severity of clinical conditions at admission was assessed by the SAPS II and SOFA scores; The magnitude of the inflammatory response was estimated using the plasmatic levels of C reactive protein (CRP) and interleukin-6 (IL-6). The effect of CytoSorb therapy on the inflammatory state, was evaluated measuring the percentage reduction of IL-6 and CRP. Time elapsed from ICU admission and the start of CytoSorb therapy was also assessed. T-test was used to compare the means of the groups of Survivors and No survivors. Fisher's test was used to evaluate the difference in mortality between Covid and No covid patients.

Results

Twelve patients were evaluated. Six patients tested positive for covid-19, while the other six did not. Table 1 shows the values of age, SAPSII, SOFA, IL-6, CRP, PCT and timing between the survivors and the no survivors. Overall, there was no significant difference between the two groups in terms of SAPSII, SOFA, age, CRP. There was a significant difference in the timing of Cytosorb start and percentage of IL-6 removal: In surviving patients the timing of intervention was shorter ($3,3 \pm 1,8$ vs $23,5 \pm 18,9$ hours) than in non-survivors. The IL-6 removal rate was significantly higher in the survivor group ($70,8 \pm 15,87$ vs $33,2 \pm 12,26$).

Value	Survivors	No survivors	p value
Age	60,80±11,23	69,00±8,58	0,1806
SAPSII	43±16,19	45,29±13,78	0,7972
SOFA	9,40±4,45	8,00±5,13	0,6341
IL-6 Admission (pg/ml)	1913.86±1990.80	1813.20±1825.96	0,9356
IL-6 Reduction Rate (%)	70,80±15,87	33,20±12,26	0,0030
CRP (mg/dl)	14,07±12,55	15,23±10,41	0,8637
CRP reduction rate (%)	51,20±13,1	5,13±59,52	0,1213
Timing (hours)	3,30±1,86	23,43 ± 18,98	0,0420
Covid +	3	3	1,0000
No Covid	5	7	1,0000

Conclusion

In survivors the timing of CytoSorb therapy was shorter and the IL-6 removal rate was higher than in non-survivors. This suggests that the early applying of CytoSorb adsorber in combination with Continuous Renal Replacement Therapy (CRRT) techniques, could increase the survival rate of septic shock patients. Using CytoSorb was safe and well tolerated with no device-related adverse events during or after the treatment.