A562 - Early cytokine adsorption in septic shock (acess-trial): results of a proof concept, pilot study

N Öveges 1; F Hawchar 2; I László 2; M Forgács 3; T Kiss 3; P Hankovszky 2; P Palágyi 2; A Bebes 4; B Gubán 4; I Földesi 5; Á Araczki 6; M Telkes 6; Z Ondrik 7; Z Helyes 8; Á Kemény 8; Z Molnár 1

1University of Szeged, Department of Anaesthesiology and Intensive Therapy, Szeged, Hungary, 2University of Szeged, Anaesthesiology and Intensive Therapy, Szeged, Hungary, 3University of Szeged, Faculty of Medicine, Szeged, Hungary, 4University of Szeged, Department of Dermatology, Szeged, Hungary, 5University of Szeged, Institute of Laboratory Medicine, Szeged, Hungary, 6University of Szeged, Department of Laboratory Medicine, Szeged, Hungary, 7University of Szeged, Department of Nephrology, Szeged, Hungary, 8University of Pécs, Department of Medical Biology, Pécs, Hungary

Introduction:
Overwhelming cytokine release often referred to as “cytokine storm” is a common feature of septic shock, resulting in multiple organ dysfunction and early death. Attenuating this cytokine storm early by eliminating cytokines may have some pathophysiological rationale. Our aim was to investigate the effects of extracorporeal cytokine removal (CytoSorb) therapy on organ dysfunction and inflammatory response within the first 48 hours from the onset of septic shock.

Methods:
Patients with: sepsis of medical origin, on mechanical ventilation, noradrenaline > 10mg/min, procalcitonin > 3ng/mL and no need for renal replacement therapy, were randomized into CytoSorb and Control groups. CytoSorb therapy lasted for 24 hours. In addition to detailed clinical data collection, blood samples were taken to determine IL-1, IL-1ra, IL-6, IL-8, IL-10, TNF-α, PCT, CRP levels. At this stage of the study, only PCT and CRP levels were analyzed. Data were recorded on enrollment (T0) then at T12, T24, and T48 hours. For statistical analysis, Mann-Whitney test was used.

Results:
Twenty patients were randomized into CytoSorb (n=10), and Control-groups (n=10). Overall organ dysfunction as monitored by SOFA and MODS scores did not differ between the groups. In the CytoSorb-group noradrenaline requirement (T0=76±63, T24=48±43, T48=23±24 µg/min, p=0.016) showed a significant reduction in the CytoSorb-group but not in the Control-group. There was no difference in CRP, but PCT decreased significantly in the CytoSorb-group (T0=147.8±216.3, T48=78.9±140.1 mmol/L, p=0.004). Lactate decreased significantly in both groups.

Conclusion:
These results suggest that a 24-hour long CytoSorb treatment at the early stages of septic shock has significant beneficial effects on noradrenaline requirement and PCT concentrations within the first 48 hours. Based on the results of this current pilot study we are planning to design a prospective randomized multicenter trial.