Case of the week 9/2016

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CytoSorb in a case of severe burn injury (60% BSA) and sepsis

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This case study reports on a 51-year-old patient who was admitted to hospital with severe burn injury (60% BSA) and inhalation trauma due to an explosion accident.

Case presentation

- Instantaneous initial treatment with bath therapy, tracheotomy and escharotomy on both legs due to circular burns grade 3
- From day two acute kidney failure with indication for dialysis
- In the further course daily routine dressing changes, in total seven operations with debridement and split skin grafts
- 27 days after admission development of severe sepsis
- Proven microbial species: Enterococcus faecium, Escherichia coli, Staphylococcus epidermidis, Aspergillus fumigatus (tracheal secretion negative)
- Antibiotic therapy with meronem, voriconazol, linezolid
- High demand for catecholamines (noradrenaline 3.6mg/h, vasopressin 2.4IE/h, dobutamine 45mg/h)
- Mechanical ventilation: high peak inspiratory pressures, high FiO2
- Severely impaired renal function with increased retention parameters and anuria
- Massive myoglobinemia (15696 µg/l) and significantly elevated inflammatory parameters (CRP 275 mg/l, PCT 28.75 µg/l, WBC 15500/µl)
- Due to the progressive need for catecholamine and massive myoglobinemia a CytoSorb adsorber was added into the CRRT circuit

Treatment

- Three CytoSorb treatment sessions for three days with treatment time of 24 hours each
- CytoSorb was used in conjunction with CRRT (Prismaflex, Gambro) in CVVHD mode
- Blood flow rate: 200 ml/min
- Anticoagulation: heparin
- CytoSorb adsorber position: post-hemofilter

Measurements

- Demand for catecholamines
- Renal function (creatinine, urea, excretion)
- Myoglobin
- Inflammatory parameters (CRP, PCT, WBC)

Results

- Hemodynamic stabilization of the patient with significantly decreased needs for catecholamines (noradrenaline 0.6mg/h, dobutamine 5mg/h)
- Significantly declining renal retention parameters and reduction of inflammatory parameters (CRP 237 mg/l, PCT 10.78 µg/l, WBC 9.900/µl)
- Reduction of myoglobin plasma levels to 7944 µg/l during the three CytoSorb sessions

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Patient Follow-Up

- In the further course continuation of intensive care treatment
- Termination of renal replacement therapy after 70 treatment days (43 days after initial CytoSorb treatment)
- Patient stable, free of mechanical ventilation and capable for rehab
- Finally, successful transfer of patient to a rehabilitation unit

CONCLUSIONS

- Treatment with CytoSorb resulted in significant stabilization of hemodynamics with declining needs for catecholamines as well as control of the septic episode and myoglobinemia
- CytoSorb was safe and easy to apply