KSN 2020
FULLY VIRTUAL MEETING

Abstract Type : Poster
Abstract Submission No. : PO-1734

First successful hemoadsorption using cytosorb and crrt in a septic pediatric patient with multi-organe failure syndrome in kazakhstan: a case report

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Case Study: For the first time in Kazakhstan, we have used a combined extracorporeal support, by - old patient with a body weight of 5600 g. Patient was admitted with the diagnosis of acquired severe laryngeal stenosis, chronic tracheal cannulation, and protein energy malnutrition third degree. On day 2 after the admission, balloon dilatation was done under direct suspension laryngoscopy. The following day the patient's condition has worsened with fever and dyspnoea. The exam revealed bilateral pneumonia, respiratory failure third degree, and fungal- bacterial sepsis. The patient was transferred to the paediatric intensive care unit (PICU). However, despite the intensive therapy with a combination of potent antibacterial and antifungal agents sepsis progressed with increasingly unstable hemodynamic. The patient's condition became extremely severe due to endogenous intoxication, complicated by the multi- organ failure syndrome (MOFS) and Acute Kidney Injury (AKI). Eight days after transferring the patient to the PICU, conservative treatment had resulted in no positive change in patient condition. MOFS, toxic changes in blood tests led to the initiation of paediatric CVVHD with the MultiFiltrate device. The CytoSorb system was initiated and maintained for the next 36 h. The system was installed in the middle of the drainage line before the KitPaed filter.

The CytoSorb therapy session resulted in a reduction of inflammation markers IL- 6, S100, procalcitonin, and C- reactive protein. Simultaneously, the level of transaminases, creatine kinase, and troponin were normalized. By the end of the session patient hemodynamic were stable and there was no need for vasopressors, acid base balance was maintained, and the patient was weaned from mechanical ventilation to spontaneous breathing.

Conclusions
Treatment using the CytoSorb device was safe and well- tolerated in a paediatric patient and has proven its practical value as an adjuvant therapy for sepsis in paediatric patient populations.