

Early and intensive reduction in inflammatory status improves survival outcome in CKD: a case of patient with CKD treated with Cytosorb post EC

C.Vita a, M.Zicarelli a, N. Carullo a, R. Arena a, M.Capria a, G. Coppolino a, B.

DeLeonardis b, F. Picicco b, E. Garofalo b, F.Longhini b, M. Andreucci a

a Nephrology and Dialysis Unit, Graecia University of Catanzaro, Italy;

b Intensive Care Unit, Department of Medical and Surgical Sciences, University Hospital Mater Domini, Magna Graecia University of Catanzaro, Italy

Objective: Early and intensive reduction in inflammatory status using Cytosorb improves survival outcome in CKD

Background: Acute kidney injury (AKI) after cardiac surgery (CSA-AKI) and sepsis are the most common causes of AKI in intensive care unit (ICU). The prevalence of CSA-AKI is up to 30% and it is independently associated with an increase of mortality and morbidity. The most severe form of CSA-AKI requires renal substitute therapy with a prevalence up to 4%. In particular, the use of extracorporeal circulation (EC) frequently is a trigger for a systemic inflammatory syndrome that associated with CKD can further increase the risk of AKI.

Methods: In our case report a 59-year-old man with hypertension, dyslipidemia kidney transplant complicated with reject in 1997 and a new kidney transplant in 2009 worsened at stage IV CKD in 2020. The occurrence of myocardial occlusion (MO) was treated with PTCA DES and in 2016 PTCA DES for restenosis, POBA in 2020 of subocclusive restenosis of IVA. Finally for severe mitral insufficiency treated with mitral valve replacement and subjected to myocardial revascularization (3 Bypass) in EC. Suddenly after surgery hemodynamic state deteriorated markedly until cardiac arrest.

Cardiopulmonary resuscitation and intubation maneuvers were carried out. It was decided to use an Intraaortic balloon pump counterpulsation.

Patient developed AKI on CKD. On the first day CRRT was started lasting 24 hours in CVVHDF (Anticoagulation with heparin sodium; blood flow rate 150 ml/min; total effluent rate 3100 ml/h; dialysate fluid rate 1500 ml/h; convective rate 1500 ml/h; net UF goal of net negative 100 ml/h) while the need for vasopressors increased drastically. On the second day, in a state of septic state, antimicrobial therapy was initiated and the patient received renal support with additional hemoadsorption using CytoSorb. Three CytoSorb sessions were conducted during the following days. The start of CytoSorb therapy decreased inflammatory markers, IL-6, , procalcitonin, leukocytes and reduced also vasopressors need until complete stopping. It was decided to continue with CRRT for 7 days. For the further improvement of the clinical picture and laboratory tests even in the presence of persistent anuria the patient started intermittent hemodialysis.

Results The significant inflammatory state that occurred after the surgery performed, the use of the intra-aortic balloon pump resulted in a further loss of renal function. Treatment with CytoSorb reduced the need for vasopressors while haemodynamics improved significantly and resulted in a reduction in procalcitonin, C-reactive protein, leukocytosis and inflammatory status.

Conclusion The use of this treatment favored the resolution of the inflammatory process and patient survival. Early initiation resulted in better clinical outcomes.



on **AKI&CRRT**

SPECIAL EDITION

June 14-16, 2022