Introduction:
We describe the use of a novel low-flow ECCO2R-CRRT device (PrismaLung-Prismaflex, Baxter Healthcare Gambro Lundia-AB-Lund, Sweden) for simultaneous lung-renal support.

Methods:
A retrospective review of patients submitted to PrismaLung-Prismaflex due to AKI associated to hypercapnic acidosis during the period May 2016 - August 2017 at Prato Hospital ICU was performed. Data collected were: demographic, physiologic, complications, outcome. Data were presented as mean ± DS; Anova Test was used to compare changes of parameters over time; significance was set at P< 0.05.

Results:
We identified 13 patients (mean age 71 ± 13 yr, mean SOFA 12 ± 3). Causes of hypercapnia were moderate ARDS (n=4) and AE-COPD (n=9). In all patients a 13fr double lumen cannula was positioned and 350 ml/min blood-flow with 10 lt oxygen sweep-gas-flow was maintained; iv-heparin aiming to double aPTT was used. Haemodiafiltration (effluent flow 35 ml/kg/hour) was delivered. In all cases PrismaLung-Prismaflex improved respiratory and metabolic parameters (Figure1-2) without any complications. All patients survived to the treatment, nevertheless 2patients (1AE-COPD; 1ARDS) died during ICU stay due to irreversible cardiac complications. In ARDS cases: 3 patients were successfully weaned from IMV, mean duration of the treatment was 88 ± 31hours, mean duration of IMV after ECCO2R-CRRT was 2 ± 2 days. In AE-COPD cases: intubation was avoided in 3 patients at risk of NIV failure, 6 patients were successfully weaning from IMV, mean duration of the treatment was 79 ± 31 hours, mean duration of IMV after ECCO2R-CRRT was 0,1 ± 0,3 days.

Conclusion:
The use of PrismaLung-Prismaflex has been safe and effective: it may be argued that it could be due to the low-blood-flow used. The positive results of this preliminary study may constitute the rational for the design of a larger randomized control trial.
Mean CO2 ± DS (mmHg) during ECCO2R-CRRT

Image 2:

Mean pH ± DS during ECCO2R-CRRT