A Retrospective Observational Case Series of Low-Flow Venovenous Extracorporeal Carbon Dioxide Removal Use in Patients with Respiratory Failure.

We aimed to describe the use of venovenous extracorporeal carbon dioxide removal (ECCO2R) in patients with hypercapnic respiratory failure. We performed a retrospective case note review of patients admitted to our tertiary regional intensive care unit and commenced on ECCO2R from August 2013 to February 2015. Fourteen patients received ECCO2R. Demographic data, physiologic data (including pH and partial pressure of carbon dioxide in arterial blood [PaCO2]) when starting ECCO2R (t = 0), at 4 hourly intervals for the first 24 hours, then at 24 hour intervals until cessation of ECCO2R, and overall outcome were recorded. Patients are reported separately depending on whether the indication for ECCO2R was an exacerbation of chronic obstructive pulmonary disease (COPD; n = 5), or acute respiratory distress syndrome (ARDS) and persisting hypercapnoea (n = 9). Patients were managed with ECCO2R (Hemolung, ALung Inc, Pittsburgh, PA). Median duration of ECCO2R was 5 days. Four complications related to ECCO2R were reported, none resulting in serious adverse outcomes. Ten patients were discharged from intensive care unit (ICU) alive. A statistically significant improvement in pH (p = 0.012) was demonstrated. Our observational series of ECCO2R shows that this technique can be safely used to achieve therapeutic goals in patients requiring lung protection, and in COPD, in line with current publications in this area.