

## THE CONTRIBUTION OF ARTERIO-VEINUS EXTRACORPOREAL LUNG ASSIST TO GAS EXCHANGE IN A PORCINE MODEL OF LAVAGE-INDUCED ACUTE LUNG INJURY

BREDELAU J, MUELLENBACH R, KREDEL M, SCHWEMMER U, ANETSEDER M, GREIM C, ROEWER N  
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### Objective

To evaluate the contribution of arterio-venous extracorporeal lung assist (AV-ECLA) to pulmonary gas exchange in a porcine lavage-induced acute lung injury model.

### Study Design

Prospective experimental animal study in 33 healthy female pigs.

### Methods

Following saline lung lavage until decrease of PaO<sub>2</sub> to 51 ± 16 mm Hg and a stabilization period of 1 hour, AV-ECLA was implemented by femoral vascular access. Animals were mechanically ventilated in a pressure-controlled mode, at standard PEEP being applied of 5 cm H<sub>2</sub>O. Following, under apnoeic oxygenation, variations of sweep-gas flow were performed every 20 minutes in order to evaluate the membrane lungs efficacy, in terms of carbon dioxide (CO<sub>2</sub>) removal and oxygen (O<sub>2</sub>) uptake.

### Results

AV-ECLA is highly effective in eliminating CO<sub>2</sub>. If combined with apnoeic oxygenation, normocapnia was not achievable. With respect to oxygenation, AV-ECLA did not increase PaO<sub>2</sub> at PEEP of 5cm H<sub>2</sub>O and increased Qs/Qt.

### Discussion

AV-ECLA is an effective treatment modality in ARDS. The author concluded, that although nearly complete CO<sub>2</sub> elimination can be achieved, oxygenation must be provided with a ventilator, following the rules of lung protective ventilation. Oxygenation depends on lung recruitment and might be maintained applying a Vt-even lower than 6 ml/kg body weight. Nevertheless, the effect of a higher PEEP on oxygenation has not been examined in this setting.

