

## **OXYGENATION EFFECT OF INTERVENTIONAL LUNG ASSIST IN A LAVAGE MODEL OF ACUTE LUNG INJURY: A PROSPECTIVE EXPERIMENTAL STUDY**

ZICK G, FRERICHS I, SCHÄDLER D, SCHMITZ G, PULLETZ S, CAVUS E, WACHTLER F, SCHOLZ J, WEILER N  
CRIT CARE 2006;10(2):R56

CE1-48

### **Objective**

The aim of the study was to test the hypothesis that a pumpless arteriovenous extracorporeal membrane oxygenator (interventional lung assist (ILA)) does not significantly improve oxygenation in a lavage model of acute lung injury.

### **Study Design**

Prospective, experimental animal study.

### **Study Population**

The experiments were performed on seven pigs (48–60 kg body weight).

### **Methods**

The pigs were anesthetized and mechanically ventilated. Both femoral arteries and one femoral vein were cannulated and connected with ILA. Acute lung injury was induced by repeated bronchoalveolar lavage until the arterial partial pressure of O<sub>2</sub> was lower than 100 Torr for at least 30 minutes during ventilation with 100% O<sub>2</sub>.

### **Results**

ILA was applied with different blood flow rates through either one or both femoral arteries. ILA significantly increased the arterial partial pressure of O<sub>2</sub> from 64 ( $\pm$  13) Torr to 71 ( $\pm$  14) Torr and 74 ( $\pm$  17) Torr with blood flowthrough one and both femoral arteries, respectively. O<sub>2</sub> delivery through ILA increased with extracorporeal shunt flow (36 ( $\pm$  14) ml O<sub>2</sub>/min versus 47 ( $\pm$  17) ml O<sub>2</sub>/min) and reduced arterialization of the inlet blood. Pulmonary artery pressures were significantly reduced when ILA was in operation.

### **Commentary**

The results indicate that iLA use may not be justified if the improvement of oxygenation is the primary therapy goal. This is in full accordance with the list of indications supplied by the manufacturer. The study is important because it underlines that iLA is a ventilating rather than an oxygenating device.

Although oxygenation may improve significantly it is difficult to judge the clinical impact. iLA reduces the pulmonary artery blood pressures. It is difficult to judge if this is a desired effect (reduction of right heart workload) or not (increase of ventilation perfusion mismatch).

