

# European Respiratory Society Annual Congress 2012

**Abstract Number:** 2445

**Publication Number:** P1482

**Abstract Group:** 8.2. Transplantation

**Keyword 1:** Lung injury **Keyword 2:** Hypoxia **Keyword 3:** Pulmonary hypertension

**Title:** Systemic oxygenation affects post-transplantation edema formation and pulmonary artery hypertension in an ex vivo animal model

Dr. Sara 17808 Klein saraklein@gmx.net <sup>1</sup>, Prof. Stefan 17809 Dhein saraklein@gmx.net MD <sup>1</sup>, Luisa 17810 Bauer saraklein@gmx.net <sup>1</sup>, Franziska 17811 Schlegel saraklein@gmx.net <sup>1</sup>, Dr. Sven 17812 Lehmann saraklein@gmx.net MD <sup>1</sup>, Dr. Markus 17823 Barten saraklein@gmx.net MD <sup>1</sup>, Prof. Friedrich-Wilhelm 17825 Mohr saraklein@gmx.net MD <sup>1</sup> and Prof. Hartmuth 17827 Bittner saraklein@gmx.net MD <sup>1</sup>. <sup>1</sup> Heart Center Leipzig, Clinic for Cardiac Surgery, Leipzig, Germany, 04289 .

**Body:** Introduction: By using an ex vivo model of isolated perfused and ventilated rabbit lungs we investigated the influence of systemic oxygenation on pulmonary function during simulated transplantation. Methods: Lungs of New Zealand White rabbits were flush-perfused with Perfadex® Solution, followed by an ischemic storage for 4h on ice. Thereafter ventilation and reperfusion for 2h were continued to simulate a transplantation situation (oxygenated group, pulmonary artery pO<sub>2</sub>=120mmHg). In another series the perfusate inflow was gassed with nitrogen to simulate the typical situation with deoxygenated pulmonary artery blood and not reanastomized private vessels(deoxygenated group, pulmonary artery pO<sub>2</sub>=50mmHg). Hemodynamic and ventilatory parameters were continuously detected. Results: After 2h reperfusion time the oxygenated group showed a significant lower PAP and lung weight compared to the deoxygenated group (p<0.05). PAP and lung weight steadily increased after reestablishment of lung perfusion (PAP 8.78±0.89 to 11.5±1.06cmH<sub>2</sub>O; lung weight 22.1±1.32 to 35.4±4.23g). This development was significantly influenced by the intravascular pO<sub>2</sub> (PAP 9.65±0.43 to 8.02±0.63cmH<sub>2</sub>O; lung weight 17.9±1.54 to 21.5±2.29g, p<0.05). Conclusions: Oxygenation of the lung perfusate during simulated transplantation attenuates post transplant edema formation and decreases pulmonal arterial hypertension. Transferring this to the surgical situation, revascularisation of bronchial arteries after lung transplantation might initiate positive effects in the early phase after lung transplantation.