156. Lung transplantation: studies in candidates and recipients

**P1476**
Results of a phase 2b multi-center trial of ALN-RSV01 in respiratory syncytial virus (RSV)-infected lung transplant patients

Amy Simon1, Verena Karsten1, Jeff Cechelsky1, Shalay Shah1, Jared Gollob1, Rachael Titman2, Aksah Vepnakh2, Alisa Glavincic2, Martin Zamora2, John DeVincentis2, Selim Arcay3, Michael Musk4, Ute Sommerwerk4, Jens Gottlieb5

Introduction: RSV is a major respiratory virus that infects all age groups, and can be highly pathogenic in lung transplantation patients, with significant mortality. We performed a randomized, double-blind, placebo-controlled trial to evaluate ALN-RSV01, an investigational small interfering RNA (siRNA) targeting the RSV envelope gene, in RSV-infected lung transplant patients.

**Methods:** A phase 2b, multi-center, randomized, placebo-controlled trial in RSV-infected lung transplant patients was conducted. Patients were stratified into one of two groups based on their risk factors: low risk (≤25%) and high risk (>25%). Patients in the high-risk group were randomized to receive ALN-RSV01 or placebo daily for 5 days. The primary endpoint was mortality. Secondary endpoints included changes in RSV titer, duration of hospitalization, and incidence of severe complications.

Results: Of the 299 patients enrolled, 288 (96.3%) had a positive RSV test result. The median duration of RSV treatment was 5 days (range, 1-21 days). The overall mortality rate was 5.6% (n=17). At the time of data analysis, 22 (7.4%) patients died, 16 (5.4%) patients were discharged, and 251 (84.2%) patients were still waiting for transplantation. Of the patients who died, 7 (25.0%) had a very rapid FEV1 decline. Despite infrequent testing, earlier LCI signal was seen in some (3/8) but not all 8 subjects (e.g., not those with rapid FEV1 decline).

Conclusion: LCI is frequently abnormal post lung transplantation. LCI is significantly elevated in BOS, and appears to increase with BOS severity. An early signal of subsequent outcome may exist but optimal frequency of testing is yet to be determined.

**P1477**
The impact of desensitization therapy prior to lung transplantation

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Introduction: A significant improvement in lung allograft survival has been made due to advances in immunosuppressive agents and improvements in desensitization protocols. However, the effectiveness of these protocols remains to be defined. We aimed to determine the impact of desensitization therapy on waitlist mortality in lung transplantation.

Methods: We performed a retrospective cohort study on all lung transplant recipients at the University of Texas Southwestern Medical Center from 2000 to 2011. Patients were stratified into two groups: those who underwent desensitization therapy and those who did not. We compared the outcomes of these two groups.

Results: Of the 423 lung transplant recipients, 218 (51.4%) underwent desensitization therapy. The percentage of restrictive lung function patterns in CLAD patients was comparable to the previously published data. In our study, mortality of patients with PRA still waiting was statistically significant when compared to allosensitized patients that did not undergo desensitization.

Conclusion: Desensitization therapy did not improve waitlist time or waitlist mortality. Desensitization therapy did not improve waitlist time or waitlist mortality. Desensitization therapy did not improve waitlist time or waitlist mortality. Desensitization therapy did not improve waitlist time or waitlist mortality. Desensitization therapy did not improve waitlist time or waitlist mortality. Desensitization therapy did not improve waitlist time or waitlist mortality. Desensitization therapy did not improve waitlist time or waitlist mortality. Desensitization therapy did not improve waitlist time or waitlist mortality. Desensitization therapy did not improve waitlist time or waitlist mortality.

**P1478**
Multiple breath washout in bronchiolitis obliterans syndrome following paediatric lung transplantation

Paul Rohimoto1, Helen Spencer2, Paul Aurora2

Introduction: Bronchiolitis obliterans syndrome (BOS) is one of the most challenging complications in lung transplantation. We aimed to assess the impact of multiple breath washout (MBW) on patients with BOS.

Methods: We conducted a retrospective analysis of MBW and spirometry data from patients transplanted between 2002-2010 at our institution. We reviewed the MBW data and compared it to the spirometry data.

Results: Of the 50 patients analyzed, 50% (25 patients) had MBW data. The MBW data was used to determine the impact of ALN-RSV01 on BOS.

Conclusion: MBW detected early structural lung damage in patients with BOS. The MBW data was used to determine the impact of ALN-RSV01 on BOS.

**P1479**
Assessment of the restrictive allalgraft syndrome in patients after lung transplantation

Vasiliki Bessa1, Bjorn E. Kleibrink1, Gerhard Weinreich1, Markus Kamler1, Helmut Teschner1, Ute Sommerwerk1

Introduction: Chronic lung allograft dysfunction (CLAD) is the leading cause of long term mortality after lung transplantation. We aimed to evaluate the recently reported criteria for the diagnosis of CLAD.

Methods: We retrospectively analyzed the lung function tests from patients after lung transplantation. The patients were stratified into two groups: those with CLAD and those without CLAD. We compared the lung function test results between these two groups.

Results: Of the 162 patients analyzed, 42 (26%) patients were diagnosed with CLAD. The percentage of restrictive lung function patterns in CLAD patients was comparable to the previously published data. In our study, mortality of patients with PRA still waiting was statistically significant when compared to allosensitized patients that did not undergo desensitization.

Conclusion: The percentage of restrictive lung function patterns in CLAD patients was comparable to the previously published data. In our study mortality of patients that developed RAS was not different from the BOS group.
vival after lung transplantation and reduces health related quality of life (HRQOL). 

**Aims:** The study was performed to find parameters correlating with low exercise capacity of patients with advanced CLAD.

**Methods:** In this single-center prospective study, all patients with advanced CLAD (FEV1 <50% baseline) in our outpatient clinic were screened between 1.7.2011 and 15.11.2011 by exercise capacity, HRQOL (using SF 36, St. George, HADS), body composition, blood gas analysis, pulmonary function testing, respiratory muscle function and chest x-ray. The patients with low exercise capacity (LEC-CLAD) were defined as 6MWT < 50% predicted or use of oxygen or wheelchair/roller. Results: 319 of 785 patients had CLAD and 53 had the diagnosis of advanced CLAD. A single patient refused consent to this study, 52 patients were included. In 19 needed oxygen or had a 6 min walk test (6 MWT) fewer than 50% predicted (LEC-CLAD). Patients with LEC-CLAD demonstrated lower forced vital capacity (1820ml vs 2380ml, p < 0.001), pathologic respiratory muscle function (P0.1/Pimax index: 0.14 vs. 0.06, p < 0.001), decreased inspiratory capacity (IC; 1190ml vs 1620ml, p < 0.001). We were able to show a positive correlation between 6 MWT and IC (p < 0.367, p < 0.001). Patients with LEC-CLAD demonstrated a decrease in activity and social function.

**Conclusion:** Advanced CLAD is an inhomogeneity cohort of patients showing different exercise tolerance of reduced lung function. We were able to demonstrate pronounced hyperventilation in patients with worse toleration and pathologic respiratory muscle function.

P1481

Lung transplantation (LTx) is an accepted therapeutic option for patient with end-stage emphysema. These emphysema patients can be subdivided in blue bluters and pink puffers, although most patients have characteristics of both groups. BMI is an important tool in distinguishing these subgroups. A low BMI is associated with a poor nutritional status which may predict a poor outcome after LTx. We aimed to investigate the outcome of emphysema patients with a low pre-transplant BMI (<20) in terms of acute rejection (AR), lymphocytic bronchiolitis (LB), infeccions, BOS, and survival. All 193 patients transplanted for emphysema between 1991-2011 surviving more than 60 days post transplant, were included (53 SLT(s) single) and 140 SLT(double)). AR, LB and BOS are diagnosed according to the ESHLT criteria. Multivariate analyses were done using SAS software. Patients with a lower BMI (<20) had a significant better 10-years survival compared to the BM>20 for the total population (p=0.01) (figure). Prevalence of BOS was significantly lower within the lower BMI group, independent from other covariates (table). There is a statistical association between the prevalence of BOS, infection and LB (table).

**P1482**

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

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**Lung Transplant Unit, UZ Leuven and UZ Gasthuisberg, Leuven, Belgium**

Lung transplantation (LTx) is an accepted therapeutic option for patient with end-stage emphysema. These emphysema patients can be subdivided in blue bluters and pink puffers, although most patients have characteristics of both groups. BMI is an important tool in distinguishing these subgroups. A low BMI is associated with a poor nutritional status which may predict a poor outcome after LTx. We aimed to investigate the outcome of emphysema patients with a low pre-transplant BMI (<20) in terms of acute rejection (AR), lymphocytic bronchiolitis (LB), infections, BOS, and survival. All 193 patients transplanted for emphysema between 1991-2011 surviving more than 60 days post transplant, were included (53 SLT(s) single) and 140 SLT(double)). AR, LB and BOS are diagnosed according to the ESHLT criteria. Multivariate analyses were done using SAS software. Patients with a lower BMI (<20) had a significant better 10-years survival compared to the BM>20 for the total population (p=0.01) (figure). Prevalence of BOS was significantly lower within the lower BMI group, independent from other covariates (table). There is a statistical association between the prevalence of BOS, infection and LB (table).

**P1483**

Extracorporeal life support (ECLS) as a bridge to lung transplantation (LTx)

**David Ruttens**, Toosia Bahrami, Anna Reed, Mohamed Amrani, Prashant Mohite, Ajay Moza, Heike Krueger, Martin Carby, Andre Simon.

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**Purpose:** Death on the waiting list remains high in patients awaiting LTX. ECLS as a bridge may increase patient’s survival. We present our initial experience.

**Materials and methods:** Between Feb. 2010 and Dec. 2011 100 patients underwent LTX at our institution. 7 (7%) recipients were supported with ECLS prior to LTx. Outcome, donor and recipient parameters were analysed.

**Results:** Donor age was 24/20.47 (median [interquartile range]) y.; gender – F/M: 5/2, cause of death: intracranial haemorrhage 3, hypoxic brain injury 2, bacterial meningitis 2; duration of donor mechanical ventilation was 2/2.25 days; PaO2/FiO2 ratio: 63.6±58.15 69.45 ±5pp. One patient died during the support.

**Table 1: Recipients’ demographics and postoperative data**

<table>
<thead>
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<th>Recipient</th>
<th>1</th>
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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<tr>
<td><strong>Age (year)</strong></td>
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<td>21</td>
<td>23</td>
<td>40</td>
<td>29</td>
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<tr>
<td><strong>Type of ECLS</strong></td>
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<tr>
<td><strong>Diameter of ECLS (dmm)</strong></td>
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<tr>
<td><strong>Duration of ECLS (days)</strong></td>
<td>4</td>
<td>1</td>
<td>6</td>
<td>70</td>
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<td>30</td>
<td>54</td>
<td>169</td>
<td>48</td>
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</table>

**CF:** cystic fibrosis, **HP:** hypersensitivity pneumonitis, **PH:** pulmonary hypertension, **PP:** pulmonary fibrosis, **E-D:** Echo-Danslos syndrome related emphysema, **ECMO:** Extracorporeal Membrane Oxygenation, **IL:** Intentional Lung Assist, **LOS:** length of stay. **Still in hospital.

**P1484**

Superior lung preservation with a polyethylene glycol based solution in a porcine lung transplant model

**Anne Ollland**, Anne Neiryck,** 1, Malika Benhamou** 2, Thomas Boogmans** 3, Alexia Stana** 1, Karin Elbyed** 1, Shara Wouters** 1, Geert Verleden** 1, Izize Namer** 1, Dirk Vanraemdonck** 1,2,3, 1Laboratory for Experimental Thoracic Surgery, Catholic University Leuven, Leuven, Belgium; 2CNRS UMR 7237, UMR 7177, Strasbourg University, Strasbourg, France; 3Laboratory for Pneumology, University Hospital Gasthuisberg, Leuven, Belgium; 4Biophysics and Nuclear Medicine Department, University Hospital, Strasbourg, France; 5Thoracic Surgery Department, University Hospital Gasthuisberg, Leuven, Belgium; 6Anesthesiology Department, University Hospital Gasthuisberg, Leuven, Belgium

**Objectives:** Scot15® is a low-K+ preservation solution including polyethylene glycol (PEG) as a collodion for protection of vascular endothelium during cold ischemia. PEG was previously demonstrated to have “immunocamouflage” properties. The aim of this study was to assess whether these properties would be beneficial in a pig lung transplant model.

**Methods:** Thirty healthy Landrace pigs, weighing 80-100 kg were divided into thirds. One third received PEG coated allogeneic donor lungs (PEG-P), one third of these latter received PEG coated allogeneic donor lungs with a 2h reperfusion time (PEG-2h-P) and finally the remaining group received PEG coated allogeneic donor lungs with a 2h reperfusion time (PEG-2h-PR). The reperfusion served the purpose of simulating post-transplantation situation (oxygenated group, pulmonary artery P0.1=120mmHg). In another series the perfusate was previously gassed with nitrogen to simulate the typical situation with deoxygenated pulmonary artery pO2=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 8.7±0.80 to 9.0±1.06cmH2O, lung weight 22.1±1.3 to 35.4±4.23g). This development was significantly influenced by the intravascular pO2 (P9.6±0.5±3 to 8.0±0.6±0.3cmH2O, lung weight 17.9±1.5 to 21.5±2.29g, p<0.05).

**Conclusions:** Oxygenation of the lung perfuse during simulated transplantation attenuates post transplant edema formation and decreases pulmonary arterial hyper tension. This may be of surgical interest, revascularisation of bronchial arteries after lung transplantation might initiate effective injuries in the early phase after lung transplantation.
cance. Differential cell count of BAL showed lower neutrophilic cell count in [S] (89±6.7neutrophils in [S] versus 139±53 neutrophils in [P]; p<0.001). There was no difference in WID weight ratio (p=0.9).

Conclusion: After 22 hours of cold ischemia, oxygenation capacity was superior with less inflammatory reaction in lung grafts preserved with Scott15. Further experiments to study the “immunocommaouflage” properties of PEG based solutions in lungs are warranted.

P1485 Low hypercapnic ventilatory response in long-term lung transplant recipients predicts exercise impairment

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Background: Only few studies reported findings on CO2 rebreathing in long-term bilateral lung transplant recipients. Bilateral lung transplantation causes denervation of the donor lung. This might have an impact on control of breathing as measured by the hypercapnic ventilatory response (HVCVR). The influence of gender on HVCVR and the relation to exercise capacity is unknown yet.

Objectives: To study HVCVR and the relation to exercise capacity after bilateral lung transplantation.

Methods and patients: Minute ventilation, respiratory rate and HVCVR were studied in 24 bilateral lung transplant recipients (12 male). HVCVR was measured according to the Read protocol. Exercise testing was performed to evaluate the maximum level of workload. This was expressed as percentage of the corresponding reference value.

Results: Age and body mass index (BMI) of men and women were similar (age: 56±6.9 years vs. 54±6.9 years (n=24). BMI: 26±3 kg/m2 vs. 25±6.6 kg/m2 (n=24)).

Post-transplant period ranged from 6 months to 9 years. HVCVR in lung transplant recipients was 1.71±1.25 l/min/mmHg in men and 0.95±0.38 l/min/mmHg in women (p=0.05). In healthy controls HVCVR at our laboratory were 2.0±0.77 l/min/mmHg for men and 1.51±0.64 l/min/mmHg for women (p=0.05). After adjustment for FEV1 and gender in multivariate analysis we found a statistically significant correlation between the exercise capacity and HVCVR.

Conclusion: There is a remarkable difference in ventilatory response to carbon dioxide between male and female bilateral lung transplant recipients, suggesting a role for denervation of the lung in the impairment of exercise capacity after bilateral lung transplantation.

P1486 Sleep quality and sleep-disordered breathing in lung transplant recipients

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Background: To date, only a few studies with small sample size analysed sleep-disordered breathing (SDB) in lung transplant recipients (LTX). Therefore, little is known on the prevalence of SDB and the impact of this disorder on morbidity and mortality.

Objective: Our ongoing prospective study aims to determine the prevalence of SDB and the consequences of this disorder in LTX.

Patients and Methods: Between March 2011 and February 2012 we included 28 clinically stable lung transplant recipients (16 men, time range after LTX 6 months to 9 years). Full polysomnography (PSG) was performed to investigate sleep characteristics and SDB. An apnea-hypopnea index (AHI) ≥10/hr was used as definition for SDB. Daytime sleepiness was measured by the Epworth Sleepiness Scale (ESS) questionnaire.

Results: Indications for LTX were: 15 COPD, 11 idiopathic pulmonary fibrosis, 1 alpha-1 antitrypsin deficiency, 1 pulmonary hypertension. Age was 54±6.8 years; body mass index 25.5±4.0 kg/m2 and FEVI 69±31% predicted. The prevalence of SDB was 57% (50% obstructive sleep apnea, 7% central sleep apnea). Total sleep time (TST) was 372±91 min in the SDB group and 355±93 min in the non-SDB group (n.s.). Sleep efficiency was 68±7±17% in the SDB group and 67±1±9% in the non-SDB group (n.s.). ESS was 4.5±4.1 in the SDB group and 3.6±3.2 in the non-SDB group (n.s.).

Conclusions: The prevalence of SDB is high in lung transplant recipients, and sleep quality is equally poor for those with and without SDB compared to the general population and paroxysmal atrial fibrillation patients. Interestingly, neither the occurrence of SDB nor the quality of sleep was associated with symptoms of sleepiness as measured by ESS.

P1487 Comparison of two immunosuppressant triple therapies on airway mucusolytic clearance in rat

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The vast majority of lung transplant patients receive a maintenance immunosuppressive therapy consisting of a triple-drug regimen. However, these drugs are related with important side effects and toxicities that limit their clinical use. We hypothesized that different triple therapies could have different effects upon airway mucusolytic clearance. Wistar rats were randomly assigned in three groups (n=10 each): Control = saline solution; T1 = tacrolimus + mycophenolate + prednisone; and T2 = cyclosporine + azathioprine + prednisone. After 7 days of treatment by gavage, animals were killed, lungs excised and in situ mucusolytic airway control

P1488 Combined CMV prophylaxis reduces short term complications after lung transplantation

Elisabetta Balesio, Emanuela Rossi, Francesca Lunardi, Marco Damin, Nazarena Nannini, Monica Levy, Giuseppe Marulli, Federico Rea, Fiorella Calabrese, Department of Cardio, Thoracic and Vascular Sciences, University of Padova Medical School, Padova, Italy

Among solid organ transplant recipients, lung transplant ones are at highest risk of cytomegalovirus (CMV) infection. The advent of CMV prophylaxis and changes in prophylactic protocols have contributed to a steady decline in CMV morbidity and mortality; however its potential impact on short-term outcome needs further investigation. The aim of the study is to evaluate the effect of combined CMV prophylaxis in reducing short term acute illness after transplant. A consecutive series of 52 CMV high-risk lung transplant recipients who had more than one year follow-up, were studied. The study group (n=26; age 44±2yrs) received ganciclovir or valganciclovir from postoperative day 15 and CMV-immunoglobulins for 6 months, while the control group (n=26; 40±2yrs) was treated with pre-emptive therapy. Viral Infection Index (number of BAL with infection/total BAL number), acute rejection index (ARI, number of acute rejections/total transplant bronchiolitis (BBIs) number), incidence of CMV pneumonia and early onset BOS were obtained. Viral Infection Index, infection index simply related to CMV as well as ARI were significantly reduced in the study group than in the control group (mean 3.3±X±SE 47% p=0.02; 14%±X±SE 27% p=0.05 and 13%±X±SE 26% p=0.04, respectively), while the incidence of CMV pneumonia and BOS were similar in the two groups. A significant relationship between combined CMV prophylaxis and a reduced prevalence of acute rejection was observed by logistic regression analysis, even when considering grade A3 only (p=0.01). In conclusion our data underline the strong efficacy of combined CMV prophylaxis in reducing infections as well as acute rejections, particularly the most severe ones, in lung transplant recipients.

P1489 Vasculatization of heterotopic tracheal transplant in mice

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Heterotopic tracheal transplantation (HTT) is a commonly used model to study oblitative bronchiolitis (OB) in mice. Vasculatization of the graft in this model has not been reported. We here describe that vasculatization occurs early after HTT.

Methods: HTT (iso- and allograft) was performed (D0-D21). The graft was collected at 1, 3, and 6 weeks post-transplantation and anti-CD3 (Santa Cruz) and anti-LYVE1 (Abcam) immunostaining. Groups of 4 grafts were pooled for RNA extraction, and VEGF, angiopoietin-2 and podoplanin mRNAs quantification in iso- and allograft (72±3-fold) both in in situ- and allografts, whereas angiopoietin-2 mRNA increased from D7 (9.82±0.71, 12.38±1.09, and 13.68±0.60 Hertz, respectively; p<0.05). Mucus production was higher in T1 and T2 groups than in Control group (7.80±1.03, 5.92±0.75, and 4.27±1.29, respectively, p<0.05). We conclude that both triple therapies, mainly T1, caused an important impairment in airway mucusolytic clear-

Poster Discussion

Room C7 - 14:45 - 16:45

SUNDAY, SEPTEMBER 2ND 2012

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Progressive and irreversible fibroproliferative process leads to BOS. The presence of mesenchymal cells, the primary source of fibrotic cells, has been described in BAL fluid of LTR as predictive of BOS onset (Badri et al., 2011). CD44 cell surface glycoprotein has been found increasingly expressed by graft infiltrating lymphocytes, macrophages and AR fibroblasts with active OB. CD44 has been also associated to an invasive fibroblast phenotype. Inhibition of mTOR, responsible of cell over-proliferation has been found   effective in treating fibrotic process. Aim of this work is to assay CD44 expression in fibroblastoid cells derived from colony-forming units (CFU) of mesenchymal cells isolated from BAL of LTR patients with BOS O4, 1 and 2 to evaluate its implication in fibrotic process. In addition, in the same cells expression of the active form of mTOR has been assayed to specifically target pharmacological treatment. Methods: Mesenchymal CFUs from BAL were isolated from two patients with BOS O4, two with BOS 1 and one with BOS 2, respectively. Proliferation rate was evaluated at 24, 48 and 72 h. CD44 and mTOR expression was assayed by immunocytochemistry. Results: BOS O4 and 1 patients showed moderate to strong expression of both CD44 and mTOR in 80% cells and weak in 20% cells. BOS O4 patients displayed moderate to high expression in 5% cells, weak signal in 60% and no detection in 35% cells. We also found that cells isolated from BOS O4 had a significantly (P<0.01, ANOVA) lower proliferation rate compared to other cultured fibroblastoid cells. Conclusion: These results open new perspectives in the identification of a specific fibroblastoid phenotype linked to BOS grades and to target a therapeutic treatment.

P1490
Creative supplementation attenuates systemic and pulmonary effects of acute lung injury induced by pulmonary ischemia-reperfusion in rats
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1Clinical Medicine (LIM 20), University of Sao Paulo, 2Thoracic Surgery (LIM 61), University of Sao Paulo, School of Medicine, Sao Paulo, SP, Brazil; 3Pathology (LIM 05), University of Sao Paulo, School of Medicine, Sao Paulo, SP, Brazil; Post-graduation Program in Biophotonics Applied to Health Sciences, Nove de Julho University, Sao Paulo, SP, Brazil

Creative supplementation (CS) presents prophylactic and therapeutic effects for acute, muscular, cardiovascular and neurological injuries. In case of temporary ischemia, CS improves the capacity to generate ATP reducing cell damage. Ischemia and reperfusion (IR) injury is partially attributed to decreased intracellular ATP turnover, but also to increased oxidative stress and reduced IGF-1. Thus, this study evaluated the effects of 5 days of CS prior 90 minutes ischemia of left pulmonary artery followed by 120 minutes of reperfusion in 40 male Wistar rats divided in 4 groups: Sham-operated, Creatine+Sham, Ischemia/Reperfusion, Creatine+Ischemia/Reperfusion. Lung mechanics, exhaled nitric oxide, cellularity in systemic circulation and in bronchoalveolar lavage (BAL), neutrophils and edema in lung tissue, total proteins in BAL, the levels of IL-1β, IL-4, IL-6, IL-17, KC, MCP-1 and TNF-α in BALF were evaluated by ELISA, as well as the expression of IGF-1, inOS and caspase-3 in lung tissue. Compared with IR group, CS supplementation (CS+IR group) resulted in a reduction of exhaled nitric oxide (p<0.05), tissue damage (GTIS) and tissue elastance (HTIS) (p<0.05), total cells and neutrophils number in systemic circulation, in BAL and also in lung tissue (p<0.01), BAL levels of total proteins (p<0.05) and edema index in lung tissue (p<0.05, and systemic and pulmonary IL-1β levels (p<0.05). In addition, CS resulted in increased expression of IGF-1 in lung tissue. CS presents protective effects for the development of pulmonary and systemic manifestations of acute lung injury caused by pulmonary IR.