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## 269. Lung transplantation

### P2437

#### LSC 2011 Abstract: T helper 17 cell involvement in COPD and lung transplantation patients

Marthe Paats, Ingrid Bergen, Menno van der Eerden, Bernt van den Blink, Peter van Hal, Nicole van Besouw, Carla Baan, Henk Hoogsteden, Rudi Hendriks. *Department of Pulmonary Medicine, Erasmus Medical Center, Rotterdam, Netherlands; Department of Internal Medicine, Erasmus Medical Center, Rotterdam, Netherlands*

**Background:** COPD is associated with airway and systemic inflammation and end stage disease is a major indication for lung transplantation (LTx). The novel T helper 17 (Th17) subset was recently implicated in the pathogenesis of COPD and is also associated with allograft rejection. To date, little is known about the cytokine profile of circulating T cells in COPD and LTx patients.

**Aim:** To determine the cytokine profile of circulating T cells in patients with COPD and in stable LTx patients.

**Methods:** Peripheral blood mononuclear cells of COPD patients, before and 1 year after LTx and of healthy controls were shortly stimulated *in vitro* and T cells were analysed by flow cytometry for intracellular cytokine production.

**Results:** We found no differences in proportions of Th17 cytokines (IL17A, IL22, IL17F) in stable COPD patients when compared to healthy controls. In the LTx patients, proportions of IFN $\gamma$  and TNF $\alpha$  producing T cells did not differ from those in healthy controls. However, IL22 production by CD4<sup>+</sup> and CD8<sup>+</sup> T cells was increased in LTx patients. Also, an increase in the proportions of IL17<sup>+</sup>IL22<sup>+</sup> and IL17<sup>+</sup>IFN $\gamma$ <sup>+</sup> double positive T cells was found in stable LTx patients when compared with healthy controls.

**Conclusions:** Remarkably, T cells of LTx patients have the capacity to produce high levels of proinflammatory cytokines despite immunosuppressive drug treatment. In particular, IL22<sup>+</sup> T cells and specific populations of IL17<sup>+</sup> cells co-expressing IL22 or IFN $\gamma$  are high in LTx patients, while IFN $\gamma$  and TNF $\alpha$  single positive T helper cells are not increased. These findings indicate that there is no general systemic inflammatory state but that specific Th17-linked subpopulations may play a role in stable LTx patients.

### P2438

#### Comparison between referral and explant diagnoses in lung transplant recipients: Discrepancies and additional findings

Peter Jaksch<sup>1</sup>, Mai-Britt Ernst<sup>1</sup>, Axel Scheed<sup>1</sup>, Silvana Geleff<sup>2</sup>, Gerhard Dekan<sup>2</sup>, Walter Klepetko<sup>1</sup>. <sup>1</sup>*Thoracic Surgery, Medical University of Vienna, Vienna, Austria;* <sup>2</sup>*Clinical Institute of Pathology, Medical University of Vienna, Vienna, Austria*

**Background:** LuTX is an accepted therapeutic option for a range of pulmonary conditions in which the diagnosis is often based on clinical data or on limited

biopsy material. PostTX complications and recurrence of underlying disease may be related to the primary disease, and an accurate diagnosis is therefore essential. **Methods:** A pathologic review was performed on 1056 primary LuTX over a period of 22 years (1998 to 2010). Diagnoses of native lungs were compared with referral diagnoses to assess the presence of discrepancies or expanded results (malignancies or infections).

**Results:** 73 (7%) cases presented a different or expanded diagnosis. Discrepancies were found in 34 of 1054 cases (3%). The highest percentage of discordance was depicted in COPD (12 of 344), with the final diagnosis of UIP (n=4), chronic interstitial fibrosis (n=4), silicosis (n=2), LAM (n=1) and sarcoidosis (n=1). 16 patients who were referred with the diagnosis of an interstitial lung disease had predominantly emphysema (n=12), bronchiectasis (n=2) and HX (n=2). Expanded results included Aspergillus (n=11) and mycobacterial (n= 16) infections, carcinomas (n=10), cystic adenomatoid dysplasia (n=1) and carcinoid (n=1).

However, short- and long-term survival was not different in patients with different diagnoses, malignancies or implanted infections. Interestingly all mycobacterial infections and all malignancies occurred in patients with COPD

**Conclusions:** On account of this high rate of discrepancies and its possible influence on survival, frequently repeated clinicopathologic investigations should be performed during the waiting list period.

### P2439

#### Mortality in idiopathic pulmonary fibrosis (IPF) on the waiting list for lung transplantation in the Netherlands

Liesbeth ten Klooster<sup>1</sup>, Coline van Moorsel<sup>1,2</sup>, Diana van Kessel<sup>1,2</sup>, Ed van de Graaf<sup>2</sup>, Johanna Kwakkel-van Erp<sup>2</sup>, Bart Luijk<sup>2</sup>, George Nossent<sup>3</sup>, Peter van Hal<sup>4</sup>, Jan Grutters<sup>1,2</sup>. <sup>1</sup>*Center of Interstitial Lung Diseases, Department of Pulmonology, St. Antonius Hospital, Nieuwegein, Netherlands;* <sup>2</sup>*Division of Heart and Lungs, University Medical Center Utrecht, Utrecht, Netherlands;* <sup>3</sup>*Department of Lung Transplantation, University Medical Center Groningen, Groningen, Netherlands;* <sup>4</sup>*Department of Respiratory Medicine, Erasmus Medical Center, Rotterdam, Netherlands*

**Background:** Idiopathic Pulmonary Fibrosis (IPF) is a progressive disease with a poor prognosis of 2.5 to 5 years. IPF is not responsive to medicinal treatment and lung transplantation is the only therapeutic option to prolong life.

**Objective:** The aim of this study was to examine waiting list mortality of IPF in the Netherlands.

**Methods:** Data were retrospectively collected from September 1989 till June 2010 of all IPF patients registered for lung transplantation in the Netherlands. Patients were included after revision of the diagnosis based on the IPF criteria set by the ATS/ERS. Clinical data and lung function measurements were collected at the time of screening.

**Results:** 167 IPF patients were referred for lung transplantation. After evaluation for contraindications and screening, 90 patients were listed for lung transplantation. During the waiting list period 33.3% of IPF patients (n=30) died compared to 13.8% in Cystic Fibrosis (CF) (p = 0.0018) and 16.3% in Chronic Obstructive Pulmonary Disease (COPD) (p = 0.003). Analysis of lung function showed a mean FVC%-predicted of 51.1% (SD 19.0) and mean DLco%-predicted of 27.1% (SD 9.4) at time of screening. Five patients were taken off the list due to new comorbidities and deterioration of physical condition, 51 were transplanted and 4 IPF patients were still on the waiting list.

**Conclusions:** This study revealed a significantly higher waiting list mortality for IPF compared to COPD and CF. DLco%-predicted at time of screening was considerably lower than international guidelines for lung transplantation. This indicates that timing of referral of IPF for lung transplantation can be improved.

### P2440

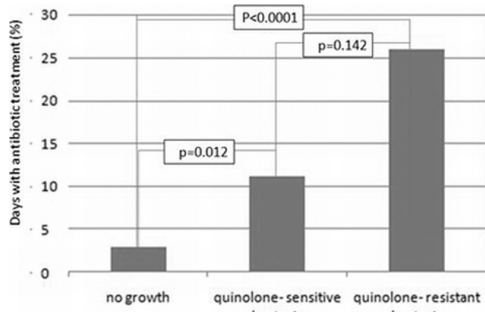
#### The impact of resistant bacteria in respiratory secretions on the outcome of lung transplantation

Michal Shteinberg<sup>1</sup>, Yael Raviv<sup>2</sup>, Jihad Bishara<sup>3</sup>, Dror Rosengarten<sup>2</sup>, Nili Stein<sup>4</sup>, Ilana Bakal<sup>2</sup>, Mordechai Kramer<sup>2</sup>. <sup>1</sup>*Pulmonary Institute, Carmel Medical Center, the B. Rappaport Faculty of Medicine, Haifa, Israel;* <sup>2</sup>*Pulmonary Institute, Rabin Medical Center, Sackler School of Medicine, Tel Aviv, Israel;* <sup>3</sup>*Infectious Disease Unit, Rabin Medical Center, Sackler School of Medicine, Tel Aviv, Israel;* <sup>4</sup>*Department of Community Medicine and Epidemiology, Carmel Medical Center, Haifa, Israel*

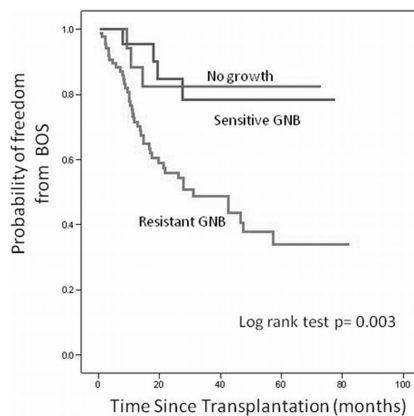
**Introduction:** Antibiotic treatment may cause growth of resistant bacteria in respiratory secretions. We assessed the association between antibiotic treatment of lung transplant recipients and acquisition of quinolone resistant gram negative bacteria (QR-GNB), and the impact of such colonization on mortality and lung rejection (BOS).

**Methods:** We examined data from lung transplant recipients for antibiotic treatment, GNB in respiratory secretions, BOS, and mortality.

**Results:** 126 patients were included. Median percentage of days with antibiotics was 2.8% in patients with no growth, 11.1% in patients with quinolone sensitive GNB (QS-GNB), and 26% in patients with QR-GNB. Age adjusted mortality hazard ratio was 9.2 (95% CI, 1.27-78.9) for patients with QR-GNB compared with QS-GNB. Age adjusted hazard ratios for BOS were: 3.6 (1.1-11.6) for QR-GNB compared with no growth, and 3.7 (1.33-10.3) for QR-GNB compared with QS-GNB.



**Figure 1:** Effect of antibiotic treatment on emergence of quinolone sensitive and quinolone-resistant gram negative bacteria  
Median antibiotic treatment is expressed as percentage of days from transplantation until relevant growth (or until death or end of follow up in patients with no growth) in which antibiotic treatment was given.



**Conclusions:** Antibiotic treatment was associated with QR-GNB. Airway colonization with QR-GNB was associated with mortality and with BOS. We suggest that narrow spectrum antibiotics should be preferred in lung transplant recipients.

**P2441**

**Anxiety, depression and coping in patients awaiting lung transplantation**  
Torunn Stavnes Soyseth<sup>1</sup>, Aasta Haldal<sup>3</sup>, Gro Killi Haugstad<sup>4</sup>, Vidar Soyseth<sup>5</sup>, Oystein Bjortuft<sup>2</sup>, May Brit Lund<sup>2</sup>. <sup>1</sup>Division of Rehabilitation; Non-Clinical Service Unit, Rikshospitalet, Oslo University Hospital, Oslo, Norway; <sup>2</sup>Department of Respiratory Medicine, Division of Cardiovascular and Respiratory Medicine and Surgery, Rikshospitalet, Oslo University Hospital, Oslo, Norway; <sup>3</sup>Department of Neuropsychiatry and Psychosomatic Medicine, Division of Clinical Neuroscience, Rikshospitalet, Oslo University Hospital, Oslo, Norway; <sup>4</sup>Department of Mensendieck (Physiotherapy), Faculty of Health Sciences, Oslo University College, Oslo, Norway; <sup>5</sup>Department of Respiratory Medicine, Akershus University Hospital, Lorenskog, Norway

Knowledge is scarce about the mental aspects of living with terminal lung disease. We aimed to assess anxiety, depression and coping in patients waiting for lung transplantation.

**Material and methods:** A national cohort of 121 consecutive patients were evaluated by psychometric instruments, Hospital Anxiety and Depression Scale (HAD) and General Health Questionnaire (GHQ). 89 (45 females) had COPD, 18 (9 females) fibrosis, and 14 (8 females) various other lung diseases. Mean (SD) age was respectively 56 (5), 52 (6) and 46 (8) years. Patients with cystic fibrosis were excluded.

**Results:** See table.

		COPD (n=89) mean (SD)	Fibrosis (n=18) mean (SD)	Other (n=14) mean (SD)
HAD	Anxiety	4,8 (4,0)	3,2 (3,6)	5,7 (2,9)
	Depression	3,8 (3,0)	2,2 (1,9)	3,8 (1,9)
GHQ	Anxiety	0,81 (0,49)	0,71 (0,54)	1,09 (0,6)
	Depression	0,61 (0,51)	0,47 (0,28)	0,57 (0,29)
	Restrained coping	0,99 (0,32)	0,89 (0,29)	1,2 (0,41)

For all groups, mean values were within the normal range. However, the ranges were wide. Males tended to be more depressive than females (mean (SD) HAD score 4,1 (3,0) vs 3,1 (2,5), p=0,07), and have higher restrained coping scores than females (mean (SD) GHQ score 1,05 (0,05) vs 0,93 (0,05), p=0,08). The association between anxiety and restrained coping was highly significant, p=0,0001 as well as the association between depression and restrained coping, p=0,0001.

**Conclusions:** The strong association between anxiety and depression and restrained coping may be of clinical relevance after transplantation. Males may be more vulnerable than females in this respect.

**P2442**

**Significance of a spirometric obstructive pattern immediately after lung transplantation**

Hendrik Suhling<sup>1</sup>, Jessica Rademacher<sup>1</sup>, Tobias Welte<sup>1</sup>, Gregor Warnecke<sup>2</sup>, Sabine Dettmer<sup>3</sup>, Jens Gottlieb<sup>1</sup>. <sup>1</sup>Dpt. of Pulmonary Medicine, Hannover Medical School, Hannover, Germany; <sup>2</sup>Dpt. of Cardiothoracic, Transplantation and Vascular Surgery, Hannover Medical School, Hannover, Germany; <sup>3</sup>Dpt. of Radiology, Hannover Medical School, Hannover, Germany

To increase the donor pool, cadaveric lungs with extended donor criteria are increasingly accepted for lung transplantation.

In this study the impact and outcome of lung transplant recipients with an obstructive spirometric pattern as possible indicator of structural damaged lungs immediately after lung transplantations was investigated.

Analyzing all patients undergoing double lung transplantation between 1.09.2007 and 01.10.2009, we separated patients with obstructive (FEV1/VC < 0.7) and a non-obstructive pattern (FEV1/VC > 0.7) in pulmonary function tests 3 months after transplantation. Pulmonary function measurement including body plethysmography, bronchoscopy, laboratory parameter, CT and outcome was analyzed up to 36 months after transplantation.

From 122 recipients included, 17 (14%) were identified with an obstructive pattern, these were older at transplantation and had a lower donor oxygenation index and significant higher TLC. Obstructive patients developed peak FEV1 earlier after LTx and developed significantly more frequently bronchiolitis obliterans syndrome (47% vs. 14%).

Obstructive lung function pattern is associated with earlier development of BOS and might worsen the outcome after double lung transplantation. The OP in association with increase TLC and donor history suggests that the obstruction was of donor origin. Factors like smoking status, age of the donor lung and FiO2 were indicators of a later obstructive pattern in recipients.

**P2443**

**Probe-based confocal laser endomicroscopy in acute lung allograft rejection**

Jonas Yserbyt<sup>1</sup>, Christophe Doods<sup>1</sup>, Wim Janssens<sup>1</sup>, Geert Verleden<sup>1</sup>, Vincent Ninane<sup>2</sup>, Marc Decramer<sup>1</sup>. <sup>1</sup>Respiratory Diseases, University Hospitals Leuven, Leuven, Belgium; <sup>2</sup>Respiratory Diseases, CHU Saint-Pierre, Brussels, Belgium

Several aspects of normal alveolar tissue in probe-based confocal laser endomicroscopy (pCLE) have been elucidated; a description of the alveoloscopic findings in different pulmonary disorders is still largely lacking.

In a prospective study, we evaluated 40 lung transplant recipients using probe-based confocal laser endomicroscopy (pCLE) preceding BAL and transbronchial lung biopsy (TBLB) during bronchoscopy. In 6 patients (15%) acute rejection (AR) was diagnosed using TBLB. The recordings of the pCLE images were digitally processed and analyzed for the following parameters: alveolar duct diameter, alveolar elastin thickness, macrophage diameter, number of macrophages per microscopic field and quantification of the autofluorescence signal of macrophages.

In 5 out of 6 AR cases, a diffuse infiltration of autofluorescent cells with a mean diameter of 26.2±13.3µm, was recognized in all examined segments. The number of macrophages per microscopic field and their autofluorescence intensity were significantly higher in the AR group than in the non-AR group (p < 0.001 and p = 0.03 respectively). In all affected segments there appeared to be more than 100 cells per microscopic field, frequently presenting as clustering cells. The elastin network in the alveolar ducts of AR appeared to be of a normal architecture (alveolar elastin thickness mean 8.3±4.9µm, alveolar mouth diameter mean 371±131µm), and did not differ from the patient group without AR (7.8±3.7µm and 323±89 µm, respectively).

In the lung transplant recipient group studied, our preliminary findings suggest that pCLE is able to detect an alveoloscopic pattern that might correlate with AR.

**P2444**

**Frequency and characteristics of prolonged viral shedding of influenza A/H1N1 virus in lung transplant recipients**

Macé M. Schuurmans, Alice Zuercher, Gabrielo M. Tini, Gregory Fretz, Christian Benden, Erich W. Russi, Annette Boehler. Pulmonology, University Hospital, Zurich, Switzerland

Influenza infection may harm lung transplant recipients (LTR) because it potentially triggers allograft rejection. Prolonged viral shedding (PVS) is defined as positive detection of influenza A/H1N1 virus (H1N1) by real-time reverse-transcriptase polymerase chain reaction (RT-PCR) at day 7 or later after diagnosis. The aim was to quantify and characterise PVS of H1N1 infections among LTR in consecutive influenza seasons.

**Methods:** Influenza vaccination is routinely offered at follow-up visits in our outpatient clinic. LTR are also instructed to contact and visit our clinic when signs of infection occur or home lung function deteriorates 10% or more. We then frequently perform nasopharyngeal swabs (NPS) for viral and bacterial analysis. In

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case of suggestive symptoms for influenza infection we start oseltamivir (Tamiflu) and moxifloxacin treatment pending NPS results. For proven H1N1 infection we continue treatment until weekly NPS return negative.

**Results:** In winter 2009/2010 7 patients had H1N1 infection of which 2 had PVS (28%). No serious complication occurred. 2/7 LTR were vaccinated for H1N1. For 2010/2011 we have so far documented 11 H1N1 infections and PVS in 8 LTR (73%). All LTR were vaccinated with at least 1 dose containing H1N1. Three LTR were hospitalised. 5 LTR had PVS for 2-6 weeks. Quantification of viral results and drug resistance testing are being performed. Influenza B was detected in 4 other LTR.

**Conclusion:** In this ongoing study we report an increase in frequency of PVS for H1N1 infections in LTR from 28 to 73% in consecutive influenza seasons. Most infections occurred despite vaccination and had a favourable outcome rarely requiring hospitalisation.

#### P2445

##### Opto-electronic plethysmographic study of the chest volume changes after lung transplantation

Marianna Laviola<sup>2</sup>, Emilia Privitera<sup>1</sup>, Mario Nosotti<sup>1</sup>, Andrea Aliverti<sup>2</sup>, Luigi Santambrogio<sup>1</sup>, Davide Tosi<sup>1</sup>, Lorenzo Rosso<sup>1</sup>. <sup>1</sup>Thoracic Surgery, Fondazione Cà Granda Ospedale Policlinico, Milano, Italy; <sup>2</sup>Bioingegneria, Politecnico di Milano, Milano, Italy

**Background:** Lung transplantation is the established surgical therapy for pulmonary end-stage disease.

**Aims:** Even though the pulmonary function after lung transplantation is well studied, the chest volume changes remain uninvestigated. The aim of the present study was to examine such changes by the opto-electronic plethysmography (OEP), a non invasive technology.

**Methods:** Seven patients with end-stage pulmonary disease were studied before and after lung transplantation by OEP during quiet and forced breathing. Standard pulmonary function tests were also obtained. Three patients with pulmonary fibrosis had single lung transplantation and four patients with cystic fibrosis had bilateral.

**Result:** The functional tests demonstrated increasing in pulmonary function (e.g. FEV1% from 44±15 to 83±6). After bilateral transplantation, the OEP revealed a volume rearrangement: a decrease was noted in functional residual capacity (FRC: -2.14±1.3L), in vital capacity (-1.1±1.1L), in total lung capacity (-2.59±1.6L). The chest wall volume reduction was different in the upper thorax, lower thorax and abdominal compartment (e.g. FRC: -0.68L, -0.13L - 1.59L respectively). After single lung transplantation the pattern was similar but less evident.

**Conclusions:** This first, preliminary, study of the chest wall volume changes reveals a rearrangement of such volumes after single or double lung transplantation. Facing the dramatic improvement in spirometric value, OEP recorded a decrease in volume parameters; such decreases were inhomogeneous through the body compartments privileging the abdomen. Further studies are needed to better understand the value of these findings and their clinical impact.

#### P2446

##### Lung transplantation for pulmonary silicosis: The Israeli scene

Anat Amital<sup>1</sup>, David Shitrit<sup>3</sup>, Yael Raviv<sup>2</sup>, Benjamin Medalion<sup>1</sup>, Ilana Bakal<sup>1</sup>, Mordechai Kramer<sup>1</sup>. <sup>1</sup>Pulmonary Institute, Carmel Medical Center, Haifa, Israel; <sup>2</sup>Pulmonary Institute, Rabin Medical Center, Petah Tiqva, Israel; <sup>3</sup>Pulmonary Institute, Meir Medical Center, Kfar Saba, Israel

**Background:** Silicosis is a rare indication for lung transplantation (LT). The number of patients with silicosis in Israel is increasing due to improper processing of a new quartz stone Caesarsstone.

**Methods and materials:** We retrospectively reviewed the files of patients that were transplanted in Rabin Medical center (RMC) and compared the data to that of the ISHLT.

**Results:** According to the ISHLT registry out of 24,090 transplants 50 patients were transplanted for Silicosis between 1994-may 2009.

Out of 336 lung transplantations in RMC between 1997- may 2010 8 patients underwent LT for silicosis. There were more patients transplanted for silicosis in RMC compared to the ISHLT (p<0.01).

All of our patients were men, their average age being 50.5. Four underwent left LT 3 right LT and 1 bilateral sequential LT. Before transplant their average FEV1 and DLCO were 298.9 and 28.58, one patient was treated with ECMO. In all the patients the native lung extraction was difficult because of severe pleural adhesions. Three patients died, due to technical failure, recurrent pneumothorax, and recurrent infections. Three patients had intra-operative bleeding, one of them needed a second operative procedure.

Post operative complications also included severe infections in 3 patients, severe primary graft dysfunction in 2 patients, injury to the phrenic nerve and diaphragm paralysis in 2 patients. According to the ISHLT 6 of 36 patients needed additional surgical procedure, and 20 out of 39 were treated for infection.

**Conclusions:** Compared to the ISHLT registry, in Israel there are more transplantations for silicosis. LT in patients with silicosis is technically difficult with higher morbidity and mortality.

#### P2447

##### Donor and recipient parameters affecting 1-year follow-up after lung transplant: Padova experience

Elisabetta Balestro<sup>1</sup>, Emanuela Rossi<sup>1</sup>, Francesca Lunardi<sup>2</sup>, Giuseppe Marulli<sup>1</sup>, Monica Loy<sup>1</sup>, Francesco Di Chiara<sup>1</sup>, Fiorella Calabrese<sup>2</sup>, Federico Rea<sup>1</sup>. <sup>1</sup>Department of Cardiac, Thoracic and Vascular Sciences, University of Padova, Padova, Italy; <sup>2</sup>Department of Diagnostic Medical Sciences and Special Therapies, University of Padova, Padova, Italy

The critical shortage of donor lungs suitable for transplant significantly limits the number of potential recipients. Many questions regarding donor acceptability still remain unanswered. Regarding recipients, less is known about peri-operative factors affecting 1-year survival. To investigate how multiple risk factors influence short term survival we retrospectively reviewed clinical data of donors and their recipients, transplanted in our centre.

We collected data from donors (n=174, mean age 35.7±1.0) focusing on age, Body Mass Index (BMI), orotracheal intubation (OTI) duration, marginality, cause of death, tracheal secretions and selected clinical information from their recipients (n= 200, mean age 46.8±1.0): native disease, BMI, type of transplant, intensive care unit (ICU) stay and OTI duration.

Donor age, above 35 yrs, and overweight (BMI>25) were independent predictors of survival less 1 year (respectively p=0.004; p = 0.05). Instead OTI duration (> 3 days), marginality, death for traumatic/cardiovascular cause, presence of tracheal secretions did not affect survival (respectively p=0.73;p=0.92;p=0.40;p = 0.40; p=0.40). Concerning recipients, BMI between 18 to 20 (p=0.04) and age under 50yrs (p=0.005) predisposes to longer survival. Prolonged ICU stay (>20 days,p=0.007) and OTI duration (>3 days,p=0.00001) negatively affect short survival.

Our data suggest that some peri-operative donor characteristics do not affect short survival and might help maximize lung availability from donor pool. Recipient evaluation confirm how crucial is to reduce OTI duration which, in our study, have influenced 1year survival.

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**Conclusion:** In our model, CO arises during expiratory phase and its concentration is not changed by low or high CO level in ambient air. Thus, we are able to quantify CO produced by the lungs.

**P2452****BODE index as a predictor of survival in lung transplantation**

Pilar Sanjuan, Isabel Otero, Pedro J. Marcos, Héctor Vereza. *Respiratory, Complejo Hospitalario Universitario de A Coruña, A Coruña, Spain*

**Introduction:** Chronic obstructive pulmonary disease (COPD) is one of the most frequent indications for lung transplantation (LTx), but survival benefit is still under debate. We analysed the survival impact of LTx in COPD using the BODE (body mass index, airway obstruction, dyspnoea, exercise capacity) index.

**Aims:** The aim of our study was to analyse the survival impact of lung transplantation in COPD patients. We compared the post-transplant survival with the survival predicted by the BODE index as measured during pre-transplant clinical evaluation.

**Methods:** Retrospective review of 59 consecutive lung transplants performed for COPD in our centre between June 1st 1999 and December 30th 2010. The pre-transplant BODE score was calculated for each patient. Predicted and observed post-transplant survival was then compared.

**Results:** 59 COPD patients were analyzed. Mean age was  $57 \pm 6$  years, 51 (86%) men. 52 (88%) patients had a BODE  $>7$  and 7 (11.9%)  $<7$ . The overall survival time was 70.82 months  $\pm 8.1$ , BODE  $<7$  had a overall survival time of 19.5 and BODE  $>7$  was  $73.2 \pm 8.6$ . In the subgroups with a BODE score  $\geq 7$  and  $<7$ , the 4-year survival was  $57\% \pm 0.18$  and  $57\% \pm 0.08$  respectively.

**Conclusions:** The results of this study showed a significant survival benefit of LTx in our cohort of COPD patients. Patients with BODE  $\geq 7$  will be the ones who benefit the most from the procedure.

**P2450****The use of extracorporeal membrane oxygenation (ECMO) in severe delayed graft dysfunction after lung transplant**

Karthikan Srikanthan, Martin Carby, Andre Simon, Penny Wilton, Allison Bashford, Heike Krueger. *Heart and Lung Transplant Medicine, Royal Brompton & Harefield NHS Trust, Harefield Hospital, London, Middlesex, United Kingdom*

**Introduction:** Delayed graft dysfunction is an uncommon but serious complication in the first few days following successful lung transplantation and is associated with significant mortality. ECMO has been used in initial graft dysfunction with some success, but there have been few studies on its use in delayed graft failure.

**Objectives:** To review the experience of using veno-venous (V-V) ECMO in patients with delayed graft dysfunction at Harefield Hospital from January 2010 to January 2011.

**Methods:** A retrospective review of five cases of severe delayed graft failure requiring V-V ECMO was carried out.

**Results:** Indications for lung transplant were COPD (2 patients), hypersensitivity pneumonitis (2 patients), pulmonary fibrosis and alpha-1 antitrypsin deficiency. Four patients (80%) were eventually discharged from hospital and are currently well with stable lung function and good functional status. One patient (20%) died 112 days after ECMO explantation.

Mean transplant to implantation date was  $11 \pm 9.1$  days. Mean PaO<sub>2</sub>/FiO<sub>2</sub> ratio was  $9.9 \pm 3.8$  kPa on mechanical ventilation. All patients had initial extensive bilateral pulmonary infiltrates on chest radiograph or HRCT scan. Three patients had abnormal radiological changes that persisted after discharge. Mean duration of ECMO support was  $9.2 \pm 2.7$  days. Only one patient had positive microbiology – rhinovirus on viral PCR. Mean length of stay in ITU was  $56.2 \pm 30.0$  days. Mean length of stay in hospital was  $90.8 \pm 25.3$  days.

**Conclusion:** In severe delayed graft dysfunction refractory to mechanical ventilation, a short period of V-V ECMO can be highly effective in supporting patients during recovery of acute lung injury.

**P2451****Validation of a non-invasive CO measurement in an isolated lung model**

Maxime Maignan<sup>1,2</sup>, Irène Ventrillard<sup>3</sup>, Stéphane Gennai<sup>1,2</sup>, Jonathan Zaccharia<sup>3</sup>, Guillaume Debaty<sup>1,2</sup>, Daniele Romanini<sup>3</sup>, Raphaël Briot<sup>1,2</sup>.  
<sup>1</sup>Emergency Medicine, CHU de Grenoble, Grenoble, France; <sup>2</sup>TIMC-IMAG UMR 5525/Equipe PRETA, UJF-Grenoble 1/CNRS, Grenoble, France; <sup>3</sup>Laboratoire Interdisciplinaire de Physique UMR 5588, UJF-Grenoble 1/CNRS, Grenoble, France

**Introduction:** Carbon Monoxide (CO) is a key mediator in ischemic - reperfusion injuries. Its role as a potential diagnostic and therapeutic target in organ transplant is increasing. We tried to validate a new CO measurement on isolated perfused and ventilated lungs.

**Methods:** After euthanasia, swines lungs (n=2,  $19.5 \pm 0.5$  kg) were removed. Trachea was intubated and the pulmonary artery was linked to an extracorporeal membrane oxygenation. Lungs were then progressively ventilated and perfused to a steady state (tidal volume 8ml/kg, respiratory rate 15/min, PEEP 5mmHg and cardiac output 70ml/kg/min). CO measurements were made by Optical-Feedback Cavity-Enhanced Absorption Spectroscopy. This laser based technique allows non-invasive and real time measurements with high sensitivity (0.002ppm). We measured gas taken directly from the end of the trachea. To validate our model, lungs were placed in environments with high (9ppm) or low ( $<0.015$ ppm) CO concentration thanks to mixed gas injection in the ambient air.

**Results:** Initial CO level in ambient air was  $0.272 \pm 0.035$ ppm (mean  $\pm$  SD). Lungs CO peak was obtained during expiratory phase and initial average CO was  $0.429 \pm 0.182$ ppm. After low CO mixed gas injection, CO level in air was  $0.009 \pm 0.002$ ppm while lungs CO remained stable at  $0.437 \pm 0.196$ ppm. In high CO environment, CO in air was  $8.772 \pm 0.044$ ppm and lungs CO was  $0.440 \pm 0.21$ ppm. Standard deviation in lung CO is due to the respiratory cycle.

**P2453****Early development of posterior reversible encephalopathy syndrome post lung transplantation**

Letizia Corinna Morlacchi, Valeria Rossetti, Marta DiPasquale, Giulia Salomoni, Maria Pappalettera, Paolo Tarsia. *Dipartimento ToracoPolmonare e CardioCircolatorio, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milano, Italy*

Tacrolimus is a calcineurin inhibitor and has been proven highly effective in preventing graft rejection after transplantation of solid organs. Its major adverse effects are nephrotoxicity and neurotoxicity: the most severe form of the latter is PRES (Posterior Reversible Encephalopathy Syndrome).

We here describe a case of PRES in a 26-year-old woman, 5 days after she received bilateral lung transplantation for cystic fibrosis. She had been administered tacrolimus since the transplantation was performed. While in ICU, she suddenly developed mental status alterations, acute pulmonary deterioration and hypercapnia, with need of mechanical ventilation. A head CT scan and MR were performed, detecting subcortical white matter lesions and patchy, bilaterally symmetric areas of abnormally increased signal on the T1-weighted images within the cerebellum and the occipital-parietal and frontal regions of the brain; a minor alteration was also present in the thalamus. ADC (i.e. Apparent Diffusion Coefficients) mapping showed wide areas of vasogenic and cytotoxic edema.

Tacrolimus was immediately stopped and cyclosporine was introduced: her symptoms promptly improved.

A MRI was repeated two weeks later, documenting a significant improvement both of the cerebellum and the thalamus.

A follow up MRI was performed two months after the transplantation: prior lesions had almost completely resolved.

She still suffers from minor neuro-cognitive deficits (concerning calculus and short-term memory) and visual disturbances.

This case maybe significant in order to better understand the clinical features of PRES, which may present at a very early stage of tacrolimus regimen and is a generally reversible condition.

**P2454****Lung transplantation in Portugal: 2008-2010 results**

Sofia Granadeiro<sup>1</sup>, Alexandra Borba<sup>1</sup>, Luisa Semedo<sup>1</sup>, Miguel Araujo<sup>1</sup>, Joao Cardoso<sup>1</sup>, Fernando Martelo<sup>2</sup>, Jose Fragata<sup>2</sup>. <sup>1</sup>Pneumology, Hospital Santa Marta, Lisbon, Portugal; <sup>2</sup>Thoracic Surgery, Hospital Santa Marta, Lisbon, Portugal

**Introduction:** Lung transplant is the final therapeutic option for patients with end stage lung disease, to whom no other therapeutic is available.

**Purpose:** Evaluation of a lung transplant center results.

**Material and methods:** The authors reviewed the results of all patients to lung transplantation at the only center in Portugal, between 2008-2010 (after reorganization of the program). Demographic data, diagnosis at referral, time on waiting list and survival at first year were analyzed.

**Results:** Twenty five patients were submitted to a lung transplant (72% male), with a medium age of 43,3 years (range 17 to 63). Ten procedures were bilateral and 15 unilateral. Twelve patients had terminal lung fibrosis, five cystic fibrosis, three COPD, three bronchiectasis and two had silicosis. The average time on waiting list

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was 181 days and 20% of these patients were on mechanical ventilatory support (invasive or non-invasive) at the time of transplantation. Six patients died (5 in the first month after procedure). The 1 year survival rate was 78,4% (Kaplan-Meier curves).

**Conclusion:** After reorganization in 2008, the Portuguese Lung Transplantation program results are comparable to the results published by the International Society of Heart and Lung Transplantation.

**P2455****Characterization of a population referred to a lung transplantation centre in Lisbon**

Sofia Granadeiro<sup>1</sup>, Alexandra Borba<sup>1</sup>, Luisa Semedo<sup>1</sup>, Miguel Araujo<sup>1</sup>, João Cardoso<sup>1</sup>, Fernando Martelo<sup>2</sup>, Jose Fragata<sup>2</sup>. <sup>1</sup>*Pneumology Department, Hospital de Santa Marta, Lisbon, Portugal;* <sup>2</sup>*Thoracic Surgery Department, Hospital de Santa Marta, Lisbon, Portugal*

**Introduction:** Lung transplantation is the therapeutic option for patients with end stage lung disease. An appropriate referral contributes to a better post surgery survival.

**Purpose:** Characterization of the patients referred to the only lung transplantation centre in Portugal.

**Material and method:** The authors evaluated patients referred from January 2008 to December 2010. The following data was determined: demographics, lung disease and evaluation result. Reasons for refusal were also analyzed.

**Results:** A total of 199 patients were referred (61% male), with an medium age of 45,5 years (range 11 to 69). Thirty per cent had the diagnosis of terminal lung fibrosis, 21% COPD, 13% cystic fibrosis, 12% bronchiectasis and the last 23% other diagnosis. After evaluation 24,6% of patients were accepted (49 patients, 25 of which already transplanted and 5 died on waiting list) and 54,3% were refused, most due to severe cardiac impairment or very poor general condition. Of the remaining patients, 9,5% are under current evaluation, 6,5% present a relative contraindication and 5% still don't meet criteria for transplantation.

**Conclusion:** Despite the considerable number of patients referred, only 45,7% were eligible for lung transplant. The important number of patients refused due to medical contraindications should alert the attending physicians for an earlier referral.

**P2456****Effect of BIPAP on diaphragm paralysis after single lung transplantation**

Shadi Shafaghi<sup>1</sup>, Parisa Adimi<sup>2</sup>, Atefeh Fakharian<sup>2</sup>, Amir Hassan Nassiri<sup>3</sup>, Fariba Ghorbani<sup>1</sup>, Seyed Shahabedin Mohammad Makki<sup>1</sup>, Hamid Reza Khoddami Vishteh<sup>1</sup>, Katayoun Najafizadeh<sup>1</sup>. <sup>1</sup>*Lung Transplantation Research Center, National Research Institute of TB and Lung Disease, Masih Daneshvari Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Islamic Republic of Iran;* <sup>2</sup>*Chronic Respiratory Disease Research Center, National Research Institute of TB and Lung Disease, Masih Daneshvari Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Islamic Republic of Iran;* <sup>3</sup>*Department of Internal Medicine, Cardio-Pneumologic Hospital, Lyon, France*

Diaphragm is a chief muscle of inspiration and its unilateral or bilateral paralysis can lead to dyspnea and affect ventilator function. Here, we are reporting management of an emphysematous patient who is undergone single lung transplant and was suffering from diaphragmatic paralysis.

A 53 year old male emphysematous patient was transplanted in 2009 and had no significant complication after transplantation. He was admitted 3 months and 9 months after transplantation due to acute rejection and received corticosteroid pulse therapy which the results were acceptable. 14 months after transplantation an elevated hemi diaphragm on chest x-ray was suggestive of diaphragmatic paralysis which was confirmed by paradoxical upward movement of right hemi diaphragm during fluoroscopic imaging. He had dyspnea with minimal exercise, reduced pulmonary function test (FVC from 63% to 38%) and oxygen saturation fall to 75% in rest without any oxygen supplement. Considering hypoxia and Co2 retention, polysomnography was performed to look for sleep apnea. Patient apnea hypopnea index (AHI) was 17 with 5 hypopnea, 5 central and 7 obstructive sleep events. After titration test, bi-level positive airway pressure apparatus (BIPAP) (PI=15, PE=11, st back up=14) was administered by oronasal mask. Although the authors worried about over expansion of high compliance emphysematous native lung with using BIPAP, pulmonary function test result improved significantly (FVC from 38% to 58%) and oxygen saturation during exercise increased to greater than 88% dramatically without expanding the native lung. We claim that BIPAP could be recommended for management of these patients without any considerable side effects.