Results IL-6 and CRP increased post-operatively peaking at 6hrs and 24hrs respectively however there was no statistically significant difference between the increase for BAL and non-BAL patients ($p>0.05$). There was no significant increase or variation between the groups for IL-2, IL-4, IL-10, TNF-α or IFN-γ ($p>0.05$). eNO tended to decrease in the BAL group and increase in the non-BAL group at 6hrs although there was no significant difference between the groups ($p=0.167$). Post-operative CXR atelectasis developed in 3 patients (2 BAL). One patient in each group developed SIRS.

Conclusion BAL has minimal impact on acute inflammation following bronchoscopy and mediastinoscopy. It may therefore be used to safely and reliably obtain samples for research or microbiology purposes in thoracic surgery patients.

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P112 THERAPEUTIC WHOLE LUNG LAVAGE FOR SILICOSIS – FIRST APPLICATION IN THE UK

doi:10.1136/thoraxjnl-2012-202678.395

[1]B Prudon, [2]R Attanoos, [3]C Morgan, [1]SC Stenton. *[1]Department of Respiratory Medicine, Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK; [2]Department of Histopathology, University Hospital Llandough, Cardiff, UK; [3]Department of Anaesthetics, Royal Brompton & Harefield NHS Trust, London, UK*

Silica is a highly fibrogenic dust and this is reflected in the low amounts of dust found in the lungs of those with fatal silicosis – approximately 3g in total. Despite a low workplace exposure limit for respirable silica, new cases of silicosis continue to be diagnosed. There is no effective pharmacological treatment. In China, whole lung lavage (WLL) has been performed for silicosis with evidence of improved dyspnoea at 6 months. To our knowledge the technique has not previously been attempted in the UK.

We carried out WLL in 2 stonemasons with silicosis. Patient A presented aged 41 in 2007 with MRCP dyspnoea score 3, FVC 3.27L (60% predicted), and radiographic features of extensive silicosis (Category 3R, ILO classification). To determine if mineral could be removed from his lungs, a bronchoscopic lavage was performed using 180ml saline. The lavage fluid contained 4.8g/l of mineral. WLL was then performed with 7L saline on the right, and a month later 12L on the left. Each procedure lasted approximately 1 hour and the patient was discharged without complication within 24 hours. The washings contained 0.66g/l mineral. The total removed was approximately 7.9g, 50% of which was silica, (silica content was determined by transmission electron microscopy with energy dispersive x-ray spectrometry). On review at 6 months there had been no clinical or radiological changes.

Patient B presented aged 31 with MRCP dyspnoea score 2, FVC 3.96L (65% predicted), and radiographic features of silicosis (Category C). A 9L right WLL produced considerably less mineral (0.09g/l: total approximately 0.1gm). 21% was silica.

These cases demonstrate that WLL is acceptable and safe in patients with silicosis in the UK, and that substantial quantities of mineral can be removed from the lungs. It is postulated that reducing the silica burden will slow the rate of disease progression, but there is no evidence in support of that. Evidence will be difficult to adduce given the variable nature of silicosis and its relatively slow rate of progression. In the meantime, we suggest that WLL is considered for younger patients with advanced silicosis.

P113 SECRETED LYSYL OXIDASE IS ELEVATED IN THE BRONCHOALVEOLAR LAVAGE FLUID OF PATIENTS WITH IDIOPATHIC PULMONARY FIBROSIS

doi:10.1136/thoraxjnl-2012-202678.396

[1]CJ Calderwood, [1]MG Jones, [2]L Hoile, [2]T Havelock, [3]TM Maher, [2]KMA O'Reilly, [1]DE Davies. *[1]University of Southampton, Southampton, United Kingdom; [2]Southampton University Hospitals NHS Trust, Southampton, United Kingdom; [3]Royal Brompton Hospital, London, United Kingdom*

Background Idiopathic pulmonary fibrosis (IPF) is a chronic progressive fibrotic lung disease for which there are no effective treatments. As a result the prognosis is poor, with a median survival of 3 years from the onset of symptoms. The key feature of IPF is formation of 'fibroblastic foci', accumulations of highly active, proliferative fibroblasts and myofibroblasts that lay down vast quantities of collagen and other extracellular matrix proteins. Lysyl oxidase (LOX) is a secreted enzyme involved in cross-linking of collagen and implicated in several fibrotic conditions. Increased cross-linking due to LOX upregulation in IPF may contribute to decreased lung compliance. Further, LOX may represent a biomarker that can be used to detect early responses or 'proof-of-mechanism' in clinical trials for new IPF drugs. We hypothesized that levels of LOX protein were higher in bronchoalveolar lavage (BAL) fluid from IPF patients compared to healthy controls.

Methods BAL fluid was collected from patients with IPF or volunteers following ethical approval and informed consent. A quantity of BAL fluid determined to contain 20μg protein was concentrated with Strataclean resin and resuspended in 2x sample buffer. LOX protein content was determined by SDS-PAGE and western blotting followed by densitometry.

Results LOX can be detected in BAL fluid from patients with IPF. Both pro and active forms of the LOX enzyme are significantly elevated in IPF compared to healthy controls, with active LOX detected in 12/25 IPF patients compared to 1/9 healthy controls.

Conclusions There is increasing evidence for a role of LOX in fibrosis. Here we suggest LOX may be involved in IPF pathogenesis, and demonstrate that it is possible to detect secreted LOX in BAL fluid from patients with this condition. LOX may therefore represent a biomarker that could be used in clinical trials for IPF. Further work would be required to validate and optimise assays for clinical use.

P114 PULMONARY FUNCTION PROGRESSION IN LANGERHANS CELL HISTIOCYTOSIS

doi:10.1136/thoraxjnl-2012-202678.397

SR Krivinskas, A Chu, PW Ind. *Imperial College Healthcare Trust, London, England*

Langerhans Cell Histiocytosis (LCH) is a rare, dendritic cell disorder commonly involving the lungs either alone, (PLCH) or as part of multi-system disease (MSLCH). The natural history is variable, ranging from spontaneous resolution to progressive respiratory failure and death. Until recently there were no large follow up series containing lung function data (Tazi A et al, ERJ 2012; 02107–2011).

We retrospectively compared pulmonary function over time in patients with PLCH and in MSLCH with lung involvement from our database of 83 adult LCH patients. 46 patients were male; mean age at diagnosis was 34 (range 16–76) years (y). 9/83 patients, 4 male, mean age 32 y, had PLCH. 21/83 13 male, mean age 28y, had MSLCH with lung involvement.

All PLCH had smoked with mean 14 pack-y. 7 continued smoking after diagnosis. Initial lung function (n=8) at a mean of 1 (–1 to

+3) y post-diagnosis, showed wide variation in spirometric volumes, flows and gas transfer measurements (See table). 1 patient had obstructive, 2 restrictive, 3 mixed patterns, 1 isolated reduction in gas transfer and 2 were normal.

18/21 MSLCH had smoked; mean 12 pack-y. 10 continued smoking after diagnosis. Initial lung function (n=14) at mean 2 (0–12) y post-diagnosis showed slightly less impairment than PLCH but again wide variation.

In PLCH (n=7) at mean follow up of 7 (2–10) y, mean changes in lung function were minor but there was variation; 2 patients deteriorated significantly. 4/9 patients received treatment. To date, 1 has died, 5 are in remission and 3 have active disease.

In MSLCH (n=12) at mean follow up of 7 (1–16) y, mean changes in lung function were minor apart from 2 patients who showed major reductions. 17/21 patients received treatment. To date 3 have died, 12 are in remission and 6 have active disease.

Pulmonary involvement in LCH and impairment of lung function are common in both single and multisystem disease. Changes in lung function over time are very variable with some patients showing marked deterioration and others minor improvement. Lung function determination is important in monitoring all LCH patients with lung involvement.

Abstract P114 Table 1 Pulmonary function values for PLCH and MSLCH

		PLCH	MSLCH
Initial PFT Mean (range) % predicted	FEV1	72 (34–113)	81 (66–105)
	VC	78 (53–114)	86 (66–104)
	TLCO	62 (19–103)	69 (36–108)
At follow up Mean (range) % predicted	FEV1	69 (30–103)	76 (49–101)
	VC	82 (51–109)	87 (70–97)
	TLCO	59 (22–106)	73 (34–105)
Change Mean (range) % change	FEV1	–5 (–17±8)	–8 (–39±12)
	VC	2 (14 ±4)	–2 (19±14)
	TLCO	–9 (–25±0)	1 (–2±45)

P115 INDUCTION IMMUNOSUPPRESSION (IS) WITH ANTITHYMOCYTE GLOBULIN (ATG) FOLLOWED BY MYCOPHENOLIC ACID (MPA) SIGNIFICANTLY REDUCES RISK OF ACUTE CELLULAR REJECTION (ACR) BUT MAY INCREASE THE RISK OF POST-TRANSPLANT LYMPHOPROLIFERATIVE DISEASE (PTLD) POST LUNG TRANSPLANTATION (LTX)

doi:10.1136/thoraxjnl-2012-202678.398

M Al-Aloul, B Al-Skeklley, J Salaie, S Koduri, C Leonard. *Cardiopulmonary Transplant Unit, Wytheshawe Hospital, Manchester, United Kingdom*

Introduction The ideal IS post LTx is unknown and the balance between graft protection against alloimmune injury *vs* the risks of infection and malignancy is a delicate one. Our unit adopted induction immunosuppression with ATG followed by cyclosporin (CyA), MPA and prednisolone maintenance in 2000 with good outcomes. However, a high burden of leucopenia and concern over increasing numbers of PTLD lead to protocol change in August 2010 where *de nevo* azathioprine (AZA) replaced MPA. We now compare short term outcomes of the two strategies.

Methods Two cohorts were compared: cohort 1 (January 2000-July 2010) vs cohort 2 (August 2010-July 2012). ATG 2mg/kg was adminstered on 3 consecutive post operative days. CyA dosing was guided by trough (C0) and peak (C2) levels. Patients were established on MPA 2–3mg daily in divided doses in the first year and AZA titrated to a maximum of 2mg/kg daily as tolerated. We documented the incidence of biopsy proven PTLD and ACR grade ≥A2, correcting for confounders. T-tests, Chi squared, multivariate regression and Kaplan Meier statistics were applied.

Results 181 vs 52 underwent LTx in the 2 study periods. There were no differernces in age (mean 48yrs [11] *vs* 49 [13]; gender (M:F 110:71 *vs* 31:21), type of surgery (Double:Single lung 110:71 *vs* 34:18). Donor age, cause of death and ischaemia time were similar in the 2 cohorts. 169/181 and 3/52 received MPA *vs* 12/181 and 49/52 had AZA respectively. CyA dosing and serum levels did not differ between the 2 cohorts. 29 (16%) and 18 (34%) experienced ACR respectively (P<0.05). 15 patients in cohort 1 developed PTLD (mean age 54 [range 26–63], mean interval from surgery at diagnosis 286 days [73–790], 11/15 developed PTLD in the first post-op year) vs none in cohort 2. Donor:recipient EBV serostatus was similar in the 2 cohorts. Bacterial and fungal infections were documented in 94 *vs* 25 and 41 *vs* 7 respectively. Pseudomonas was isolated from a similar percentage in the 2 groups (59 vs 17). CMV viraemia necessitating pre-emptive therapy with valganciclovir was observed in 56 (32%) vs 10 (19%), P<0.05 despite similar distribution of donor:recipient CMV serostatus.

Conclusion ATG/MPA combination may better protect lung allografts against acute rejection but at the expense of a higher burden of lymphoma and infection. Valganciclovir enhances MPA bioavailability and the high prevalence of CMV activation after ATG/MPA may be a contibutor to our observations. Longer term data, including other malignancies, would further inform this debate.

P116 OUTCOMES OF DCD LUNG OFFERS: A SINGLE CENTRE EXPERIENCE IN THE UK

doi:10.1136/thoraxjnl-2012-202678.399

C Newark, J Parmar, J Dunning, S Tsui. *Papworth Hospital, Cambridge, United Kingdom*

Introduction Lung transplantation is the treatment of choice for a variety of end stage lung diseases. It offers prognostic benefit and an improvement in quality of life for carefully selected patients. There sadly remains a critical shortage of lung donors. One way to increase the donor pool, and potentially the number of lung transplants, is to utilise organs which are Donated following Circulatory Death (DCD). Here we review our experience with DCD offers received during a two-and-a-half year period.

Methods This is a retrospective study using data collected prospectively from all lung offers received between 01/2009 – 09/2011. We look at the proportion of DCD lung offers and track the fate of each of these down to transplantation. We look at the documented reasons for declining all DCD lung offers, the rate of DCD lung transplantation and the survival rate in this cohort.

Results Overall, 80 lung transplants were performed during the study period. 7 were performed using DCDs, therefore, 9% of lung transplants are from DCD donors. Survival rate at 1 year post-DCD lung transplantation is approximately 80%.

233(86%) of DCD lung offers were initially declined. Numerous reasons were documented; the most common reason given (122 donors) was due to evidence of infection. In 37 cases, the donor was unlikely to meet extubation criteria. Interestingly, 42 donors were declined as a result of having no suitable recipient on the transplant waiting list alone.

A large proportion of offers were initially accepted but not used. In 5 cases consent for transplantation was withdrawn from family, 7 cases were declined due to time/logistical factors and 10 donors were declined on inspection from the retrieval team.

Conclusion Despite offering good short term outcomes, a large number of DCD lungs are declined for a variety reasons. Donors declined due to having no suitable recipient could be reduced by increasing the number of patients on the waiting list. Increased public awareness and better communication leading up to donation