

European Respiratory Society Annual Congress 2012

Abstract Number: 3227

Publication Number: P414

Abstract Group: 1.13. Clinical Problems - Other

Keyword 1: Lung function testing **Keyword 2:** Lung growth/development **Keyword 3:** Lung injury

Title: Premature adult lung study (PALS): Spirometry and lung clearance index are impaired in adult survivors of bronchopulmonary dysplasia

Dr. Steven 25309 Caskey s.caskey@qub.ac.uk¹, Ms. Aisling 25310 Gough agough06@qub.ac.uk², Dr. Stephen 25346 Rowan stephen_rowan@hotmail.com¹, Ms. Katherine 25347 O'Neill k.o'Neill@qub.ac.uk¹, Dr. Judy 25348 Bradley j.bradley@qub.ac.uk³, Dr. Michael 25349 Tunney m.tunney@qub.ac.uk⁴, Dr. Chris 25351 Patterson c.patterson@qub.ac.uk⁵, Prof. Stuart 25357 Elborn s.elborn@qub.ac.uk¹, Prof. Mike 25362 Shields m.shields@qub.ac.uk¹, Prof. Henry 25377 Halliday henry_halliday@doctors.org.uk⁶ and Dr. Lorcan 25407 McGarvey l.mcgavey@qub.ac.uk¹. ¹ Centre for Infection and Immunity, Queen's University Belfast, United Kingdom ; ² Nursing and Midwifery Research Unit, Queen's University Belfast, United Kingdom ; ³ Health and Rehab Sciences Research Institute, University of Ulster, Belfast, United Kingdom ; ⁴ Cystic Fibrosis and Airways Research Group, Queen's University Belfast, United Kingdom ; ⁵ Centre for Public Health, Queen's University Belfast, United Kingdom and ⁶ Regional Neonatal Unit, Royal Maternity Hospital, Belfast, United Kingdom .

Body: Introduction: We have previously reported increased respiratory symptoms in adult survivors of bronchopulmonary dysplasia (BPD) compared with very low birth weight (VLBW) (<1500g) and term controls. Here we report preliminary findings from spirometric and Lung Clearance Index (LCI) measurements. Objective: To investigate whether adult survivors of BPD have greater impairment of lung function and LCI than age and gender matched VLBW and term controls. Methods: Spirometry measurements (MicroLab ML3500 Mk8™) were obtained in 16 BPD [8male; mean (SD) age 24.9 (3.9) y], 9 VLBW [Mean (SD) age 25.8 (3.73) y] and 55 term controls [30 male; mean (SD) age 26.0 (4.0) y]. LCI measurements (Innocor™ device) obtained in BPD and VLBW participants were compared to 17 healthy controls [6M, mean (SD) age 30.5 (7.5) y]. Results: For all spirometry end points (FEV₁, FVC, FEV₁/FVC and FEF₂₅₋₇₅), BPD adults had significantly lower values than term controls (p<0.001). Mean FEV₁ and FEV₁/FVC measurements were lower in BPD adults than VLBW (p<0.05). Mean LCI measurements were higher (more impaired) in BPD [mean (SD) 6.99 (0.78)] versus healthy controls [mean (SD) 6.36 (0.362)] (p=0.006). LCI measurements were also higher in BPD than VLBW but this was not statistically significant. Three BPD subjects had entirely normal spirometry but abnormal LCI values (value > healthy control mean +2SD). Conclusions: Our preliminary findings suggest persisting lung function impairment in adult survivors of BPD. LCI may be a useful tool in detecting early small airways disease in adult survivors of preterm birth.