European Respiratory Society
Annual Congress 2012

Abstract Number: 2035

Publication Number: P1495

Abstract Group: 4.3. Pulmonary Circulation and Pulmonary Vascular Disease

Keyword 1: Pulmonary hypertension **Keyword 2:** Gas exchange **Keyword 3:** Surgery

Title: Measurement of gas transfer components using nitric oxide in post pulmonary endartectomy (PEA) chronic thromboembolic hypertension (CTEPH) patients

Mrs. Louise 3259 Harlow louise.harlow@papworth.nhs.uk , Ms. Katrina 3260 Oates katrina.oates@papworth.nhs.uk , Dr. Robert 3261 MacKenzie-Ross robert.mackenzieross@papworth.nhs.uk MD and Dr. Joana 3262 Pepka-Zaba joanna.pepkazaba@papworth.nhs.uk MD . [1] Respiratory Physiology, Papworth Hospital NHS Foundation Trust, Cambridge, United Kingdom, CB3 8RE .

Body: Introduction: Reduced TLCO is frequently observed in CTEPH patients. Previous work has indicated the value of nitric oxide (NO) to differentiate the diffusing membrane capacity (Dm) and capillary blood volume (Vc); the components of TLCO. It has been suggested, that TLNO is a more accurate reflection of Dm, due to greater affinity for haemoglobin and independence from Vc. This study uses new technology to measure Dm and Vc, using NO, in a cohort of post PEA CTEPH patients. The aim of the study is to compare the relative contribution of Dm and Vc to the reduction in TLCO. Methods: We studied 24 CTEPH patients (14male, 10female, mean age 56(+15) post PEA. Full lung function were performed and TLNO and Dm were measured using single breath for NO and CO on a PFTpro system (Viasys). Vc was calculated using the equation 1/DLCO-1/DmCOxqCO=1/Vc. Patients with co-existing parenchymal lung disease were excluded from the study. Correlations between variables were looked at using Pearsons. Results: Both Dm and Vc demonstrated a significant correlation with TLCO. Vc was reduced more than Dm (60%/89% respectively). Conclusions: TLCO is still reduced post PEA, despite successful de-bulking of proximal obstructions and normal TLC and RV. The method used in this study is able to distinguish between the two components of gas transfer. Vc is more affected than the alveolar component Dm. The new technology offers a simple patient friendly procedure allowing measurements of Dm and Vc. This has the potential for improving our understanding of the different components of gas transfer. Further work is warranted in this area.