

European Respiratory Society Annual Congress 2012

Abstract Number: 916

Publication Number: 4703

Abstract Group: 4.1. Clinical physiology and Exercise

Keyword 1: Exercise **Keyword 2:** Interstitial lung disease **Keyword 3:** Pulmonary hypertension

Title: Distinguishing pulmonary hypertension in interstitial lung disease by ventilation and perfusion defects as measured by cardiopulmonary exercise testing

Prof. Dr Matthew 3314 Bartels mnb4@columbia.edu MD ¹, Dr. Wilawan 3315 Thirapatarapon wt2202@columbia.edu ² and Ms. Hilary 3316 Armstrong hfa2104@columbia.edu ¹. ¹ Rehabilitation and Regenerative Medicine, Columbia University, New York, NY, United States, 10032 ; ² Rehabilitation Medicine, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand, 10700 and ³ Division of Pulmonary and Critical Care, Columbia University, New York, NY, United States, 10032 .

Body: Introduction: Pulmonary hypertension (PH) is common in interstitial lung disease (ILD) and is associated with worse prognosis. Comparing ventilation (VD) and perfusion defects (PD) on cardiopulmonary exercise testing (CPET) can detect PH, but has not been assessed in ILD. Aims and Objectives: We proposed using CPET to detect PH in patients with ILD by assessment of VD and PD by mixed expired CO₂ (PeCO₂) and end-tidal CO₂ (PetCO₂). Methods: 75 patients with ILD referred for CPET were included who had pulmonary function tests, right heart catheterization, CPET all done within 4 months of each other. Data were assessed at rest, end of unloaded warm up (WU), ventilatory threshold (VT), and peak exercise (PE) for PeCO₂, PetCO₂, PeCO₂/PetCO₂ and the activity pattern of PeCO₂ versus PetCO₂. Results: ILD patients with PH demonstrated significantly lower PetCO₂ and PeCO₂ at all levels of exercise and low PeCO₂/PetCO₂ only at WU.

VD and PD in CPET in ILD patients

		PetCO ₂ (mmHg)	PeCO ₂ (mmHg)	PetCO ₂ /PetCO ₂
Rest	PH	30.3	16.1	0.54
	No PH	35.7*	18.0*	0.51
WU	PH	29.9	17.9	0.61
	No PH	36.5*	20.7*	0.57*
VT	PH	32.7	19.1	0.61
	No PH	37.2*	22.7*	0.61
PE	PH	28.5	18.5	0.66
	No PH	37.9*	23.3*	0.62

* p<0.05

Activity pattern has marked changes with exercise in ILD patients with PH.

Conclusions: Evaluation of ventilation and perfusion defects by CPET can detect pulmonary hypertension in patients with ILD.