

S97 INFLAMMATORY CYTOKINES ARE ELEVATED IN PATIENTS WITH OPERABLE CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION AND PREDICT OUTCOME POST-ENDARTERECTOMY

doi:10.1136/thx.2010.150938.48

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Rationale Elevated levels of inflammatory cytokines have been reported in patients with idiopathic pulmonary arterial hypertension. The role of inflammation in chronic thromboembolic pulmonary hypertension (CTEPH) is largely unknown. We sought to establish the levels of circulating cytokines in patients with operable CTEPH and to determine if levels fall after pulmonary endarterectomy (PEA), a potentially curative therapy.

Methods Forty-four patients with severe CTEPH suitable for PEA were recruited prospectively. Patients were assessed pre- and 3 months post-PEA with right heart catheterisation, 6 min walk tests and determination of serum levels of interleukins (IL)-1b, 2, 4, 5, 6, 8, 10, 12p70 and 13; TNF- α and IFN γ . Patients deemed at risk for residual CTEPH post-PEA were re-assessed invasively at a year post-PEA. Twenty-one healthy volunteers served as controls.

Results CTEPH patients prior to PEA exhibited significantly raised levels of IL-1b, IL-2, IL-4, IL-8 and IL-10 compared to healthy controls. After PEA, IL-2 levels fell from 1.64 (0.83–3.34) to 1.17 (0.54–1.75) pg/ml ($p=0.049$), while IL-8 fell from 24.46 (13.11–38.25) to 17.44 (10.97–23.14) pg/ml ($p=0.017$). IL-1b and IL-4 remained elevated compared to controls. Pre-PEA levels of IL-6 and IL-8 were predictive of normalisation of PA pressures after PEA. Patients with a pre-PEA IL-6 level of <7 pg/ml had a 62% cumulative probability of having a mean PAP of <25 mm Hg 1 year after surgery, while patients with a pre-PEA IL-6 level of ≥ 7 pg/ml had a cumulative probability of 21% ($p=0.01$). A pre-PEA IL-6 level of ≥ 7 pg/ml had a specificity of 80% and a sensitivity of 59% for identifying a patient at risk of having residual PH post-PEA, with a RR of 1.7 (95% CI 1.1 to 2.6). A pre-PEA IL-8 level of ≥ 30 pg/ml had a specificity of 67% and a sensitivity of 64% for identifying a patient at risk of having residual PH post-PEA, with a RR of 1.7 (95% CI 1.0 to 3.0).

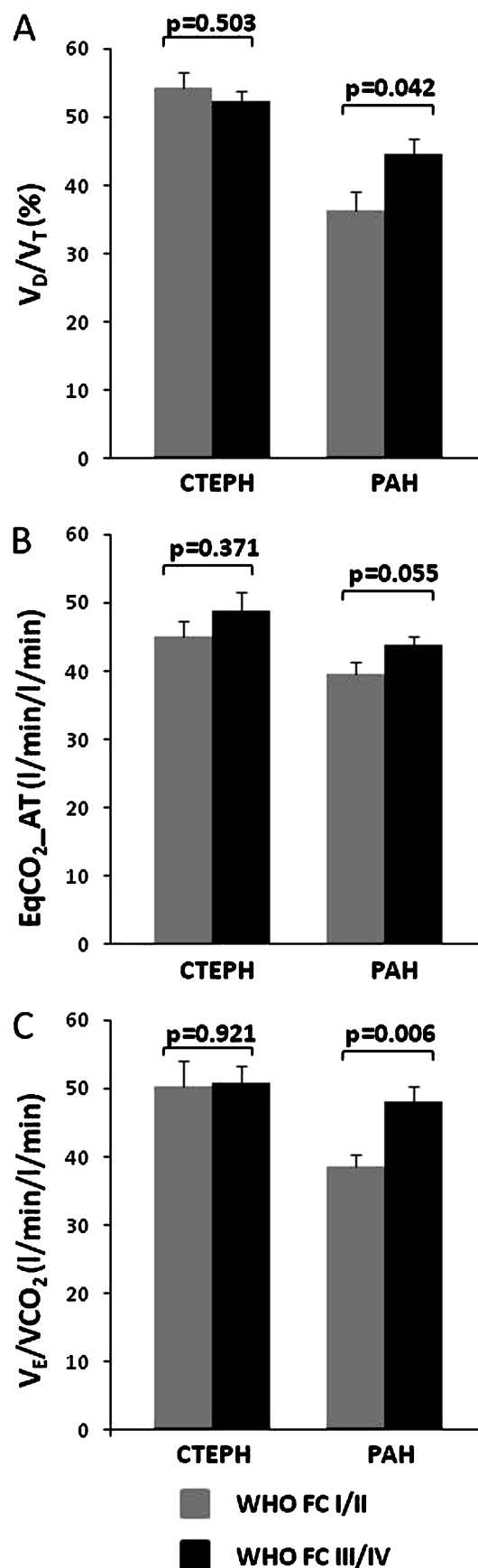
Conclusions CTEPH patients exhibit raised levels of cytokines, suggesting an inflammatory component to disease pathogenesis. Certain cytokines, notably IL-6 and IL-8, may be useful biomarkers to identify patients at risk for developing residual pulmonary hypertension.

S98 VENTILATORY EFFICIENCY IN PULMONARY ARTERIAL HYPERTENSION AND CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION: PHYSIOLOGICAL DIFFERENCES AND IMPLICATIONS FOR DISEASE-SPECIFIC END-POINTS

doi:10.1136/thx.2010.150938.49

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Background Measures of ventilatory efficiency during cardiopulmonary exercise testing (CPX), such as the V_E/V_{CO_2} slope and venti-



Abstract S98 Figure 1