

European Respiratory Society Annual Congress 2013

Abstract Number: 3042

Publication Number: 4838

Abstract Group: 4.3. Pulmonary Circulation and Pulmonary Vascular Disease

Keyword 1: Epidemiology **Keyword 2:** Pulmonary hypertension **Keyword 3:** Lung function testing

Title: Pulmonary function is associated with pulmonary artery systolic pressure in the general population: The Rotterdam study

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Body: **AIM:** Pulmonary hypertension (PH) is a progressive and fatal disease with many different causes one of which is COPD. We aimed to investigate the association of pulmonary arterial systolic pressure (PASP) and FEV1, FVC and FEV1/FVC in the general population. **METHODS:** This study was part of the Rotterdam Study, a prospective population-based cohort study among subjects aged 45 years and over. Spirometry was performed according to ATS/ERS-guidelines. Echocardiographic PASP was estimated following the American Society of Echocardiography guidelines; $PASP = 4 \times \text{tricuspid regurgitation peak velocity}^2 + \text{right atrial pressure (RAP)}$, based on inferior vena cava diameter and inspiratory collapse). All analyses were adjusted for age, sex, smoking, left ventricular function, BMI, and cardiovascular medication use. **RESULTS:** From the most recent cross-sectional examination of the Rotterdam Study, a total of 2,903 individuals had complete assessment of both spirometry and echocardiography (44% males, mean age 75 years). Using a 40 mmHg cut-off, 56 (1.9%) participants had an echocardiographic suspicion PH. Using linear regression per 10% decrease, FEV1 % predicted was associated with a PASP increase of 0.5 mmHg (CI: 0.4; 0.7), similar to FVC % pred (0.5 mmHg, CI: 0.3; 0.7). Lastly, FEV1/FVC showed an association of 1.0 mmHg (CI: 0.6; 1.4) increase. After excluding participants with spirometry defined COPD, the associations persisted. When analysed dichotomously, FEV1 % pred, FVC% pred and FEV1/FVC were associated with an increased risk of PASP over 40 mmHg. **CONCLUSION:** In the general population, pulmonary function shows a clear association with PASP, even in persons free of COPD.