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Title: Atherosclerosis in subjects with COPD is independently determined by the degree of airflow limitation

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Body: Background: Subjects with COPD have an increased cardiovascular risk that may be related to shared risk factors. To date, it is not clear whether this is a consequence of the severity of COPD itself. Objective: We aimed to determine independent predictors of the presence of atherosclerosis in patients with COPD and establish whether and to what extent the degree of airflow obstruction is independently predictive for the degree of atherosclerosis in a model including all traditional cardiovascular risk factors. Method: Pulmonary function, blood gases, packyears, body composition (BMI, FFMI), lipids, glucose, hsCRP, renal function (eGFR) and blood pressure were determined in 197 patients ((mean±SD) age: 64±7 year, 60% male, FEV1: 51±17 % pred., BMI: 26,2±5,2 kg/m^2) with stable COPD prior to pulmonary rehabilitation. Carotid-wall intima–media thickness (c-IMT) was assessed in all patients (mean±SD: 0,93±0,18 mm) as an ultrasonographic surrogate measure of atherosclerosis. Independent predictors of an increased c-IMT were assessed using multivariate backward linear regression. Results:

Independent predictors of an increased c-IMT

	Beta	t-test	p-value
BMI, kg/m2	0,450	6,830	<0.001
Age, years	0,237	3,886	<0,001
FEV1, % predicted	-0,174	-2.865	0,005
Mean blood pressure, mm Hg	0,142	2,330	0,021
Triglycerides, mmol/L	0,143	2,262	0,025

Other variables included in the model: Gender, FFMI, packyears, pCO2, pO2, TLCO%, HDL, LDL, hsCRP, glucose and eGFR.

Conclusion: In addition to traditional cardiovascular risk factors, such as obesity, older age, higher blood pressure and higher fasting triglycerides, atherosclerosis (c-IMT) is independently predicted by increasing

airflow limitation in patients with COPD.