**LEFT VENTRICULAR FAILURE PRODUCES PROFOUND LUNG REMODELING AND PULMONARY HYPERTENSION: HEART FAILURE CAUSES SEVERE LUNG DISEASE**

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Chronic left ventricular failure causes pulmonary congestion with increased lung weight and type-2 pulmonary hypertension. We herein demonstrate that chronic transverse aortic constriction causes massive pulmonary fibrosis and remodeling, and type-2 pulmonary hypertension in mice. Thus, aortic constriction-induced left ventricular dysfunction and increased left ventricular end-diastolic pressure is associated with up to 5.3-fold increase in lung wet weight and dry weight, pulmonary hypertension and right ventricular hypertrophy. Interestingly, the aortic constriction-induced increase in lung weight was not associated with pulmonary edema, but resulted in profound pulmonary remodeling with a dramatic increase in the percentage of fully muscularized lung vessels, marked vascular and lung fibrosis, myofibroblast proliferation, and leukocyte infiltration. The aortic constriction-induced left ventricular dysfunction was also associated with right ventricular hypertrophy, increased right ventricular end-diastolic pressure and right atrial hypertrophy.

The marked lung fibrosis, leukocyte infiltration and pulmonary hypertension in mice after transverse aortic constriction clearly indicate that in this model congestive heart failure also causes severe lung disease. Thus, the effective treatment of left ventricular failure may require additional efforts to reduce lung fibrosis and the inflammatory lung response.