Systemic oxidative stress and endothelial dysfunction is associated with an attenuated acute vascular response to inhaled prostanoid in pulmonary artery hypertension patients

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Background: Systemic endothelial dysfunction and increased oxidative stress have been observed in pulmonary arterial hypertension (PAH). We evaluate whether oxidative stress and endothelial dysfunction are associated with acute pulmonary vascular bed response to an inhaled prostanoid in PAH patients. Methods: Fourteen idiopathic PAH patients and 14 controls were included. Oxidative stress was assessed through plasma malondialdehyde (MDA) levels and xanthine oxidase (XO) and endothelial-bound superoxide dismutase (eSOD) activity. Brachial artery endothelial-dependent flow-mediated vasodilation (FMD) was used to evaluate endothelial function. Hemodynamic

response to inhaled iloprost was assessed with transthoracic echocardiography. Results: PAH patients showed impaired FMD (2.8 ± 0.6 vs. 10.7 ± 0.6%, P <.01), increased MDA levels and XO activity (0.6 ± 0.2 vs. 0.3 ± 0.2 ?M, P <.01 and 0.04 ± 0.01 vs. 0.03 ± 0.01 U/mL, P =.02, respectively) and decreased eSOD activity (235 ± 23 vs. 461 ±