



IMAGING AND DIAGNOSTIC TESTING

ACUTE EFFECTS OF PASSIVE SMOKING ON SYSTOLIC AND DIASTOLIC FUNCTION AND PULMONARY ARTERY STIFFNESS IN HEALTHY VOLUNTEERS

ACC Poster Contributions

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Background: Acute deleterious effects of passive smoking on endothelial function and coronary flow reserve are established. We aimed to evaluate the immediate effects of passive cigarette smoking on left ventricular (LV) systolic and diastolic function and pulmonary artery stiffness (PAS) in healthy volunteers.

Methods: Thirty male nonsmoker subjects (mean age: 26 ± 4 years) were prospectively enrolled. Baseline systolic and diastolic blood pressure, heart rate and carboxyhemoglobin (COHb) levels were obtained and an echocardiographic investigation was performed. All the subjects were then asked to spend 30 minutes in the smoking room. Immediately after passive smoking an echocardiographic examination was performed again. Systolic and diastolic blood pressure, heart rate and COHb levels were reobtained.

Results: Passive smoking had no effect on blood pressure and heart rate. Mean COHb level of the subjects was statistically higher after passive smoking (COHb (%) = 0.52 ± 0.32 vs 0.91 ± 0.32 ; $p < 0.001$). No significant change in LV dimensions and ejection fraction was observed due to passive smoking. Em velocities measured at the mitral lateral annulus by color were statistically decreased after passive smoking (Em: 0.12 ± 0.02 vs 0.11 ± 0.02 ; $p = 0.047$). Pulmonary artery stiffness (PAS) that was calculated echocardiographically increased after passive smoking (PAS (kHz/s): 7.85 ± 3.43 vs 10.45 ± 4.42 ; $p < 0.01$).

Conclusion: Passive smoking has no effect on systolic function but has a subtle effect on diastolic function, which can be demonstrated by color tissue Doppler imaging. However, passive smoking has prominent effect on pulmonary stiffness.