

The impact of smoking status on the endothelial function and left ventricle systolic function in coronary artery disease

Background and objectives: Pulse amplitude tonometry (PAT) is a useful tool for the assessment of endothelial function expressed as reactive hyperemia index (RHI). Smoking is a well-known risk factor for atherosclerosis including coronary artery disease and endothelial dysfunction. The aim of this study was to identify the impact of smoking status on endothelial function and left ventricle (LV) systolic function and to elucidate the association between endothelial function and LV systolic function according to smoking status in coronary artery disease. Subjects and Methods: Data from 92 patients who underwent PAT and percutaneous coronary intervention after coronary angiography were analyzed. Results: RHI values were 1.74 ± 0.46 , 1.62 ± 0.38 and 1.45 ± 0.44 in non-smoker, ex-smoker, and current smoker group, respectively. We could find the statistical difference between non-smoker and current smoker group (1.74 ± 0.46 vs 1.45 ± 0.44 ; $p=0.030$). Also, LVEF values were $65.4\pm 8.8\%$, $61.5\pm 10.9\%$ and $58.4\pm 14.8\%$ in non-smoker, ex-smoker, and current smoker group, respectively. We could find the statistical difference between non-smoker and current smoker group ($65.4\pm 8.8\%$ vs $58.4\pm 14.8\%$; $p=0.040$). In addition, there were no association between RHI and LVEF in non-smoker and ex-smoker group ($r=-0.039$; $p=0.825$; $r=-0.120$; $p=0.455$, respectively). However, in the current smoker group, there was positive relationship between RHI and LVEF ($r=0.674$; $p=0.003$). In other words, the better endothelial function, the better LV systolic function. Conclusions: Current smoking is more likely to give rise to poorer endothelial function and LV systolic function in coronary artery disease. Moreover, current smoking is an influential factor in the relationship between endothelial function and LV systolic function.