Abstract: P6136

Intense daily cigarette smoking accelerates vascular damage of smokers with a moderate cumulative tobacco smoke exposure

Authors:
N Ioakeimidis¹, C Vlachopoulos¹, C Georgakopoulos¹, D Terentes-Printzios¹, I Koutagiar¹, I Dima¹, K Rokkas¹, I Skoumas¹, D Tousoulis¹, ¹National & Kapodistrian University of Athens, First Cardiology Department, Hippokration Hospital - Athens - Greece,

Topic(s): Public Health

Citation:
Purpose: Coronary artery disease death has been associated with increased cigarette smoking intensity. Aim of the study is to investigate the impact of cigarette smoking intensity on vascular function and structure changes among male smokers with similar age at starting smoking and moderate cumulative tobacco smoke exposure.

Methods: Indices of vascular function and structure including carotid-femoral pulse wave velocity (PWV), brachial flow-mediated dilation (bFMD), carotid intima media thickness (cIMT) and microvascular damage (penile vasculature) were measured in 118 smokers consuming up to 1 pack (20 cigarettes)/day and 58 patients smoking >1 pack (20 cigarettes)/day. The two groups had a similar mean cigarette smoking exposure (32 pack/years). Microvascular damage was examined by measuring penile peak systolic velocity (PSV) with a dynamic penile color Doppler ultrasonography after intracavernous injection of prostanglandin E1. Lower PSV values indicate severe penile vascular disease.

Results: The individuals smoking more than 1 pack/day were 10 years younger than smokers consuming up to 1 pack/day, however systolic, diastolic blood pressure, body-mass index, fasting blood glucose levels, lipid profile, C-reactive protein and total testosterone concentration were similar between the two groups. Figure shows mean bFMD, penile PSV, PWV and cIMT of the two groups. Interestingly, despite the similar cumulative smoking exposure between the two groups, the younger in age individuals with the intense cigarette smoking history had significantly lower mean bFMD and penile PSV (all P<0.05) and similar PWV and cIMT compared to the mean values of older subjects smoking up to 1 pack/day. Conclusions: Intense daily smoking accelerates damage of large arteries and significantly impairs microvascular and systemic endothelial function. Considering the predictive value of vascular biomarkers, the findings of this study imply the possibility that baseline daily smoking intensity could be a better summary measure of smoking-related cardiovascular risk among young heavy smokers, relative to total pack-years of smoking.
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