

MP2-7

Carotid Intima Media Thickness and Arterial Stiffness in Smoking and Passive Smoking Children

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Introduction and objectives. Cigarette smoking leads serious health problems furthermore passive smoking is also hazardous. Carotid intima media thickness (CIMT) and arterial stiffness are come into use to identify atherosclerosis risk and an early warning of myocardial infarction and stroke. In our study, Carotid intima media thickness and arterial stiffness in smoking and/or passive smoking group compare with non-smokers to clarify if this parameters are available to use in risk analysis of cardiovascular diseases.

Methods. We reached 2358 adolescents by questionnaires. 802 blood and urine samples from volunteers were collected for serum cholesterols, fasting glucose, insulin and urine cotinine. Participants divided into 3 groups according to questionnaires and cotinine results; smokers (n:103), passive smokers (n:104) and non-smokers (n:102). After carry out the exclusion criterias CIMT by high resolution B-mode ultrasound, osilimetric measurement of pulse wave velocity (PWV) and augmentation index by tonometers were evaluated in 309 participants (mean age: 15.5±1.09) respectively.

Results. There's no statistically significant difference between groups by age, sex, body weight, height, BMI, systolic and diastolic blood pressures. CIMT and arterial stiffness did not differ among age and sex ($p>0.05$). CIMT measurements obtained from both left and right carotis artery, all of the mean, minimum and maximum scale assesements showed CIMT thickens in passive smokers compare to non-smokers ($p<0.05$). There's statistically significant difference in both CIMT and arterial stiffness parameters between smokers and non-smokers ($p<0.001$).

Conclusions. These results indicate ,even in the early ages, smoking is a major risk factor for cardiovascular diseases and passive smoking is as vital as first hand smoking. CIMT measurements and arterial stiffness parameters can be use to estimate subclinical atherosclerosis in childhood.