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Source

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Abstract

BACKGROUND:

Cigarette smoking is a prevalent risk behavior among adolescents and tracks into adulthood. Little is known on the early impact of smoking on the vasculature in adolescence, although smoking is considered highly atherogenic in adults. We investigated the association between active smoking and Carotid artery Intima Media Thickness (CIMT), an early indicator of atherosclerosis.

METHODS AND RESULTS:

The SAPALDIA Youth Study is a nested study involving 356 offspring (8-20 yrs) of the Swiss SAPALDIA cohort who reported on early life, health and lifestyle, smoking habits and disease history. 288 youth underwent clinical examination. Mean average and maximum CIMT were calculated across all images of right and left common carotid. Multi-level linear regression was performed with weekly smoking, daily number of cigarettes and serum cotinine, adjusting for participant's and parental confounders. Valid CIMT data was available in 275 offspring (mean age 15 yrs, 53% girls). Weekly smoking was reported by 10% and current parental smoking by 24%. Individual mean and maximal CIMT averaged to 0.52 mm (sd 0.05) and 0.60 mm (sd. 0.05), respectively. Regression analyses yielded significant increase in average CIMT (mm) in weekly smokers (0.025, 95% CI 0.006; 0.045), per cigarette/day (0.003, 95% CI 0.001; 0.005) and serum cotinine level (0.008/100 µg/l, 95% CI 0.002; 0.015), which remained consistent after adjusting for parental confounders.

CONCLUSION:

Our study yields evidence of an early adverse impact of active tobacco exposure on atherogenesis in adolescents, independent of parental smoking, underlining the public health importance of prevention of adolescent smoking.

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KEYWORDS:

Adolescence, Atherosclerosis, Carotid intima media thickness, Epidemiology,
Risk factors smoking

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