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Coronary Artery Disease, Acute Coronary Syndromes, Acute Cardiac Care –
Coronary Artery Disease: Lifestyle Modification

Role of smoking on body fat distribution and coronary artery disease

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Introduction: Smoking and obesity are recognized as important modifiable risk factors for coronary artery disease (CAD). However, the general perception that smoking protects against obesity is a common reason for starting, and/or not quitting smoking.

Purpose: To detect the quantity, quality and relative distribution of subcutaneous adipose tissue (SAT) and visceral adipose tissue (VAT) estimated by abdominal computed tomography in smokers versus non- smokers.

Methods: The abdominal muscular wall was traced manually to calculate SAT and VAT areas (cm^2) (outside and inside abdominal muscular wall respectively) as well as SAT density [Hounsfield units (HU)] at L4-L5 in 409 consecutive patients referred for evaluation of chest pain by multi-slice computed tomography coronary angiography (MSCT-CA).

Results: 26% of the studied patients (n=107) were current smokers, while the remaining 74% (n=302) never smoked. Coronary artery atherosclerosis was more prevalent in smokers compared to non-smokers (64.5% vs 55.0%; p=0.09). Smokers had statistically significantly lower body mass index (BMI) (31.2±4.3 vs. 32.5±4.7 kg/m^2; p=0.015), hip circumference (HC) (98.6±22.5 vs. 103.9±20.9 cm; p=0.031), total fat area (441.62±166.34 vs. 517.95±169.51cm^2; $p<0.001$), and SAT area (313.07±125.54 vs. 390.93±143.28 cm^2; $p<0.001$) as compared to non-smokers. However, smokers had statistically significantly greater waist-to-hip ratio (0.98±0.08 vs. 0.96±0.08; p=0.010), VAT/SAT area ratio (0.41±0.23 vs. 0.35±0.20; p=0.013), and denser SAT depot (−98.91±7.71 vs. −102.08±6.44 HU; $p<0.001$).

Conclusion: Smoking contributes to CAD and to the pathogenic redistribution of body fat towards VAT, through limiting SAT potential to expand.