

EFFECT OF CIGARETTE SMOKING ON INSULIN RESISTANCE RISK

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Introduction: Smoking is one of the main risk factors for cardiovascular disease (CVD). The mechanism(s) for the effects of smoking on CVD are not clearly understood; however, a number of atherogenic characteristics such as insulin resistance have been reported.

Aims: We aim to investigate the effects of cigarette smoking on insulin resistance and to determine the correlation between this parameter with smoking status characteristics.

Methods: This study was conducted on 138 nonsmokers and 162 smokers aged respectively 35.55 ± 16.03 and 38.47 ± 21.91 years. All subjects are not diabetics. Fasting glucose was determined by enzymatic methods and insulin by chemiluminescence method. Insulin resistance (IR) was estimated using the Homeostasis Model of Assessment equation: $\text{HOMA-IR} = [\text{fasting insulin (mU/L)} \times \text{fasting glucose (mmol/L)}] / 22.5$. IR was defined as the upper quartile of HOMA-IR. Values above 2.5 were taken as abnormal and reflect insulin resistance.

Results and discussion: Compared to non-smokers, smokers had significantly higher levels of fasting glucose, fasting insulin and HOMA-IR index. A statistically significant association was noted between the smoking status parameters, including both the number of cigarettes smoked/day and the duration of smoking, and fasting insulin levels as well for HOMA-IR index.

Among smokers, we noted a positive correlation between HOMA-IR index and both plasma thiocyanates and urinary cotinine.

Conclusion: The findings show that smokers have a high risk to developing an insulin resistant, hyperinsulinaemic, compared with a matched group of non-smokers, and may help to explain the high risk of cardiovascular diseases in smokers.