

Cigarette smoking effects on serum cadmium levels in lung cancer patients

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Abstract

Objectives: The objective of this clinical study was to evaluate the effect of smoking on serum cadmium levels and establish its relation to the development of lung cancer in the Syrian population.

Methods: Three groups were included in the study, comprising of lung cancer patients (n=40) with prior history of smoking, healthy smokers (n=23) and healthy nonsmokers (n=23). Graphite furnace atomic absorption spectrometry was used to detect the cadmium levels in serum. ANOVA test was used for comparison of serum cadmium levels between the groups.

Results: The mean smoking history was 36.6 and 34.8 years in lung cancer patients and healthy smokers respectively. Cadmium levels were higher in lung cancer patients (4.80 ± 5.0 $\mu\text{g/L}$) compared to healthy smokers (2.06 ± 1.04 $\mu\text{g/L}$) and healthy nonsmokers (0.87 ± 0.43 $\mu\text{g/L}$). The difference in cadmium levels between all the groups was statistically significant ($p < 0.05$).

Conclusions: Serum levels of cadmium were higher in smokers compared to non-smokers in this study, which supports the evidence that smoking is major source of cadmium exposure. In addition, the significantly higher level of cadmium in lung cancer patients with substantial smoking history is suggestive of its role in carcinogenesis.