

Smoking and pollution cause an increase in expired carbon monoxide in kiosk workers

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KEY WORDS

Carbon monoxide; atmospheric pollution; smoking

SUMMARY

Background: *The measurement of expired carbon monoxide (CO) is a direct and non-invasive method for the detection of exposure to CO. Objective:* Our aim was to investigate the impact of atmospheric pollution and smoking on expired CO in kiosk workers in Thessaloniki, Greece. **Methods:** *Twenty kiosks were selected in the commercial centre of city. The workers were all men aged 30.5±5.5 years. Measurements of expired CO and environmental CO were carried out twice per day, during two different seasons of the year, summer and winter. Expired CO was measured via a MicroCOMeter equipped with a fuel cell type electrochemical sensor. The CO levels in ambient air were determined using the method of Non-Dispersive Infra-Red analysis. Results:* Ambient CO levels were 2.11±0.64 ppm at h. 17:00 and 3.64±1.45 at h. 21:00 in winter and 1.26±0.17 ppm at h. 17:00 and 1.73±0.22 at h. 21:00 in summer. Expired CO in non-smokers was 3.2±2.7 ppm at h. 17:00 and 4.2±3.2 at h. 21:00 in winter and 1.3±1 ppm at h. 17:00 and 2.2±1.4 at h. 21:00 in summer. In smokers it was 9±5.2 ppm at h. 17:00 and 13.9±7.5 at h. 21:00 in winter and 10±4.8 ppm at h. 17:00 and 18±7 at h. 21:00 in summer. All these differences were statistically significant. The concentrations of expired CO were significantly correlated with the number of the cigarettes smoked. **Conclusions:** *The levels of expired CO in kiosk workers increase mainly due to smoking and to a lesser degree due to environmental pollution.*