

Biol Trace Elem Res

.Sep 23 ۲۰۲۲ .

.doi: 10.1007/s12011-022-03422-0. Online ahead of print

Examining of Heavy Metal Concentrations in Hookah Smokers

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PMID: 36138261 DOI: 10.1007/s12011-022-03422-0

Abstract

Hookah smoking has been spreading around the world, especially among young adults. The current study aimed to investigate the concentration of heavy metals and elements and clinical symptoms in hookah users in comparison with non-users. To the best of our knowledge, the present study represents the first scientific contribution indicating levels of several heavy metals and elements in urine and blood in hookah users and non-users as well as evaluating clinical symptoms. This research was implemented in Iran among 100 males divided into two groups (50/group): control and hookah users. Heavy metal contamination (lead, cadmium, arsenic, thallium, zinc, and copper) in blood and urine samples was assayed by graphite furnace atomic absorption spectrometry (GFAAS). Duration of hookah use was 7.06 ± 4.57 years. The mean \pm SD of lead, arsenic, and thallium concentrations was 3.77 ± 2.22 , 8.50 ± 4.34 , and 4.22 ± 2.69 $\mu\text{g/L}$. The mean levels of blood for lead, arsenic, and urinary thallium in hookah users are significantly higher than the control group ($p < 0.05$). The most frequent clinical symptoms in hookah smokers were constipation and fatigue. Findings from this study might guide the development of policies to regulate hookah smoking and prevent adverse health effects associated with hookah smoking.

Keywords: Blood and urine samples; Graphite furnace atomic absorption spectrometry; Hookah; Tobacco

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