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## Hookah Smoke Exposure Doubles Dangerous Benzene Uptake

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PHILADELPHIA — Hookah smokers and nonsmokers exposed to hookah smoke at social events in hookah lounges had significant increases in uptake of benzene, a substance associated with an increased risk for leukemia, according to a [study](#) published in *Cancer Epidemiology, Biomarkers & Prevention*, a journal of the American Association for Cancer Research.

“Hookah tobacco smoking involves the use of burning charcoal that is needed to heat the hookah tobacco to generate the smoke that the smoker inhales,” said Nada Kassem, DrPH, MS, RN, MCHES, associate director at the Center for Behavioral Epidemiology and Community Health at [San Diego State University](#). “In addition to inhaling toxicants and carcinogens found in the hookah tobacco smoke, hookah smokers and nonsmokers who socialize with hookah smokers also inhale large quantities of charcoal combustion-generated toxic and carcinogenic emissions.”

Urine levels of S-phenylmercapturic acid (SPMA), a metabolite of benzene, were more than fourfold higher in hookah smokers and twofold higher in nonsmokers after attending a hookah-only smoking social event at a hookah lounge. Levels of SPMA were also significantly increased in hookah smokers after attending a hookah-smoking event in a private home.

“Because there is no safe level of exposure to benzene, our results call for interventions to reduce or prevent hookah tobacco use, regulatory actions to limit hookah-related exposure to toxicants including benzene, and include hookah smoking in clean indoor air legislation,” Kassem added.

Kassem and colleagues analyzed the levels of SPMA in the urine of 105 hookah smokers and 103 nonsmokers. They obtained urine samples the morning of and the morning after participants attended a hookah-only smoking event at a hookah lounge or a private home.

Uptake of SPMA in hookah smokers increased 4.2-fold after smoking hookah tobacco at a social event at a hookah lounge and increased 1.9-fold after smoking hookah tobacco in a private home. Additionally,

nonsmokers' uptake of SPMA increased 2.6-fold after attending a social event in a hookah lounge. However, nonsmokers had similar levels of SPMA before and after attending hookah events in a private home. According to Kassem, pre- and postevent levels were similar because nonsmokers' uptake of benzene before the private hookah event was as high as the levels found in nonsmokers after attending the hookah event in hookah lounges, possibly indicating chronic exposure to benzene.

“In contrast to what is believed, hookah tobacco smoking is not a safe alternative to smoking other forms of tobacco,” Kassem said.

The study was supported by the American Cancer Society and Flight Attendant Medical Research Institute. Kassem declares no conflicts of interest.

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