Health Consequences of Tobacco and Nicotine Use

PP047

Biomarker evidence of toxicant exposure in exclusive cigar smokers: Insights from the Population Assessment of Tobacco and Health study Wave 7 (2022–2023)

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BACKGROUND-AIM

Cigar smoking is often perceived as less harmful than cigarette smoking due to assumptions of infrequent use and lower inhalation. However, population-level biomarker evidence for exclusive cigar users, especially by recency remains sparse. Herein, we examined heavy metal and nicotine biomarker concentrations among exclusive cigar smokers versus cigarettes smokers and never tobacco users using data from Wave 7 (2022–2023) of the Population Assessment of Tobacco and Health (PATH) study.

METHODS

We compared geometric mean concentrations of urinary cadmium, lead, and uranium (heavy metals) and cotinine (nicotine metabolite) among exclusive cigar smokers (n=79), exclusive cigarette smokers (n=1192), and never tobacco users (n=691). Smokers were stratified by recency of use (Today versus yesterday/day before). Survey-weighted multiple linear regression tested group differences in unadjusted and covariate-adjusted models.

RESULTS

As compared to cigarette smokers, cigar smokers were predominately male and older (aged ≥55 years), with greater representation of non-Hispanic Blacks and higher cardiovascular disease prevalence (all $p<0.05$). Flavored cigar use was reported by 94% of cigar smokers and cigarillos were most reported, with 41.8% smoking at least one in the past 3 days. Compared with never tobacco users, "today" cigar smokers had significantly higher urinary cadmium (0.30 vs. 0.16 µg/L, $p=0.001$), uranium (0.010 vs. 0.005 µg/L, $p=0.002$), and cotinine (926.46 vs. 0.14 ng/mL, $p<0.0001$). Cadmium and lead levels among cigar smokers were comparable to cigarette smokers (p=ns), whereas uranium

was higher among cigar smokers ($p<0.05$). "yesterday/day before" cigar smokers showed elevated lead (0.30 µg/L) and cotinine (199.4 ng/mL) relative to never users. In adjusted models, both recent-use groups remained significantly higher than never users across all metals and cotinine levels.

CONCLUSIONS

Exclusive cigar use, even on an intermittent basis, results in substantial systemic exposure to toxic metals and nicotine. These findings challenge the perception of cigars as a safer tobacco alternative and support regulatory actions to reduce flavored cigar appeal, enhance product warnings, and include cigars in cessation strategies.

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