PAH exposure in a Ghanaian population at high risk for aflatoxicosis.

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Abstract
It was postulated that a population in sub-Saharan Africa, known to be at high risk for aflatoxicosis due to frequent ingestion of aflatoxin (AF)-contaminated foods could also be exposed to polycyclic aromatic hydrocarbons (PAHs) from a variety of environmental sources. Previously, participants in this population were shown to be highly exposed to AFs, and this exposure was significantly reduced by intervention with NovaSil clay (NS). Objectives of this study were 1) to assess PAH exposure in participants from the AF study using urinary biomarker 1-hydroxypyrene (1-OHP); 2) examine the effect of NS clay and placebo (cellulose) treatment on 1-OHP levels; and 3) determine potential association(s) between AF and PAH exposures. A clinical trial was conducted in 177 Ghanaians who received either NS capsules as high dose or low dose, or placebo (cellulose) for a period of 3 months. At the start and end of the study, urine samples were analyzed for 1-OHP. Of the 279 total samples, 98.9% had detectable levels of 1-OHP. Median 1-OHP excretion in nonsmokers was 0.64 micromol/mol creatinine at baseline and 0.69 micromol/mol creatinine after 3 months. Samples collected at both time points did not show significant differences between placebo and NS-treated groups. There was no linear correlation between 1-OHP and AF-albumin adduct levels. Results show that this population is highly exposed to PAHs (and AFs), that NS and cellulose treatment had no statistically significant
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Effect on 1-OHP levels, and that this urinary biomarker was not linearly related with AF exposure.

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