

Aflatoxin exposure measured by urinary excretion of aflatoxin B1-guanine adduct and hepatitis B virus infection in areas with different liver cancer incidence in Kenya.

Abstract:

Two major etiological agents, hepatitis B virus and aflatoxin B1, are considered to be involved in the induction of liver cancer in Africa. In order to elucidate any synergistic effect of these two agents we conducted a study in various parts of Kenya with different liver cancer incidence in order to establish the rate of exposure to aflatoxin and the prevalence of hepatitis infections. Of all tested individuals 12.6% were positive for aflatoxin exposure as indicated by the urinary excretion of aflatoxin B1-guanine. Assuming no annual and seasonal variation, a regional variation in the exposure was observed. The highest rate of aflatoxin exposure was found in the Western Highlands and Central Province. The incidence of hepatitis infection nationwide as measured by the presence of the surface antigens was 10.6%, but a wide regional variation was observed. A multiplicative and additive regression analysis to investigate if hepatitis and aflatoxin exposure had a synergetic effect in the induction of liver cancer was negative. However, a moderate degree of correlation between the exposure to aflatoxin and liver cancer was observed when the study was limited to certain ethnic groups. The study gives additional support to the hypothesis that aflatoxin is a human liver carcinogen.