Aflatoxin-related immune dysfunction in health and in human immunodeficiency virus disease.

Both aflatoxin and the human immunodeficiency virus (HIV) cause immune suppression and millions of HIV-infected people in developing countries are chronically exposed to aflatoxin in their diets. We investigated the possible interaction of aflatoxin and HIV on immune suppression by comparing immune parameters in 116 HIV positive and 80 aged-matched HIV negative Ghanaians with high (> or =0.91 pmol/mg albumin) and low (<0.91 pmol/mg albumin) aflatoxin B1 albumin adduct (AF-ALB) levels. AF-ALB levels and HIV viral load were measured in plasma and the percentages of leukocyte immunophenotypes and cytokine expression were determined using flow cytometry. The cross-sectional comparisons found that (1) among both HIV positive and negative participants, high AF-ALB was associated with lower perforin expression on CD8+ T-cells (P = .012); (2) HIV positive participants with high AF-ALB had significantly lower percentages of CD4+ T regulatory cells (Tregs; P = .009) and naive CD4+ T cells (P = .029) compared to HIV positive participants with low AF-ALB; and (3) HIV positive participants with high AF-ALB had significantly reduced percentage of B-cells (P = .03) compared to those with low AF-ALB. High AF-ALB appeared to accentuate some HIV associated changes in T-cell phenotypes and in B-cells in HIV positive participants.
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