Socio-demographic determinants of aflatoxin B1-lysine adduct levels among pregnant women in Kumasi, Ghana.

OBJECTIVES: Aflatoxins are fungal metabolites that contaminate staple food crops in many developing countries. Although studies have linked these toxins to adverse birth outcomes and poor infant development, no study has investigated the socio-demographic and economic determinants of aflatoxin levels among pregnant women living in sub-Saharan Africa.

DESIGN: A cross-sectional study was conducted among 785 pregnant women in Kumasi. Aflatoxin B1 lysine adduct levels (AF-ALB) were determined by High Performance Liquid Chromatography. Analysis of variance was used to determine mean log AF-ALB levels and significance of differences in these levels according to socio-demographic variables. Logistic regression was used to identify independent associations of socio-demographics with having AF-ALB levels (≥ 11.34 pg/mg; upper quartile).

RESULTS: AF-ALB levels ranged from 0.44 pg/mg to 268.73 pg/mg albumin with a median level of 5.0 pg/mg. Bivariate analyses indicates that mean ln AF-ALB as well as the percent of women having high AF-ALB levels (≥ 11.34 pg/mg; upper quartile) were inversely associated with indices of higher socioeconomic status: higher education and income, being employed and having a flush toilet. Higher income, being employed, having one child (verses no children) and having a flush toilet (verses no toilet facilities) were each...
independently associated with a 30-40% reduced odds of high AF-ALB levels.

CONCLUSIONS: Additional research is needed to investigate how socio-demographic and economic factors interact to influence aflatoxin ingestion by individuals in regions with high aflatoxin crop contamination. This knowledge can be used to formulate and implement policies that will reduce exposure of women and their unborn children to these toxins.