**Relationship between dietary and serum aflatoxin levels and nutritional status of children of 6-24 months**

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In Chipata and Monze districts of Zambia, most of the mothers/caregivers use cereal-based complementary foods that are prone to aflatoxin contamination. This study aimed at evaluating aflatoxin exposure in children 6-24 months and its effect on their nutritional status. The study covered 400 mothers having children 6-24 months. The nutritional status of children was assessed by measuring weight and height using standard procedures and Height-for-age, weight-for-age and weight-for-height indices were determined using WHO-Anthro software 2006. The children serum samples were analyzed for aflatoxin B1-lysine (AFB-Lys) using high performance liquid chromatography–electrospray tandem quadrupole mass spectrometry (HPLC-ESI-MS/MS), and normalized to serum albumin (Alb+) determined by use of a colorimetric assay on a clinical analyzer. Binary logistic regression analysis was used to find the factors affecting child stunting level. A total of 19.82% of the children were stunted, 9.78% underweight and 2.85% were wasted. The AFB-Lys for children from Chipata children ranged from 0.03 to 6.4 ng/mL and that of Monze ranged from 0.04 to 13.0 ng/mL. The mean level of AFB-Lys of children from Monze was significantly(P=0.05) higher that of Chipata. The Chipata and Monze children showed mean level of Alb+ of 4.14±0.36 g/dL and 4.16±0.34 g/dL respectively. The AFB-Lys (Normalized to Albumin) level was found to range from 0.78 to 202 pg/mg for Chipata children and that of Monze children ranged from 0.92 to 315 pg/mg. Child sickness, child age, exposure to aflatoxin in foods and AFB-Lys (Normalized to Albumin) level were found to be significantly (P < 0.05) associated with child stunting except the child age that was not significant at P=0.05. The increase in the exposure of aflatoxin through consumption of contaminated complementary foods leads to 1.771 times likelihood of the child being stunted (Odd ratio =1.999, P-value =0.0488). However, the children with increase in the blood serum aflatoxin B1 lysine adduct are likelihood to be stunted (Odd ratio=1.301, P-value= 0.0146). These results have shown that dietary exposure to aflatoxin could lead to increase in the serum aflatoxin level and both are associated with stunting.

**Keywords: Aflatoxin, complementary foods, children, dietary exposure, nutritional status**