

Author: Happy Magoha

Topic: The first 1000 days, infant feeding, and early childhood development

Title: Concomitant exposure to aflatoxins and fumonisins of infants under six months of age in Tanzania

Presentation Type: Oral

Introduction:

Dietary exposure to mycotoxins had profound effects on growth of children. Breastfeeding of infants by mothers consuming aflatoxins contaminated foods could expose them to aflatoxins. Furthermore infants who are introduced to weaning foods can also be exposed to aflatoxin and fumonisin through complementary feeding of maize base foods. This study was conducted to determine the mycotoxins contamination levels in infants' food.

Methods:

A total of 143 infants were recruited and three follow up visits were made at the 1st month, 3rd month and 5th month of age. Breast milk samples were collected in each visit and flour samples was also collected once. AFM1 from breast milk and aflatoxin from flour were extracted by immunoaffinity clean up columns specifically designed for those toxins and determination was done using HPLC. Clean up of fumonisin involved the use of SAX columns and analysis was also done by HPLC.

Results:

There is Aflatoxin M1 (AFM1) contamination in all the breast milk samples ranged from 0.01 – 0.55ng/ml, with a median contamination level of 0.08ng/ml for all three visits. The limits for AFM1 0.025ng/ml set by EU for infants' food were exceeded in 90% of the samples. In maize flour Fifty-eight per cent of 67 maize flour samples contained detectable aflatoxins (range 0.33–69.47 µg/kg; median 6 µg/kg) and 31% contained detectable fumonisins (range 48–1224 µg/kg; median 124 µg/kg).

Conclusion:

Reducing aflatoxin and fumonisin contamination of maize and dietary diversification can prevent infants and the public, in general, from exposure to the toxins.