Aflatoxin exposure in utero causes growth faltering in Gambian infants

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Abstract

BACKGROUND:

Growth faltering in West African children has previously been associated with dietary exposure to aflatoxins, particularly upon weaning. However, in animal studies in utero exposure to low levels of aflatoxin also results in growth faltering.

OBJECTIVE:

This study investigated the effect of in utero aflatoxin exposure on infant growth in the first year of life in The Gambia.

METHODS:

Height and weight were measured for 138 infants at birth and at regular monthly intervals for one year. Aflatoxin-albumin (AF-alb) adduct level was measured in maternal blood during pregnancy, in cord blood and in infants at age 16 weeks.

RESULTS:

The geometric mean AF-alb levels were 40.4 pg/mg (range 4.8-260.8 pg/mg), 10.1 pg/mg (range 5.0-189.6 pg/mg) and 8.7 pg/mg (range 5.0-30.2 pg/mg) in maternal, cord and infant blood, respectively. AF-alb in maternal blood was a strong predictor of both weight (P = 0.012) and height (P = 0.044) gain, with lower gain in those with higher exposure. A reduction of maternal AF-alb from 110 pg/mg to 10 pg/mg would lead to a 0.8 kg increase in weight and 2 cm increase in height within the first year of life.

CONCLUSIONS:

This study shows a strong effect of maternal aflatoxin exposure during pregnancy on growth in the first year of life and thus extends earlier observations of an association between aflatoxin exposure during infancy and growth faltering. The findings imply value in targeting intervention strategies at early life exposures.

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