

ABSTRACT

The aim of this study was to determine aflatoxin concentration in breast milk of mothers in urban and rural areas of Thailand. One hundred and twenty-four lactating mothers age range between 16-42 years were investigated. Sixty-four females, were from Bangkok metropolitan and 60 females from Khon Kaen, northeast Thailand. Fifty-five per cent of the females residing in Bangkok came from the northeast of Thailand. Thirty-five per cent of them came from the other regions in the country and only 9 per cent of them were originally from Bangkok. The median duration of residence in Bangkok was five years and for Khon Kaen was 22.5 years. Eighty per cent of the females from Khon Kaen were residents in Khon Kaen and 12 per cent of them came from the provinces nearby.

Socioeconomic status and food consumption were obtained by means of questionnaires. Nutritional status of both groups of mothers assessed by anthropometric measurements namely weight, height, body mass index (BMI) and mid-upper arm circumference were similar. The triceps skinfold thickness of mothers in Bangkok was significantly higher than those of mothers in Khon Kaen. Dietary pattern assessed by 24-hour recall of dietary intake showed that the insufficient micronutrient intakes were the major problems of mothers in Bangkok and Khon Kaen. Calory intake of mothers from Khon Kaen was significant higher than that of mothers from Bangkok. The major calory intake of mothers from Khon Kaen derived from carbohydrate, of which is sticky rice. The major source of carbohydrate of mothers in Bangkok is rice. Mother from Bangkok consumed fat more than mothers from Khon Kaen. Protein consumption of both groups met the Thai and US recommended dietary allowance.

It was found from the data of 24-hour recall for dietary intake of mothers, whose breastmilk were contaminated with aflatoxin, that the high risk food items for aflatoxin contamination were roasted ground chili, garlic, glutineous rice contaminated with aflatoxin in the bamboo container. The risk food items for aflatoxin contamination consumed by mothers in Bangkok may be garlic, vegetable oil and drinking milk.

From this study, it could not found the relationship between aflatoxin concentration in breastmilk and the dietary habits concerning frequency of the intake of some food items which increase the risk of aflatoxin exposure such as peanut (peanut (roasted or fried) and ground roasted peanut of mothers in both areas.

Aflatoxin M₁ (AFM₁) were detected in 10 (15.6%) breastmilk samples of mothers from Bangkok and 14 (23.3%) breastmilk samples of mothers from Khon Kaen. Aflatoxin M₁ was most frequently detected at median concentration of 20 ng/l (range between 5 and 409 ng/l) for mothers from Bangkok, and 23 ng/l (range between 4 and 6,372 ng/l) for mother from Khon Kaen. Aflatoxin M₂ was detected in 2 (3.1%) breastmilk samples for mothers from Bangkok, and 13 (21.7%) breastmilk samples for mothers from Khon Kaen. The median concentration of aflatoxin M₂ (AFM₂) for milk samples of mothers from Bangkok was 10 ng/l (range between 5 and 15 ng/l), and 63 ng/l (range between 4 and 1,140 ng/l) for milk samples of mothers from Khon Kaen. Among these AFM₁ and AFM₂ contaminated milk samples, the mixture of AFM₁ and AFM₂ was shown in 1.6 and 13.3 per cent of breast milk samples from Bangkok and Khon Kaen respectively. This could extrapolate that mothers from Khon Kaen had higher risk of aflatoxin contaminated food consumption than mothers from Bangkok.

The result gained from this study is useful information for futher research work, and also provide the information for the health and nutrition education programme in order to encourage the improvement of post harvesting process and food storage which will effect to the decrease of aflatoxin contamination and may lead to minimize the exposure of aflatoxin through food consumption.