1-

**AFLATOXIN B1 LEVEL IN RELATION TO CHILDREN'S FEEDING & GROWTH**

Aflatoxins are a group of toxins produced in foods contaminated by the molds Aspergillus flavus and Aspergillus parasiticus and have been implicated as causative agent in human hepatic and extrahepatic carcinogenesis. This study was conducted to establish the influence of sociological factors, breast feeding and weaning on aflatoxin exposure in children as well as to determine the effect of aflatoxin exposure on children's growth. Using aflatoxin B1 (AFB1) in blood as a biomarker for exposure to aflatoxin, Thin Layer Chromatography (TLC) was used for the analysis of AFB1 in samples from 46 mothers and their children in a sample of Egyptian population. The mean + SE level of AFB1 of positive children is 66.735 + 16.3757 ppb. While the mean + SE level of AFB1 of mothers of positive children is (68.0131 + 11.5195 ppb. AFB1 level was not affected by child's age, sex, residence whether rural or urban, maternal age, maternal parity, maternal education nor maternal occupation. AFB1 in breastfed patients was significantly lower than in non-breastfed (artificially-fed, cow's milk fed or fully weaned) ones (p= 0.034). Weight z-score (WAZ) showed no significant difference between AFB1 negative and positive case (p= 0.422) while height z-score (HAZ) was significantly lower in AFB1 positive compared to AFB1 negative cases (p= 0.001). A significant negative correlation between AFB1 concentration and their height-z-score (p= 0.001) while correlation between AFB1 concentration and WAZ was non-significant (p= 0.185). In conclusion, this study suggests that breast feeding results in lower AFB1 exposure and that there is a strong association between aflatoxin exposure and impaired growth.

2-

**Sex Determination by the lengths of Metacarpals and Phalanges: X-Ray Study on Egyptian Population**

Measurements of hand bones length have been shown to be sexually dimorphic in many nationalities. The aim of this study is to assess the accuracy of sex determination from the lengths of all metacarpals and phalanges of right and left hands using X ray radiographs and to develop a discriminant formula that can be used in Egyptians. One hundred Egyptians are included in the study (50 males and 50 females) in the period from December 2009 to January 2011 with mean age 31.60 + 9.44. Each is subjected to X ray radiographs on both hands. The results reveal that males have significantly greater mean values than females for all metacarpals and phalanges of both hands and the Egyptian population has greater measurements in comparison to the other ones (e.g. Turkish and European Americans). In addition there is no significant difference between the right and the left hands in either males or females. The correct classification reached an accuracy of 88 % - 94 % by using both hands, while that for right hand only is 88 % and 88 % - 90 % for the left hand only. Regarding the accuracy of each bone, the present results revealed that 1st DP & PP and 3rd and 4th MC in the right and left hands are the best bones that can be used in correct sex determination. It is concluded that the length of metacarpals and phalanges (especially the 1st DP & PP and 3rd and 4th MC) could be used for sex determination. The right hand could be used as the left hand in determination of sex. Also the X ray radiographs are good non invasive and simple tool in the
determination of sex from the hand bones. Furthermore the regression equation for both hands and each hand separately is specific to Egyptian population and should be used cautiously with other ones.

3-

**Chronic Toxicity of Some Heavy Metals and Breast Cancer in Egyptian Females**

Heavy metals as environmental pollutants have been recognized to have a role in induction of malignant human growths. Recently, certain heavy metals showed a close association to breast cancer. This research was conducted to find out the role of some toxic heavy metals (cadmium, iron, copper, lead and zinc) in induction of breast cancer in-vivo. The study was carried out on 100 female patients: 75 with breast cancer (cancerous group) and 25 with benign breast diseases (non-cancerous group). Patients were chosen from those attending to the Oncology Center, Mansoura University. Heavy metals concentrations were measured in the urine and breast tissue samples using inductive coupled plasma (ICP) - spectrometer. The present results showed a significant increase in urine and tissue cadmium concentrations and urine copper concentration in cancerous patients compared to their corresponding non-cancerous ones \((p < 0.05)\). Also, there was a significant reduction in iron concentration of cancerous group compared to their corresponding non-cancerous one \((p < 0.05)\). On the other hand, lead had no significant difference between cancerous and non cancerous groups but it was generally high in the tissue samples while zinc had no significant difference between studied groups. It could be concluded that the present study posits a causal association between cadmium and copper increase with reduction of iron and breast cancer.

4-

**Pesticides Residues in Egyptian Diabetic Children: A Preliminary Study**

Pesticides exposure has been linked with many childhood diseases including endocrine and immune disorders. The aim of the present study is to monitor the toxic levels of pesticides residues in a group of type I diabetic children (TID) in our locality. One hundred and ten Egyptian children; their ages ranged from 1.2 to 10 years were studied. The control group comprised 35 completely healthy children, while the study group included 75 children (newly diagnosed as TID). Children were chosen from those attending to Mansoura University Children Hospital. Blood samples were collected from both groups for detection of pesticides residues. The results reveal that lindane is the most common organochlorine pesticide detected followed by o.p-DDD and p.p-DDE as DDT metabolites; while the most prevalent organophosphate compound is malathion. It could be concluded that Egyptian children have measurable levels of several pesticides residues. Additionally, biomonitoring of these toxicants provide clinical toxicologists and physicians with reference values to be compared with other populations and could be correlated in the future studies with diseases claimed to be due to pesticide exposure especially in children.