DIETARY EXPOSURE TO POTENTIALLY TOXIC TRACE ELEMENTS IN NIGERIA: AN OVERVIEW

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Abstract: Environmental contamination by heavy metals (HMs) seems to be a common place experience in Nigeria especially in the semi-urban and urban centers. Blood lead levels higher than 10µg/dl in “not obviously exposed” adult subjects and in children aged between 2-6 years have been documented. Unfortunately heavy metals are the least considered culprits in poisoning by physicians in Nigeria. Metal analyses of foods are deemed necessary to be able to identify the source of these trace elements, though water and air pollution are often implicated. HMs survey in commonly ingested beverages revealed that Cd levels ranged from 0.003–0.081 mg/L for the canned and 0.006–0.071 mg/L for non-canned beverages. Lead in the canned beverages was 0.002–0.073 and 0.001–0.092 mg/L for the non-canned beverages. Investigation of HMs in paediatric syrups showed “the following alarming findings”Ni in magcid suspension (4.13 mg/l) and gaviron (0.79 mg/l), Cr in Envite (0.58 mg/l), while Ferobin and Jawaron Syrup plus had 28.23 and 4.37 mg/l of Mn. 2.45mg/l Cd was seen in magcid suspension whereas maxiquine contained 0.09mg/l Pb. Elevated levels of Cd, Cr, Fe, Mn, Pb, V and Zn in muscle of some fish species have been reported. The muscle of Tilapia zilli had the highest levels of Ni (6.82 mg/kg) and Pb (0.60 mg/kg). Ethmaliosa timbriata had highest Pb level, i.e., 2.40 mg/kg. Clarias gariepinus had the highest accumulation of the tested HMs in this order of ranking: Fe>Zn>Ni>V>Mn>Cr>Pb>Cd. Spinach (Amanthus hydridus), fluted pumpkin (Telfairia occidentals) and root crop, cocoa yam (Xanthosoma sagittifolium) have been found to contain high levels of HMs which correlated well with amount of these HMs found in the farm land. Other studies also showed high levels of HMs in indigenous and staple foods like cassava, local spices and sea foods. The various sources of contamination may range from soil where the farm produce is cultivated, handling, post harvest technology to water used in the processing of the foods, especially the beverages. It is feared that poverty coupled with environmental pollution could pose serious public health threat. The public health hazards from ingestion of these foods should be identified and disclosed by in-depth risk assessment studies.