IS THE CASSAVA (MAIHOT ESCULENTA) PRODUCT, GARRI, AN AETIOPATHOGENIC FACTOR IN LIMB MALFORMATION?

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Abstract

We investigated the aetiopathological significance of garri a cassava (Manihot esculenta) based food incorporated in the regular diet of 16 mothers whose babies presented in University of Benin Teaching Hospital with varying severe congenital limb malformations. The pattern of these malformations had earlier been documented. The mothers who were from the coastal villages of the Niger-Delta region of Nigeria were predominantly garri makers and virtually subsisted on garri forms for their daily diets, even during pregnancy. Could the Hydrocyanic acid (HCN) content in the garri consumed by these mothers at pregnancy be responsible for the observed limb malformation on their babies? The difference in the garri eating habits (both in quantity and frequency) between the 16 garri making mothers of the patients and age-matched 16 mothers of healthy babies from the same geographical area selected as control, was in the length of time the garri stayed after processing and frying before consumption. Whereas the garri frying mothers prepared their meals often from the garri they processed themselves 1-2 days after frying, the control group prepared their garri meals from garri purchased from the markets. The processed garri gets to market in these areas for sales in the customary 5 – day market cycle, making the market garri at least 5-day old from time of frying. Cyanide level of 1-2 day old garri was determined and compared with levels obtained in subsequent day 5, 10 and 14 of storage. The 24 to 48 hours old garri showed high toxic cyanide level of 81.15mg/kg (estimated toxic level>50mg/kg)
compared today 5 and above which showed drastic reduction of cyanide level down to <31.21mg/kg, (safe Level <50mg/kg) (P <0.01). showing significant difference in their levels. The sustained consumption of garri diet high in HCN levels, by the garri frying mothers, even at pregnancy, could be one probable cause of the malformation observed in their babies. The role of toxic levels of HCN in cassava meals as a probable teratogen is postulated.