PRESENCE OF ORGANOCHLORINE PESTICIDES IN BREAST MILK SAMPLES FROM WOMEN OF BOGOTA, COLOMBIA

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Background and aims: The presence of organochlorine pesticides (OCPs) in biological and environmental samples has been widely studied in many countries around the world because of their environmental persistence and potential toxicological effects. Determining the presence of OCPs on human fluids, including breast milk, has been used to understand general population exposures and potential health risks derived from these substances, and for surveillance purposes. Exposure to OCPs has not been studied systematically in Colombia. Thus, there is very limited information about the magnitude of the problem (i.e., current and historically), and the potential health implications for the Colombian population.

Methods: Fifteen pregnant and/or breastfeeding mothers who met the sampling criteria of the World Health Organization Persistent Organic Pollutant Surveillance Program were randomly selected to voluntarily participate on the study. Breast milk samples were analyzed for 10 OCPs (alpha-, beta-, gamma-, delta-HCH, Heptachlor, alpha-, gamma-Chlordane, 4,4 DDT, 4,4 DDE, 4,4 DDD). The participants answered a questionnaire regarding diet and socioeconomic status. Milk samples were analyzed using liquid-liquid extraction, followed by sulfuric acid clean-up, and quantified using GC/• ECD. Results were confirmed by GC/MS. OCPs concentrations were normalized by gravimetrically quantified sample's fat content.

Results: The most common OCPs found on breast milk samples were (range ng of OCP/g of fat) alpha-HCH (5,5–8,8 ng/g), and 4,4 DDE (51,8–143,8 ng/g). For all the OCPs reported the analytical method percent recoveries were above 80%.

Conclusions: The OCPs concentrations observed were similar or below the levels found over the last 5 years on other countries, except for alpha-HCH (i.e., our results were higher). Despite the small sample size, the DDE/DDT ratio suggests that the use of DDT has been drastically reduced in Colombia.