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Researching chemicals in human milk can be conducted without discouraging breastfeeding

José G. Dórea¹, Suzanne E. Fenton², Judy S. LaKind^{3,4,5}, and Cheston M. Berlin Jr.⁵

¹Faculty of Health Sciences, Universidade de Brasília, 70919-970 Brasília, DF, BRAZIL

²Division of the National Toxicology Program, National Institute of Environmental Health Sciences, NIH, Research Triangle Park, NC, USA

³LaKind Associates, LLC, Catonsville, MD, USA

⁴Department of Epidemiology and Public Health, University of Maryland School of Medicine, Baltimore, MD, USA

⁵Department of Pediatrics, Pennsylvania State University College of Medicine, Milton S. Hershey Medical Center, Hershey, PA USA

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Continued monitoring of environmental chemicals is important for understanding human exposure and potentially related health risk(s). Cinar et al. [1] contribute to our knowledge on infant exposures to environmental chemicals in breast milk. However, the messages implicit both in the title and in the paper itself are unnecessarily alarming and are likely to be interpreted by mothers and health professionals as indicating that breast feeding is generally unsafe in certain regions of Turkey. For example, the conclusion that “*Rural area also may not be safe for breastfeed babies*” is based on an evaluation of 90 women, without regard to differences in their potential exposure patterns; lifestyle, smoking status, occupation, body mass index, or residential history. It is unclear whether these women are in any way representative of rural areas in Turkey, or rural areas in general. Further, the authors do not provide reference values with which to compare the levels of metals that they report, and the values that they report for several metals are 10–1000 times higher than the levels reported in other studies (although it is unclear whether they have reported the levels with correct units; the authors note that the mothers’ levels were lower than recommended levels of 10 microg/L (Hg) and 30 microg/L (Pb) while describing the mothers’ reported levels as being in the low parts per million range [Table 4]). Only under exceptional circumstances including clinical treatment with certain pharmaceuticals or in cases of accidental poisonings have the occurrence of chemicals in breast milk resulted in a recommendation to avoid breastfeeding. Otherwise, studies have shown that breastfeeding

can counter subtle adverse effects associated with in utero maternal exposure to hazardous substances [2]. Numerous studies demonstrate the superiority of breastfeeding in lowering risk of adverse health outcomes when compared to formula-fed infants. thus, the World Health Organization recommends six months of exclusive breastfeeding. Cinar et al. [1] recognized that human milk provides all of the vitamins and essential minerals and trace elements (micronutrients) that are required for the normal development of infants as well as many brain-protective substances. they do not describe the exposures associated with formula-feeding in the regions under study and so the reader has no basis for understanding whether infant exposures to metals would be higher or lower based on the choice of formula over breastfeeding. Further, there is no evidence that formula feeding would attenuate any effects that may occur from fetal exposures [3]. Scientists conducting biomonitoring research using human milk have an obligation to understand the sensitivity of this issue and the impact their information and/or message may have on health professionals and breastfeeding mothers. Indeed, Geraghty et al. [4] highlighted the potential harm from poor reporting methods in breast milk monitoring of environmental chemicals; American women responded that they would immediately wean if told that phthalates were in their milk. It is incumbent on us to strive to contextualize human milk biomonitoring data, constructing a message that puts into perspective both risks of environmental hazards and benefits of breastfeeding. Formula-feeding should never be implied (implicitly or explicitly) as a means to attenuate maternal-infant exposure to environmental chemicals, especially without data to support such a message (5). The otherwise interesting paper of Cinar et al. [1] gives the false impression that milk of Turkish mothers is unsafe and that if the infant is not breastfed, chemical exposures will not occur.

References

1. Cinar N, Ozdemir S, Yucel O, Ucar F. In which regions is breastfeeding safer from the impact of toxic elements from the environment? *Bosn J Basic Med Sci.* 2011; 11:234–239. [PubMed: 22117830]
2. Dórea JG. Maternal smoking and infant feeding: breastfeeding is better and safer. *Matern Child Health J.* 2007; 11:287–291. [PubMed: 17226091]
3. Dórea JG, Donangelo CM. Early (in uterus and infant) exposure to mercury and lead. *Clin Nutr.* 2006; 25:369–376. [PubMed: 16307830]
4. Geraghty SR, Khoury JC, Morrow AL, Lanphear BP. Reporting individual test results of environmental chemicals in breastmilk: potential for premature weaning. *Breastfeed Med.* 2008; 3:207–213. [PubMed: 19086823]
5. LaKind JS, Birnbach N, Borgert CJ, Sonawane BR, Tully MR, Friedman L. Human milk surveillance and research of environmental chemicals: Concepts for consideration in interpreting and presenting study results. *J Toxicol Environ Health A.* 2002; 65:1909–1928. [PubMed: 12470494]