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Title: **Are breastfed newborns more exposed to brominated flame retardants environmental pollutants, than formula fed newborns?**

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Working hypothesis and aims: Israeli pregnant women and their infants are widely exposed to brominated flame retardants (BFRs). Exposure to these compounds is associated with adverse birth outcomes (e.g. shortened gestational length, decreased birth weight and impaired thyroid function). The aims of this study are: 1) to assess body burden of BFRs in Israeli pregnant women and their infants through measurement of these chemicals in diverse biological media, to examine associations between exposure to BFRs and pregnancy complications, and to reveal the influence of women's diet on BFRs levels. 2) To find out whether breastfed newborns are more exposed to brominated flame retardants than formula fed newborns.

Background: The scale and diversity of chemicals in worldwide use today is vast, ranging from pharmaceuticals and food products, to plastics, gasoline, and semiconductor chips. Many of these chemicals are released into the environment, resulting in human exposure. PBDEs (Polybrominated diethyl ethers) are chemical substances used extensively as flame retardants.

Methods: Three hundred and fifty families (mother and newborn) were recruited, at "Assaf Harofeh" and "Sorasky" Medical Centres. Maternal blood and cord blood were collected, as well as meconium and breastmilk. Infants formulas were prepared according to manufacturer instructions. Contaminants were extracted from samples using in-house methods with solid phase extraction. PBDEs were measured using GC-MS.

Results: Forty five breastmilk samples and 40 infant formulas were measured. All breastmilk samples contained PBDEs, higher than reported in Europe but lower than what was found in the USA. Many infant formulas did not contain PBDEs and the levels of PBDEs measured were very low. The difference between PBDEs levels in breastmilk samples and infant formulas were significantly different ($p < 0.0001$).

Conclusions: We suggest that the exposure of infants to PBDEs via breastmilk and infants' formulas is low, though breastmilk samples contained more PBDEs.

Key words: Brominated flame retardants, PBDEs, pregnancy, breast milk, infant formula