

CONCENTRATIONS OF POLYBROMINATED DIPHENYL ETHERS (PBDE) IN BLOOD OF PREGNANT WOMEN IN WESTERN AUSTRALIA

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Background and Aims:

Exposure to brominated flame retardants has become an emerging area of health concern with epidemiological studies reporting neurobehavioural and neurotoxic effects. Research indicates concentrations of PBDE in blood are higher in North America (0.63-46 ng g⁻¹ lipid) than Europe (0.24-2.4 ng g⁻¹ lipid). Limited data are available on Australian levels. Research conducted in Australia on pooled samples ranged from 6.4 to 8 ng g⁻¹ lipid.

The aim of this study was to determine concentrations of PBDEs in blood of pregnant women in Western Australia.

Methods:

Pregnant women, aged 18 years or older, non-smokers, not occupationally exposed to POPs and living in Western Australia (n=119) were recruited between 2008 and 2011 to the Australian Maternal Exposure to Toxic Substances (AMETS) study.

Participants completed a questionnaire on demographic and lifestyle information as well as activities that may increase exposure to PBDEs, for example age of the home, number of televisions and computers, recently bought furniture.

At 38 weeks gestation, participants were asked to provide a blood sample and these were analysed in an accredited laboratory for concentrations of BDE-47, BDE-99, BDE-100, BDE-153 and BDE-154.

STATA11 was used for the statistical analysis.

Results:

The mean age of respondents was 32 years and 42% lived in homes that were less than 10 years old. Households on average had 1.6 televisions and 19.4% of these televisions were a year old or less. Participants had on average 1.8 computers in their homes, 56% of computers were two years old or less. Sixty five percent of respondents had purchased new furniture in the past 12 months. The laboratory analyses of the concentration of PBDEs in blood is in process.

Conclusions:

There are limited data on concentrations of PBDE in pregnant women and this study will provide data on exposure among Australian women, allowing a preliminary assessment of risk.