THE AUTHORS REPLY

We thank Dr. Takser for her comments (1). Dr. Takser presents 2 criticisms of our study (2). Her first is that publishing different findings from the same study in separate reports makes it difficult to piece together the entire picture. While this may be true, it is common practice for virtually all large cohort studies. Epidemiologic studies are complex scientific undertakings requiring careful analysis of individual research questions. It would be impossible to examine the range of hypotheses we are studying in a single paper.

We agree that it is important to view the results as a whole to better formulate a single causal scheme, which is why we discussed our earlier finding of an inverse association of polybrominated diphenyl ether (PBDE) concentrations and thyroid-stimulating hormone levels (3) in our subsequent paper on birth weight (2). We hypothesize that thyroid hormone disruption may be a possible mechanism for the observed association between maternal PBDE levels and birth weight; that is, it is possible that the subclinical hyperthyroidism we see in this population is causing decreased weight gain in both the mother and her fetus. In our data, maternal thyroid-stimulating hormone levels are not associated with birth weight, but maternal free thyroxine levels are ($\beta = -333.0$ g, 95% confidence interval: $-551.5$, $-114.6$).

Dr. Takser’s second concern is that there was uncontrolled confounding in our study. This is always a concern in observational epidemiologic research, but Dr. Takser’s points are not valid examples of confounding that may have biased our results. While it is true that pre-pregnancy body weight was self-reported and possibly inaccurate, it is very rare that...
researchers are able to measure prepregnancy weight; thus, almost all studies are forced to rely on self-reports. However, we have no reason to suspect that the misclassification was differential with respect to PBDE exposure. It is likely that many women, even most women, under-reported their prepregnancy weight, but since this was probably unrelated to PBDE exposure, it is not likely to have biased the results, except possibly by biasing them towards the null.

Similarly, Dr. Takser is concerned that we did not control for other risk factors for low birth weight, including maternal history of being low birth weight, poor maternal diet, maternal infections, environmental tobacco smoke, and physical abuse. While these factors may well be associated with birth weight, we do not expect them to be associated with PBDEs in this population and they do not meet the definition of a confounder. Other factors, such as birth interval or history of preterm birth, should not be controlled for, since they may lie within the causal pathway.

Finally, Dr. Takser states that our earlier finding that maternal PBDE concentrations in serum during pregnancy were associated with subclinical hyperthyroidism (3) is not supported by experimental studies. While it is true that animal studies show associations of PBDEs with hypothyroidism, many studies in humans actually show associations in the opposite direction (4–7), consistent with our study.

ACKNOWLEDGMENTS

The authors’ research was supported by the National Institute of Environmental Health Sciences (grants PO1 ES009605 and RO1 ES015572) and the Environmental Protection Agency (grant RD 83171001).

Conflict of interest: none declared.

REFERENCES


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DOI: 10.1093/aje/kwr502; Advance Access publication January 20, 2012