Letter to the Editor: The Effects of Organophosphate Pesticide Exposure on Hispanic Children’s Cognitive and Behavioral Functioning

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We read with great interest the article “The Effects of Organophosphate Pesticide Exposure on Hispanic Children’s Cognitive and Behavioral Functioning” in the Jan/Feb 2008 issue of Journal of Pediatric Psychology (Sánchez Lizardi, O’Rourke, & Morris, 2008). The authors raise an excellent question regarding the effects of organophosphate (OP) pesticide exposure on the cognitive and behavioral functioning of Hispanic children living in agricultural communities as well as provide a hypothesis for future research.

We did, however, note a few shortcomings. In the attempt to associate OP exposure with cognitive and behavioral deficiency, we question the statement made about Table I—“Demographic Characteristics of the Originally Exposed and Non-exposed Groups,” in which the authors conclude that both had “nearly identical demographic characteristics.” It has been well established that socioeconomic status (SES) has a major, if not the greatest, impact on childhood achievement (Duncan et al., 1994, 1998). In this table, it is shown that the exposed group had an annual income of $10,000–19,999, while the unexposed was $20,000–29,000. Although a statistical significance was not noted for income differences in both groups, the confidence intervals overlap. It is also shown that the father’s and mother’s educational years were both lower in the exposed group. Although the father’s years of education was the only statistically significant characteristic, saying they are “nearly identical” is not forthcoming. Again, level of education of parents is associated with higher cognitive function in children.

We question the validity of a study that was adjusted to contain only a single exposed group after the original control group and exposure group both had detectible levels of the OP metabolite in their urine. The paper can be interpreted as a case-series of children with OP metabolites in their urine, for no true control group is present. Without an OP-free control group, is it possible to state the effects in question are due to the OP and not other influences?

As toxicologists, we very much agree with the dangers of OP pesticides, having seen the life-threatening effects of accidental and intentional poisonings. Future study may reveal that short-term OP pesticide exposure is associated with cognitive and behavioral function, but this study did not reveal that. We feel that the authors’ conclusions that short-term OP pesticide exposure has deleterious effects on multiple aspects of children’s cognitive and behavioral functioning are not supported by their data. We applaud the authors for undertaking this study and look forward to further research in this area.

Conflicts of interest: None declared.
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References