Junk Study Fails at Linking Vaccine Response to Chemicals

By Gil Ross — December 9, 2015

A new report in *Environmental Health Perspectives*, the ever-reliable font of junk science, has outdone itself in straining to link exposures to environmental contaminants to diminished immune responses in infants.

The extra-lengthy (40 pages!) piece, entitled "A Birth Cohort Study of Maternal and Infant Serum PCB-153 and DDE Concentrations and Responses to Infant Tuberculosis Vaccination," was produced by an international group led by Todd A. Jusko, PhD, and colleagues from his University of Rochester Department of Environmental Health, and others from UC-Davis and the eastern Slovakia region where the studies were carried out.

The basic premise is that women and their progeny in that highly-contaminated region of eastern Europe have exposures to chemicals that might reduce their children's capacity to produce antibodies in response to bacille Calmette-Guerin (BCG) vaccination against tuberculosis (TB).

They recruited 516 mother-infant pairs, and assayed blood samples from the mothers-to-be and from their cord blood at their infant's birth, and subsequently at six months of age. All the study infants received the TB vaccine at age four days; the authors assessed the infants' response by measuring their IgG-type antibodies to BCG, and correlating that with their levels of PCBs as well as DDE (a breakdown product of DDT) later.

Their key finding was that among the infants in the highest quartile of PCB levels, a 37 percent lower IgG antibody level against BCG was measured, as compared to those in the lowest quartile of PCB concentration. (The reduction in antibody response as regarding DDE levels was not quite so clear, although still "significant.")

What, if anything, do these findings signify? Well, Dr. Jusko had this to say, as reported by Science Codex: "The significance of the study extends far beyond TB vaccine responses and exposures to these two chemicals. There are thousands of pollutants similar to PCBs and DDT with unknown health implications. Our work provides a foundation for how these types of chemicals affect the developing immune system in infants around the world."

I believe Dr. Jusko is a bit too close to the data to render an objective assessment. To the neutral observer, this study says next-to-nothing about global vaccine responses to BCG or any other
vaccine. Both he and a co-author have been cited as implying, beyond a link, a cause-and-effect relationship between PCB/DDE exposures and reduced vaccine responsiveness, by using the word "caused."

The mere fact that a minimally-reduced antibody response (37 percent is hardly warrants any more substantial descriptor) was seen among infants with higher blood levels of some chemicals does not mean, by any stretch of the imagination, that those particular chemicals actually caused the reduction. What other chemicals or exposures were measured, if any? It violates every precept of sound epidemiology (not to say common sense or "science") to select two chemicals and try to link those to a specific outcome, without considering the myriad other inputs that might have contributed.

To then go on to aggrandize this work as a key finding to explain BCG's well-known unpredictability in preventing TB is nothing less than hubris, or (to say the same thing in another way) promotion of the junk-science, "green" anti-chemical (especially anti-DDT) agenda.

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