Response: Hypertension and Low-Level Lead Exposure in African Americans: A Public Health Reality

The effect of low-level environmental exposure to lead on blood pressure is not only a “fascinating hypothesis” but also a public health reality, especially for those at a socioeconomic disadvantage. Our analysis showed a positive and significant association between blood lead levels and blood pressure in a large representative national sample of African Americans. This association was consistent for systolic and diastolic blood pressure and for African American men and women and in agreement with many previously published reports cited in our manuscript.1 Furthermore, we found that a one-standard-deviation higher level of blood lead was associated with an 8% and 39% higher prevalence of hypertension in African American men and women. We did not find significant inverse associations between blood lead levels and blood pressure as Den Hond et al claimed. Our findings have important public health implications because our study also indicated that African Americans had significantly higher levels of blood lead. Reduced environmental exposure to lead in African Americans might be an important component of the comprehensive strategy to prevent the disproportional burden of hypertension in African Americans.

Nash and colleagues2 also analyzed data from NHANES III and reported that, at levels well below the current US occupational exposure limit guidelines (40 μg/dL), blood lead level is positively associated with both systolic and diastolic blood pressure and risk of hypertension among women aged 40 to 59 years. They concluded that their results provide support for continued efforts to reduce lead levels in the general population, especially women.

We are puzzled that Den Hond et al decided to overlook these associations, holding it as “a matter of faith” that the small effects could not be important even though they were statistically significant and consistent. Interestingly, they chose to disregard significant differences in race-stratified models, attributing these differences to unmeasured factors, rather than accept the potential implications of known racial differences in level of exposure to environmental lead in the United States and possible racial susceptibility differences to the effects of lead. In their meta-analysis, the correspondents admitted to observing racial differences in blood pressure due to blood lead level; however, no data or further elaboration on this subgroup analysis was mentioned, and further, the correspondents did not report, in either of their analyses, the effect of blood lead on hypertension.

We submit that an objective presentation of observed associations contributes to scientific discourse, while selective suppression of such associations, in the belief that they are not biologically significant, does not.

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Hypertension. published online July 28, 2003;

Hypertension is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
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Print ISSN: 0194-911X. Online ISSN: 1524-4563

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://hyper.ahajournals.org/content/early/2003/07/28/01.HYP.0000085860.09080.E2.citation

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