

LETTER TO THE EDITOR

Serum heavy metals and childhood skin diseases

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Editor,

We were very interested in the views of Hon et al. (1) about the relationship between serum heavy metals' concentrations in children with cutaneous manifestations and their conditions. We also agree with their opinion that there is no evidence to suggest that chelation therapy can ameliorate the clinical course of eczema in children with suspected (not proved) exposure to heavy metals. However, we would like to clarify that the serum levels of heavy metals do not accurately reflect the chronic environmental exposure to toxic heavy metals (2). From the data in Table 1 of their article, it appears that two heavy metals – lead (Pb) and mercury (Hg) – were measured in the serum of children instead of whole blood (1). It is well known that the pattern of distribution of lead is elective in red blood cells (more than 90%) (3–5). Studies on mercury disposition have also shown that distributions of mercury levels (both inorganic and organic mercury) between red blood cell (RBC) and plasma are different. In humans, the RBC/plasma ratio are about 1:1 (or 2:1) for inorganic mercury upon exposure to elemental mercury as well as for inorganic mercury compounds, whereas methyl mercury RBC/plasma ratio is 10:1 (6–8). The reasons for this discrepancy are that mercury in RBC is bound to glutathione as well as to hemoglobin (9).

Thus, it would have been important, as well as clinically relevant, if the authors had measured both lead and mercury in fresh whole blood collected from 151 children with skin manifestations (1). In addition, it has been reported that the most important biomarker of exposure to cadmium in humans is elevated cadmium excretion in urine, a useful marker in monitoring environmental exposures to this toxicant (2). So, an association between serum level of cadmium and long-term low-level exposure to daily cadmium is questionable. The cross-sectional study by Hon et al. (1) with regard to a possible association between heavy metal exposures and skin disorders among children by measurements of metals is both interesting and timely. Further research is needed to develop the most favorable screening programs for heavy metal pollutants associated with skin disorders.

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