

- ence of poisons. 6th ed. New York: McGraw Hill; 2001. p. 822–6.
3. Pigatto PD, Brambilla L, Ferrucci SM, Guzzi G. Serum heavy metals and childhood skin diseases. *Pediatr Allergy Immunol.* 2011;22:342.
  4. Schwartz J, Weiss ST. Dietary factors and their relation to respiratory symptoms. The Second National Health and Nutrition Examination Survey. *Am J Epidemiol.* 1990;132: 67–76.
  5. Shaheen SO, Newson RB, Henderson AJ, Emmett PM, Sherriff A, Cooke M, ALSPAC Study Team. Umbilical cord trace elements and minerals and risk of early childhood wheezing and eczema. *Eur Respir J.* 2004;24:292–7.

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doi:10.1016/j.aller.2011.03.001

## Serum heavy metal and antioxidant element levels of children with recurrent wheezing

Dear Editor,

First of all, we would like to thank P.D. Pigatto et al. for their valuable contributions. For antioxidant trace elements and toxic metals, working on the serum may offer information about the current states of the elements, yet working on these elements within tissues (hair, erythrocyte, etc.) may give a much clearer picture about body burden or long-term exposure.<sup>1</sup> On the other hand, if the impaired association between heavy metals and antioxidant elements exists for a long time, this impaired relationship will be expected to be seen in serum samples. In our study, we attempted to show the relationship between heavy metals and antioxidant elements by comparing these samples within the serum for a specific period of time, and our results demonstrated the current relationship between these specimens. It could be better if we worked on the tissues rather than working on these samples in the serum in order to show such conditions, as the fact that this relationship is really problematic for a long period of time, and also being exposed to these heavy metals for a long time or real body burden of these specimens.

Actually, having conducted this pioneering study, we compared the serum antioxidants capacities with antioxidant elements by working on hair samples, and in

parallel to our findings in the serum samples, we have found that the level of hair antioxidant element levels in the children with RW and that of their serum antioxidant capacities are low (this study is in the process of being written at the moment).

## Conflict of interest

There is no financial relationship with a biotechnology and/or pharmaceutical manufacturer that has an interest in the subject matter or materials discussed in the submitted manuscript. None of the authors have no conflicts to disclose.

## Reference

1. Bass DA. Trace element analysis in hair: factors determining accuracy, precision, and reliability-statistical data included. *Altern Med Rev.* 2001;6:472–81.

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doi:10.1016/j.aller.2011.04.004