



Commentary

Letter to editor: Human biological monitoring of mercury for exposure assessment

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To the Editor,

With great interest, we have read the article by Romilda et al. entitled “Human biological monitoring of mercury for exposure assessment” that is published in the journal of AIMS Environmental Science Volume 4, Issue 2, 251–276 [1]. In this article, the authors have reviewed the different human biological monitoring (HBM) approaches for short- and long-term exposure to different chemical forms of mercury. The paper authored by Romilda et al. is a well-structured article which can be considered a significant contribution in this field. However, this commentary addresses another aspect of Hg biomonitoring and human health. Today, growing advances in modern technologies such as telecommunication and the rapid rise in the use of wireless systems have drastically increased the human exposure to different sources of electromagnetic fields (EMFs). Over the past several years, we have shown that dental amalgam fillings exposed to EMFs produced by magnetic resonance imaging (MRI) or those generated by very common sources such as mobile phones and Wi-Fi routers, show higher levels of mercury release from dental amalgam restorations [2,3]. It is worth noting that our experiments were not limited to in-vitro studies (using extracted teeth) [4] and our in-vivo [2,3] studies showed the same findings. Furthermore, it cannot be claimed that in our studies the release of mercury from dental amalgam fillings was under the influence of electromagnetic fields which cannot be extrapolated to in-vivo data from human biomonitoring

(blood, urine, hair). Due to great advances in telecommunication technology and wireless systems, people are now continuously exposed to inescapable manmade electromagnetic fields in the home or workplace.

Findings obtained by other researchers who later studied the microleakage of amalgam further confirmed the results of our early studies which indicated EMF-induced accelerated mercury release [5,6]. Furthermore, moving to the high energy ionizing portion of the wide spectrum of electromagnetic fields, it was shown that x-rays are also capable of increasing the mercury release from dental amalgam fillings [7]. It should be noted that the mercury levels which normally are released from amalgam fillings, even in the EMFs are present, are not high enough to cause toxicity. However, hypersensitive subpopulation, pregnant women and children may be affected by these low levels of mercury. Mortazavi and Mortazavi have recently reviewed these findings [8]. Considering the evidence provided above, the role of modern telecommunication technology and the substantial evidence which shows the role of exposure to EMFs on the release of mercury from dental amalgam restorations should be taken into account in future studies.

Conflict of interest

The authors declare there is no conflict of interest.

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