

Correspondence

Response: Re: Care of Patients Who Are Worried about Mercury Poisoning from Dental Fillings

To the Editor: We appreciate the interest of Drs. Guzzi, Brambilla, and Pigatto in our letter regarding the care of patients who are worried about mercury poisoning from dental fillings. We would like to briefly respond to several points raised by Drs. Guzzi, Brambilla, and Pigatto in their Letter to the Editor. They question why whole blood mercury concentrations were not obtained during the evaluation of our patient. The putative mercury exposure for our patient was chronic exposure to elemental mercury from her dental amalgams. Whole blood mercury concentrations are useful in the evaluation of patients with short-term, high-level mercury exposure but rapidly normalize because of redistribution of mercury to peripheral tissues.¹ Whole blood mercury concentrations are also of use in the evaluation of exposure to organic forms of mercury (eg, methylmercury). Neither of these scenarios applied to our patient. It is well established, in the setting of chronic low-level exposure to metallic or inorganic mercury, that urine mercury concentrations are considered the best determinant of accumulated body burden.¹⁻³ Because of diurnal variations in urine mercury excretion, a 24-hour urine collection is considered most accurate, though in some situations a spot urine collection may be sufficient.³ While stating that there is a correlation between mercury-containing amalgams and whole blood mercury concentrations, Drs. Guzzi, Brambilla, and Pigatto cite an article by Lorscheider et al.⁴ However, that very same article also states, "monitoring blood levels of Hg in humans is a poor indicator of the actual tissue body burden directly attributable to continuous low-dose Hg exposure from amalgam."⁴ Obtaining whole blood mercury concentrations in the setting of chronic low-level exposure to metallic or inorganic mercury simply adds cost without improving diagnostic accuracy.

Drs. Guzzi, Brambilla, and Pigatto also theorize that our patient's wellness physician may have supposed a link between our patient's hypothyroidism and her dental amalgams. Though we cannot comment on the state of mind of that physician, we do not know of any study that has causally linked dental amalgams to hypothyroidism. Drs. Guzzi, Brambilla, and Pigatto refer to an article by Sterzl et al⁵ as suggesting that the thyroid is a target organ of mercury released from mercury amalgam. That article, however, establishes no such connection. Sterzl et al⁵ found, in a select group of patients with mercury hypersensitivity (as demonstrated by a lymphocyte proliferation test) and autoimmune thyroiditis, that the removal of dental amalgams decreased the production of antithyroid autoantibodies.⁵ Their study shows that the removal of an immunogenic stressor in a patient with autoimmune disease results in an

easing of their autoimmune disease. Similarly, eradication of *Helicobacter pylori* infection has been shown to decrease the production of antithyroid autoantibodies in patients with autoimmune thyroiditis.⁶ Rather than conclude that thyroid tissue is a "target organ" of *H. pylori* infection, the more reasonable conclusion is that removal of an immunogenic stressor results in an amelioration of autoimmune disease. The authors themselves conclude that their findings suggest "an immunologic rather than toxicological basis of amalgam-induced side-effects in susceptible patients."⁵

Drs. Guzzi, Brambilla, and Pigatto also suggest the use of patch testing in the evaluation of patients with adverse events potentially related to mercury-containing dental amalgam. We agree with them that patients with stomatitis or oral lichen planus-like lesions adjacent to mercury-containing dental amalgams should have mercury hypersensitivity testing performed and, if positive, may benefit from removal of their amalgam fillings.^{7,8} Similarly, patients with occupational cutaneous exposure to inorganic mercury who go on to develop contact dermatitis may also benefit from testing for mercury hypersensitivity.

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References

1. Risher JF. Elemental mercury and inorganic mercury compounds: human health aspects. Geneva: World Health Organization; 2003.
2. Nuttall KL. Interpreting mercury in blood and urine of individual patients. *Ann Clin Lab Sci* 2004;34:235-50.
3. Kales SN, Goldman RH. Mercury exposure: current concepts, controversies, and a clinic's experience. *J Occup Environ Med* 2002;44:143-54.
4. Lorscheider FL, Vimy MJ, Summers AO. Mercury exposure from "silver" tooth fillings: emerging evidence questions a traditional dental paradigm. *FASEB J* 1995;9:504-8.
5. Sterzl I, Prochazkova J, Hrda P, Matucha P, Bartova J, Stejskal V. Removal of dental amalgam decreases anti-TPO and anti-Tg autoantibodies in patients with autoimmune thyroiditis. *Neuro Endocrinol Lett* 2006;27(Suppl 1):25-30.
6. Bertalot G, Montresor G, Tampieri M, et al. Decrease in thyroid autoantibodies after eradication of *Helicobacter pylori* infection. *Clin Endocrinol* 2004;61:650-2.
7. Veien NK. Stomatitis and systemic dermatitis from mercury in amalgam dental restorations. *Dermatol Clin* 1990;8:157-60.
8. Wong L, Freeman S. Oral lichenoid lesions (OLL) and mercury in amalgam fillings. *Contact Dermatitis* 2003;48:74-9.

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