Editorial: Use and Misuse of Metal Chelation Therapy

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The adjunctive role of metal chelation therapy for patients with acute exposure to large amounts of a variety of metals has long been accepted as playing a role in their care, although the value of chelating small quantities of metal has been appropriately questioned and prioritized below removal from ongoing exposure. The role for chelation in other conditions, such as subacute or chronic lead (Pb) exposure in children (or adults) and its role, or even the validity of a diagnosis of chronic metal toxicity, or a number of other entities attributed to chronic low-level exposure to a variety of other elements, is much more controversial. This is not just an esoteric question, as it has been estimated that nearly 200,000 people are chelated on multiple occasions annually throughout the USA [1]. As you read the articles in this issue regarding the use and misuse of metal chelation, notice that the range of estimated use is very broad among different groups, at least partially attributable to marketing and difficulty with regulation of non-prescription pharmaceuticals. Many of these treatments are performed by practitioners with a world view best described as “if it exists and has been described as harmful in some large

amount, then getting rid of any amount will make you better.” While some doubtless sincerely believe this tautology, the prevalence of fraudulent testing and misdiagnosis is of great concern to American College of Medical Toxicology (ACMT) and public health entities. The basic premise that toxicity is a dose-related phenomenon involving the interaction of the toxin, host, and environment is still a foundational principle in toxicology.

It is illogical to argue at the same time that the consequences of exposure to heavy metals are so great as to “threaten a generation” while at the same time arguing that the changes are too subtle to be identified. Combined with warnings in the articles of this issue about misapplying lab results and using non-appropriate control values, a number of “red flags” can be identified, raising concern about misuse of testing and treatment for metal exposure or toxicity.

Some practitioners who provide post-provocation testing and chelation therapy for the erroneous diagnosis of chronic metal poisoning may just be ignorant of the problems with testing and treatment as outlined in the proceedings of the ACMT symposium and summarized in the papers of this issue. Others derive significant profit from the practice. For ethical providers attempting to address patient concerns and provide appropriate diagnoses and treatment, decisions about heavy metal exposures require attention to the following:

- patient clinical presentation and differential diagnosis;
- patient preparation for laboratory testing, including attention to diet and supplement intake;
- appropriate selection of biologic matrix for testing;
- assessment of the role of implanted devices (amalgam, prostheses) in altering test results; and
- appropriateness of reference/comparison groups.

All of these factors impact the interpretation of clinical and laboratory results. To assist in this process, the ACMT has provided a practice guideline and previously published an

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editorial addressing some of these issues [2, 3]. Another toxicology organization, the American Academy of Clinical Toxicology (AACT), has also published guidance for the public in conjunction with the Pediatric Environmental Health Specialty Units (PEHSU) [4]. A guideline in development by the ACMT and the American College of Occupational and Environmental Medicine (ACOEM) should also assist in this challenging area.

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