

PRASIDA AYURVEDA CLINIC

AYURVEDA MEDICINES AND HEAVY METALS

An Ayurvedic approach to the issue by *Ayurvedacharyas* - Dr CM Pradyumna B.A.M.S; and Dr Mrs Sabitha Pradyumna B.A.M.S

Based on research findings the American Medical Association Journal (JAMA) has made news in the media and on the internet asking people to exercise caution over the use of herbal medicines. **The Telegraph** Calcutta India published an article under the title “*Slur on Herbal dirty dozen*” on 16th Dec 2004pg:5 col 1 with a superfluous warning too. The **JAMA** study seems to be unbiased and they have accepted very clearly that their study has limitations and so cannot be generalized because of the following observations –

Statistical data about the number of people on Ayurvedic medicines	0.8 billion in India and 7,50,000 in the U.S.A
Number of cases of herbal medicine related heavy metal toxicity.	55 cases in 24 years
Whether these patients have taken medicines by prescription from a qualified Ayurveda practitioner or were they on a strict dietetic regimen.	Not known
Number of individual Ayurveda medicines	6000 approximately
Percentage of medicines actually containing metals and minerals in processed form.	20 % approximately
Can the presence of heavy metal mean that it can create toxicity?	Uncertain
Do these compounds really get absorbed into the blood stream?	Unknown
Do plants have heavy metals in them by nature?	Uncertain

Further the ambiguity is deepened by these facts

- Uncertainty over source of heavy metals in the samples whether they are added intentionally, incidentally or whether they are already present in the raw herbs naturally.
- They are not very clear about which of those medicines are likely to produce toxicity clinically and when taken for how long and at what dosage, whether or not supported by strict dietetics.
- Inability to ascertain the metals’ chemical forms, which can impact bio-availability and toxicity.

The pharmacological section of Ayurvedic system of medicine recognizes 3 major sources of medicine, those of herbal origin (ex: herbs), mineral origin (ex: salt, metals like gold, silver, iron etc) and animal origin (ex milk, honey etc). Kashtausadha (purely herbal) and Rasaushadha (herbo-mineral/metallic) are the 2 main groups of medicines. The former is devoid of any metals or minerals and is purely a herbal product and can be considered as the safest of medicines and this class of medicines are used more frequently and up to 80% of prescription medicines consist of Kashtausadhas, and the latter (rasaushadha) contains metals and minerals in the form of Bhasmas or compounds which are considered as potent medicines in Ayurvedic pharmacology that have to be used with utmost caution. In India it is a long standing practice that very large iron vessels used for cooking / food processing are given a coating of lead, tin or similar alloys quite frequently, it can be a possibility that any presence of metallic lead is from the scraped base of these coated vessels. But what it does not explain is the fact that such alloy coated vessels have been in use in India since thousands of years and if it were to be toxic, can such a large scale heavy metal toxicity go unreported ?

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Bhasmas are that form of metals which have undergone stringent processing and incineration and reduced to finest ash (Bhasma). Studies have revealed that these metals lose their chemical identity after they are made into the Bhasmas, and this quality control measure in Ayurveda is technically termed as **Apanurbhava**, meaning the metal or mineral has undergone a permanent and irreversible change both physically and chemically. For example loha bhasma (iron ash) prepared as per prescribed procedures is chemically not identical with iron (ferrous / ferric compounds) the same holds good for other metals and minerals. One more fact is that people who are known allergic to these metals / minerals have no symptoms of allergy whatsoever to Ayurvedic medicines containing them in a processed form.

Recent research findings show that Gold Nano particles have an extremely high therapeutic value. <http://www.sciencedaily.com/releases/2013/05/130521105059.htm> Another reference from Bhabha Atomic Research Centre BARC, INDIA declares that Bhasmas are the oldest form of Nanotechnology - <http://timesofindia.indiatimes.com/city/surat/-Ayurvedic-bhasma-oldest-form-of-nanotechnology-BARC-prof/articleshow/5328134.cms?>

American medical Association's inability to ascertain the metals' chemical forms, which can impact bio-availability and toxicity, makes it clear that just the detection of heavy metal content in the medicine samples need not necessarily translate into heavy metal related toxicity symptoms clinically. **Karela** capsule produced by The Himalaya Drug Company is supposed to contain only a standardized powder of the harmless bitter gourd, so traces of lead 7 micrograms per gram, though very close to the recommended daily allowance, the content of lead may be a naturally occurring phenomenon in plants and the same holds good for similar related medicines like **Bala Gutti** manufactured by Zandu.

Today because of adaptability of Ayurveda with the principles of modern sciences we have been successful in generating a lot of research by clinically evaluating the efficiency and benefits of these medicines when taken under the supervision of Ayurveda doctors at quality health care institutions. Ayurveda clearly has recognized and established all the symptoms of Heavy metal toxicity at least 3000 years ago, and has advocated stringent standards to use the metals therapeutically only after eliminating its toxic effects by processing. Still as a support system, Ayurveda prescribes a strict **Pathya** - A scientifically valid dietary regimen customized according to the person, intensity of the disease and nature of medicine in such a way that there is absolutely no adverse effect from the prescribed medicine.

55 people being affected in 24 years and with nearly a billion users makes this AMA Journal report of poor relevance, and seemingly not a valid allegation on Ayurveda; a system of medicine that has been perpetually helping billions of people since the dawn of civilization. But my advice as a responsible Ayurveda Doctor is that people need to consult a qualified Ayurveda practitioner before they start taking any of the medicines. This is as simple as what you do when you need any medical attention from the conventional system of Allopathic medicine. All that is labeled herbal need not be Ayurvedic and not all herbs are safe, for example opium is a herb and when misused shows disastrous effects. Every one should realize that medicines are not to be underestimated as OTC (over the counter sale) products. A qualified practitioner knows best about what medicines to use when and how because there is seemingly no difference between food, medicine and poison, they can play each others' roles, so it only depends on the dosage and intention behind using them.

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For reference -

The Original article by JAMA -

<http://jama.jamanetwork.com/article.aspx?articleid=1108395#COMMENT>

Comment

ABSTRACT | METHODS | RESULTS | COMMENT | ARTICLE INFORMATION | REFERENCES

Ayurvedic HMPs containing heavy metals are readily available in most of the South Asian grocery stores in Boston, recommended for adults and children, and relatively inexpensive. One of 5 available Ayurvedic HMPs contained lead, mercury, and/or arsenic. Taken as recommended, each of the 14 heavy metal-containing HMPs we identified may result in heavy metal intake above regulatory standards.

Our data are consistent with studies of Ayurvedic HMPs sold outside the United States and herbal remedies from other indigenous healing traditions. In England, 30% of Ayurvedic HMPs sampled contained lead, mercury, or arsenic.¹⁷ Of 22 Ayurvedic HMPs purchased in India, 64% contained lead and mercury, and 41% contained arsenic.¹⁶ Traditional medicines from China,¹⁸ Malaysia,²⁸ Mexico,²⁹ Africa,³⁰ and the Middle East³¹ have also been shown to contain heavy metals. Two lines of evidence suggest our sample of HMPs has unacceptably high heavy metal content. First, metal concentrations in our specimens correlate with concentrations associated with both toxic blood concentrations and symptomatic poisoning in previously reported cases. The lead concentrations we observed overlapped with those associated with toxicity in a recent US case series (range, 21-96 000 µg/g)⁵ and in patients from Croatia (range, 0.90-72 990 µg/g).¹⁵ Specific HMPs containing heavy metals in our sample (eg, Mahayograj Guggulu) have been associated with serious toxicity in case reports.^{5,9} Arsenic poisoning was described in 47 children and adults in Singapore using a Chinese HMP with 12 000 µg/g of arsenic.³² Second, epidemiological evidence of insidious adverse effects (eg, decreased childhood IQ,³³ increased blood pressure,³⁴ progression of chronic renal insufficiency³⁵) from low levels of lead exposure previously thought to be acceptable suggests that even HMPs with relatively lower levels of lead (<100 µg/g) may be deleterious.

Ayurvedic theory attributes important therapeutic roles to metals such as mercury and lead.^{2,36} Ayurveda experts estimate that 35% to 40% of the approximately 6000 medicines in the Ayurvedic formulary intentionally contain at least 1 metal.² Metal-containing HMPs are purportedly “detoxified” through multiple heating/cooling cycles and the addition of specific herbs.³⁶ Whether the heavy metals in our sample were already present in raw plant materials³⁷ or intentionally or incidentally added in the manufacturing process is uncertain.

Our study has several limitations. First, increased concentrations of lead of more than 5000 µg/g or of mercury of more than 15 000 µg/g could theoretically produce spectral interference and falsely increase the results for other metals. To assess this, we tested samples of metal salts at high concentrations and found negligible spectral interference with other metals of interest. We also analyzed diluted HMP samples and found similar results to the original data.

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In addition, the spectra of nontarget elements present in the HMPs (eg, sulfur, calcium, iron, copper) were found not to interfere with the spectra of lead, mercury, or arsenic. Second, we were not able to ascertain the metals' chemical forms, which can impact bioavailability and toxicity, especially in the case of mercury.³⁸ Finally, our data were limited to 70 Ayurvedic HMPs manufactured in South Asia and found in Boston-area stores. Whether these findings can be generalized to those HMPs sold elsewhere in the United States requires further study.

Despite these limitations, the presence of heavy metals in Ayurvedic HMPs and the numerous reports of associated toxicity may have important public health, clinical, and policy implications in the United States and abroad. Although the prevalence of heavy metal-containing Ayurvedic HMP use is unknown, the number of individuals at potential risk is substantial. Recent analysis of the US National Health Interview Survey 2002 Alternative Medicine Supplement estimates 750 000 adults consulted an Ayurvedic practitioner in the past.³⁹ In India, an estimated 80% of the population uses Ayurveda.² Epidemiological studies of Ayurvedic HMP use and heavy metal toxicity in the United States and abroad are therefore warranted. Public health and community organizations should consider issuing advisories to current or previous Ayurvedic HMP users, encouraging them to consult their physicians about heavy metal screening. Use of specific heavy metal-containing HMPs in our study should be discouraged. Physicians should also consider Ayurvedic HMP intake in the differential diagnosis of unexplained heavy metal toxicity. Current US law stipulates that regulations governing dietary supplements produced and sold domestically (DSHEA) should also be applied to dietary supplements imported into the United States.⁴⁰ Our findings support calls for reform of DSHEA that would require mandatory testing of all imported dietary supplements for toxic heavy metals.
